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**Edited by:** The Journal Board of Aussie–Sino Studies

**Editor-in-Chief:** Dr Dacheng Zhao

**Address:** 30 Casuarina CCT, Kingswood, NSW, 2747, Australia

**Email:** [assuws@163.com](mailto:assuws@163.com); [aussiesinostudies@gmail.com](mailto:aussiesinostudies@gmail.com)

**Website:** <http://www.assuws.com>

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# An analysis of Effect of Economic Slowdown on International Trade and Growth of SAARC

*Sonia Anand Dhir*

(Institute of Management Studies Noida, India)

**Abstract:** Four questions arise in the above context. What is recovery? Recovery from what? How to recover? What is the recovery path? Recovery refers to breaking away from the vicious grip of a crisis, serious economic slowdown or demand recession in international / national markets. Recovery requires either an external shock or indigenous big bang inducement to make the declining economy onto the normal growth path. Globalization has resulted in a high degree of integration of commodity, finance/money, capital and foreign exchange markets, transforming world economy into a whirlpool of national and sectoral inter dependencies. The close integration of the economies has made them greatly sensitive to exogenous changes. As the developed market economies experience different phases of business cycles, the world economy goes through down slide and upward movement periodically as even a small change in developed economies affects the world economy. This includes the regional trade as well. Trade is bidirectionally related to the economy and its growth. Demand recession in national markets affects the demand for imports from and exports to other countries adversely. This paper seeks to examine the effect of 2007-08 worldwide economic slow-down on the trade of SAARC. It evaluates mutual interdependence of growth and trade. Econometric Distributed lag models and non parametric tools are used for data analysis.

**Key words:** economic recession, international trade, economic growth, emerging markets

## 1. Introduction

Quesney envisaged the national economies to be a whirlpool of inter dependencies; just as blood flows from toe to head and head to toe, goods produced in the economy and money flow between the sectors. The concept of interdependencies between agriculture, industry and trade, conceived by Physiocrats, was extended further by material balances approach Gos Authority of USSR for planning development of soviet economy. However, this concept of inter dependence has been given a much more concrete and quantifiable shape and structure by Leontief in his Input Output model (Prakash, Shri, 2008). Globalization has resulted in the integration of national into world economy and extended the concept of sectoral into national inter dependencies. Trade in goods and services, investment, money and financial flows constitute the centre of these inter dependencies. Globalization has resulted in a high degree of integration of commodity, finance/money, capital foreign exchange and technology markets, transforming world economy into a whirlpool of international and sectoral inter dependencies. The close integration of the economies has made them greatly sensitive to exogenous changes in any sector of any national economy. Effects of these changes may either be beneficial or

adverse in nature. As the developed market economies experience different phases of business cycles, the world economy goes through down slide and upward movement periodically as even a small change in developed economies affects the world economy, including the economies of developing and emerging market economies. This includes the national as well as regional trade. Traditionally trade is hypothesized to be guided by factor endowments of trade partners. However, the process of economic growth in developing countries has generally been set in motion by the attempts to transform agrarian into industrial economies which results in the change of composition and direction of trade. The process is further accentuated in such countries as used imports substitution strategy of growth. Several developing economies like the Indian and Tanzanian ones which focused on planned development of basic and heavy goods industries during the era of planning: basic and heavy goods industries produce capital goods resulting in the mitigation of capital scarcity to some extent. This process results in the changes in economic structure and factor endowments which in its turn influences structure of trade to some extent (refer, Prakash Shri, Anand Sonia 2010, 2012). This process of change in factor endowment and economic structure has been greatly accentuated by globalization. Since developed countries outsource the production of manufactures to the developing countries;

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**Author:** Dr Sonia Anand Dhir, Assistant Professor, IMS Noida, Noida. Email: soniadhir@gmail.com

obviously manufactures are relatively more capital intensive than agriculture. Case of Chinese economy may be cited to support this proposition. Besides, the pressure exerted by IMF, World Bank for reforming services especially financial markets of developing economies have resulted in service exports. This accentuated the dominance of tertiary over secondary and primary sectors in economies like India. Incidentally focus on the development of heavy and basic goods industries like steel machine building industries and the like nearer the centers of raw materials. These sectors were earlier the hinterlands of backwardness so establishment of such industries in backward regions of developing economies warranted the construction of roads, railroads, banking, transport and communication to integrate such production centers into national markets. This resulted in the transgression of traditional wisdom of transferring resources first from primary to secondary and at mature stage of growth transferring resources to tertiary sectors. This resulted in tertiary dominated model of growth in economies like the Indian one. This is the context of examination of the pattern of trade of SAARC before and after economic slowdown of 2007-08. One may expect a tertiary dominated economy to be the hub of services export. However, the efficiency and productivity may enable or disable such alterations in the pattern of trade of the developing economies, especially the member countries of SAARC.

Demand escalation or demand recession in national markets affects the demand for imports from and exports to other countries favorably or adversely. This paper examines the effect of 2007-08 worldwide economic slowdown on the international trade of SAARC. Business cycles have three phases: boom, downslide and recovery. Four questions arise in this context: What is recovery? , Recovery from what? , How to recover? , What is the recovery path? Recovery refers to breaking away from the vicious grip of a crisis which is generally related to serious economic slow-down or demand recession in international / national markets. In nutshell recovery means moving out of the deepest trough of recessionary phase. Recovery requires either an external shock like revival package by the domestic/foreign government as was done by governments of US, Europe, India and China and others in 2008-9; it takes care of adverse effects of recessionary phase abroad or indigenous on demand. Employment and output slowly and steadily begin to raise themselves up from the quagmire of depression. With the gradual rise in the output and employment, there is a rise in real income. Profits rise while rate of interest and wages fall. There is a rise in investment on account of rising profits alongwith a rise in bank loans and credit too. This results into reduction of liquidity preference in the economy with more people putting their money into investments. The process of recovery is cumulative. A big bang inducement is released by lump-sum investment in specific sectors to make the declining economy move on to the normal

growth path. Internal intervention comprises government package to sectors in recession, liberal provision of personal and consumption loans by banks, receipt of remittances from citizens settled abroad and domestic and foreign investment are designed to make the economy move onto the recovery phase. Such policy measures reflect international reemergence of Keynesianism in midst of neo-classical globalism (See. Prakash, Shri, Editorial, Business Perspectives, 2010). Recovery may be emphasized by innovations, new products and government expenditure. This emphasizes the need for balancing autonomous market operations and public regulation.

## 2. Objectives

The following are the objectives of investigation:

- a. Evaluation of the impact of slow-down on the trade of SAARC.
- b. Evaluation of the impact of trade on growth of member countries of SAARC.

Econometric and nonparametric tools, wherever needed, are used for analysis of data. The study uses secondary data. The sources of the data are 1. Economic Survey, Ministry of Finance, 2. UNCTAD, and 3. RBI.

### 2.1 Research Questions

The study seeks empirical answers to following research questions:

- (i) What has been the share of SAARC as a whole in the world GDP and Trade before the crisis?
- (ii) How have shares of SAARC in global GDP and trade been affected by economic slowdown?
- (iii) What has been the share of member SAARC countries' trade and GDP in total trade and GDP of SAARC?
- (iv) How much have the shares of individual member countries changed due to the crisis?

## 3. 2007-08 WORLD ECONOMIC CRISIS

The 2007-08 world economic slowdown or recession started in United States, it subsequently entrapped almost all economies of the world in about 18 months, from December 2007 to June 2009 (U.S. National Bureau of Economic Research). The preceding years before this crisis in US were characterized by an excessive rise in prices of assets and consequent boom in demand. Non depository financial institutions also emerged as major competitors to the traditional depository financial institutions. However, due to absence of stringent regulatory mechanisms, such institutions were vulnerable to bankruptcy. US mortgage backed securities, which had high risks, were hard to assess and were marketed around the world since they offered higher yields than U.S. government bonds. Many of these securities had the backing of subprime mortgages. The values of these subprime mortgages collapsed when the U.S. housing bubble burst during 20 06 and homeowners began to default on their mortgage

payments in large numbers in 2007. Thus, emergence of sub-prime loan losses in 2007 began the crisis and exposed other risky loans and over-inflated asset prices. This got worsened with the fall of Lehman Brothers on 15 September 2008 and affected the entire loan market. This resulted in huge losses to even well established banks across United States and Europe. As economies of practically of all the countries are linked to US economy in one way or the other, the crisis enveloped all the economies of the world due to spill-over effects. Governments and central banks of US responded to this by high recovery package especially to the banks. Europe and other countries of the world especially India, china, Japan and South Korea followed the US lead with suitable fiscal and monetary policies to stimulate their national economies and reduce financial system risks. The economic slowdown adversely affected the international trade which in turn affected economic growth. For example, the growth of Indian economy slid down from +9 to 6-7 percent, and the growth of Indian exports were affected much more adversely than this. Other member countries of SAARC were no exception to this global trend. The important question is how did economic slow-down in US/recession affect the member countries of SAARC? Recession in US and other developed economies resulted in demand recession for exports of member countries of SAARC; decline in exportable surpluses of these countries adversely impacted imports of SAARC to some extent while both these directly impacted the exchange markets. These changes in trade adversely affected growth of SAARC. Besides, the decline in foreign direct investments and FIIs received from US and Europe in SAARC also declined which adversely affected growth of GDP as well as the stock markets. The man power movements from SAARC to developed economies was reduced drastically due to recession in labour markets, since demand for labour is derived from the demand for goods and services. Markets are prone to under or over reactions to both positive and negative signals. The markets of developing countries are over sensitive due to their excessive dependence on developed economies.

**4. METHODS AND MODELS**

The paper uses descriptive statistics, which is supplemented by distributed lag model and other regression models s such as linear trend model. Since the paper uses secondary data, including time series data, it becomes essential to check its stationarity. Three versions of Random Walk Model are used for the evaluation of stationarity by Dickey-Fuller test. Distributive Lag Model takes into consideration inertia, ignorance, want of information and other factors that make instantaneous adjustment of dependent variable to change in independent variable difficult. Both these are preferred methodological approaches in econometrics of time series (Prakash, Anand, Sharma 2010).

The models are outlined below:

**4.1 RANDOM WALK MODEL (RWM)**

The following is RWM without drift:

$$\Delta Y_{jt} = \delta Y_{jt-1} + U_t \dots \dots \dots (1)$$

RWM with drift is given below:

$$\Delta Y_{jt} = \alpha_0 + \delta Y_{jt-1} + U_t \dots \dots \dots (2)$$

RWM with drift and stochastic trend is outlined hereunder:

$$\Delta Y_{jt} = \alpha_0 + \delta Y_{jt-1} + \alpha_1 T + U_t \dots \dots \dots (3)$$

$Y_{jt}$  is the variable under consideration and it refers to GDP/Growth of GDP, and Exports/Growth of exports. T refers to time measured in calendar years, subscript t also refers to time to which the value of the variable relates.  $\delta = \rho - 1$ , where  $\rho$  is defined as the root of equations from 1 to 3. If  $\delta = 0$ ,  $\rho = 1$ , and the series of data will be non-stationary. If  $\delta > 1$ , series will be explosively non-stationary. In both these case, regression models shall furnish spurious results (Yule, 1927). If, however,  $\delta < 0$ , root shall be less than unit and series of data are appropriate for regression modeling. This aspect is examined by Dickey-Fuller unit root test and/or Engel-Granger co-integration test of the residuals of chosen regression model.

**4.2 DISTRIBUTED LAG MODEL**

Following distributed lag model is used in the study:

$$Tr_t = \beta_0 + \beta_1 Tr_{t-1} + \beta_2 O_t + \beta_3 D_t + U_t \dots \dots \dots (4)$$

$$Tr_t = \beta_0 + \beta_1 Tr_{t-1} + \beta_2 D_t + U_t \dots \dots \dots (5)$$

$$Tr_t = \beta_0 + \beta_1 Tr_{t-1} + \beta_2 O_t + U_t \dots \dots \dots (6)$$

$$Tr_t = \beta_0 + \beta_1 O_t + U_t \dots \dots \dots (7)$$

$O_t$  refers to gross domestic product at factor cost,  $Tr_t$  stands for trade, D is dummy variable for policy change, and subscript t denotes year t. Dummy variable is used in regression model as a proxy of impact of international economic slow-down on the economy. The dummy variable, D is assigned a value zero for all years from 1990-91 to 2006-07 and value one from period 2007-08 to 2013-14. The year 2007-08 marks the time period when global recession impacted United States and started having spillover effects worldwide. The above models have been applied on each member country of SAARC.

**4.3 TREND ANALYSIS OF TOTAL TRADE AND GDP**

$$TR_t = \alpha_0 + \alpha_1 T \dots \dots \dots (8)$$

$$GDP_t = \alpha_0 + \alpha_1 T \dots \dots \dots (9)$$

These models are used to evaluate trend of total trade and gross domestic product of each SAARC member for the time period 1990-91 to 2013-14.

**4.4 F TEST FOR VARIANCE**

$$F = \sigma_1^2 / \sigma_2^2$$

Where,  $\sigma_1^2$  = variance of time period 1,  $\sigma_2^2$  = variance of time period 2

**4.5 DESCRIPTIVE STATISTICS**

Descriptive statistics deals with data and information, which constitute the base of statistical analysis. Summary statistics comprises mainly such statistics as measures of central tendency, measures of variation, and other facet of the nature of distribution. Nature of distribution may be highlighted by the

fact whether data approximates normal, binomial or poisson distribution, the three main theoretical distributions. Since most of the statistical tests in parametric statistics assume the distribution of values to be normal, such measures of degree of divergence of observed from normal distribution as the coefficients of variation, skewness and kurtosis become important. Values of most of these coefficients are reported under summary statistics. Descriptive statistics is used here mainly to evaluate the nature of distribution. Mean and median of normal distribution are equal; so the statistical significance of the difference between mean and median depicts departure from normality. So, t test is used to evaluate this difference.

#### 4.6 MEDIAN TEST

In order to evaluate the significance of the impact of recession on SAARC economies before and after the period of recession, median test is also used. Chi<sup>2</sup> is used to test the significance of differences in medians of year on year growth rates of both trade and GDP of SAARC countries in the periods 1990-91 to 2006-07 (indicating period before recession) and 2006-07 to 2013-14 (indicating period after recession). The following is the table of values of the median test:

Base year	Terminal year
-----------	---------------

Table 1. OLS estimates of the three versions of RWM for trade of member countries of SAARC

Bangladesh							
$\alpha_0$	$\alpha_1$	$\alpha_2$	t <sub>1</sub>	t <sub>2</sub>	t <sub>3</sub>	R <sup>2</sup>	F
0	0.125		0	6.21		0.547	38.65>6.63 E-07
-140.18	0.129		0.19	4.39		0.383	19.29>0.00012
-989.33	0.080	100.86	0.84	1.34	0.929	0.400	10.03>0.00045
India							
0	0.104		0	3.73		0.304	13.98>0.00074
11203.8	0.085		0.872	2.39		0.155	5.72>0.022
24891.9	0.0047	3301.41	1.09	0.081	1.88	0.245	4.88>0.014
Sri Lanka							
0	0.073		0	2.928		0.211	8.57>0.0063
269.07	0.059		0.405	1.36		0.056	1.85>0.182
-654.73	-0.130	192.66	0.809	10.184	1.86	0.154	2.735>0.081
Pakistan							
0	0.057		0	2.37		0.150	5.66>0.023
1119.43	0.032		0.729	0.789		0.019	0.622>0.436
-893.58	-0.117	382.45	0.497	1.350	1.947	0.129	2.235>0.124
Nepal							
0	0.094		0	6.83		0.593	46.74>1.16E-07
20.75	0.099		0.240	4.269		0.370	18.23>0.00017
75.71	0.061	9.74	0.663	1.108	0.741	0.381	9.25>0.00073

Above median	f <sub>11</sub>	f <sub>12</sub>	f <sub>1</sub>
Below median	f <sub>21</sub>	f <sub>22</sub>	f <sub>2</sub>
Total	f <sub>11</sub> + f <sub>21</sub>	f <sub>12</sub> + f <sub>22</sub>	N

Where, f<sub>11</sub> and f<sub>12</sub> represent frequencies or number of observations above median value and f<sub>21</sub> and f<sub>22</sub> represent frequencies or number of observations below median value. The value of  $\chi^2$  is calculated as follows.

$$\chi^2 = \frac{(n_1+n_2) [(f_{11}*f_{22}-f_{12}*f_{21}) - (n_1+n_2)/2]^2}{(f_{11}+f_{12})(f_{21}+f_{22})(f_{11}+f_{21})(f_{12}+f_{22})}$$

Where, n is the number of observations.

## 5. EMPIRICAL RESULTS

Results of application of different models, enumerated above, are taken up for discussion sequentially. First the results of application of RWM are taken up. If the time series is not stationary, then regression model furnishes spurious results. OLS estimates of the three versions of RWM, applied to trade and GDP time series of each member country of SAARC, are reported in the table given below:

### 5.1 RANDOM WALK MODEL: TRADE

Maldives							
0	0.141		0	8.79		0.707	77.41>6.21E-10
1.48	0.141		0.039	6.44		0.572	41.571>3.46E-07
-54.697	0.106	5.461	0.852	2.621	1.018	0.587	21.328>1.73E-06
Bhutan							
0	0.030		0	0.782		0.081	0.612>0.439
52.29	-0.017		1.32	0.332		0.0035	0.110>0.741
-30.001	-0.141	8.577	0.478	1.56	1.66	0.087	1.44>0.252

Source: Own Calculations

None of the trade time series (of period: 1990-91 to 2013-14) for any country, reported in the above table, is stationary as the coefficients of lagged trade are either all positive and statistically significant or negative but not significant, except for Sri Lanka. Thus, roots of all above regressions lie in unit circle. This may warrant the application of

Engel-Granger test. The time series of trade of Sri Lanka is found to be stationary in the third version of RWM as the coefficient of lagged value of trade is both negative and significant.

### 5.2 RANDOM WALK MODEL: GDP

Table 2. OLS estimates of the three versions of RWM for GDP of member countries of SAARC

Bangladesh							
$\alpha_0$	$\alpha_1$	$\alpha_2$	$t_1$	$t_2$	$t_3$	$R^2$	F
0	0.057		0	0.001		0.971	1088.31>1.04E-25
-930.03	0.073		6.66	27.75		0.961	770.31>1.85E-23
-925.42	0.072	2.106	6.17	7.82	0.095	0.961	372.85>6.48E-22
India							
0	0.064		0	14.85		0.873	220.71>1.21E-15
-998.62	0.066		0.168	7.564		0.648	57.21>1.59E-08
-3296.18	0.030	1370.25	0.544	1.12	1.41	0.670	30.54>5.82E-08
Sri Lanka							
0	0.058		0	16.94		0.899	287.16>3.15E-17
-381.91	0.075		2.49	9.907		0.759	98.15>4E-11
-463.49	0.106	-28.28	2.75	3.83	1.15	0.770	50.27>2.63E-10
Pakistan							
0	0.040		0	12.19		0.822	148.62>2.32E-13
1703.8	0.022		2.24	2.74		0.195	7.51>0.010
3113.93	-0.037	218.87	2.01	0.645	1.043	0.223	4.31>0.022
Nepal							
0	0.043		0	15.56		0.883	242.23>3.36E-16
43.13	0.037		0.888	5.04		0.450	25.406>1.91E-05
104.284	-0.0009	10.084	1.124	0.019	0.775	0.461	12.84>9.36E-05
Maldives							
0	0.071		0	5.71		0.505	32.66>2.76E-06
14.91	0.059		0.708	2.669		0.186	7.125>0.0119
-7.07	-0.035	5.62	0.257	0.443	1.231	0.226	4.38>0.021



Bhutan							
0	0.079		0	13.06		0.842	170.71>3.79E-14
0.471	0.078		0.064	7.22		0.627	52.2>3.98E-08
-1.85	0.064	0.596	0.203	1.919	0.442	0.629	25.52>3.36-07

Source: Own calculations

The GDP series is found to be non stationary for all the SAARC countries as the coefficient attached to the lagged value of GDP of all the above mentioned countries is not significant. It means that the root has a unit value. This necessitates linear integration of the two non stationary series in order to render them stationary and avoid spurious results. Also Engel Granger Test becomes essential to be applied to such series of two or more variables to test co-integration of series in the linear combination contained in regression equation.

### 5.3 RESULTS: *t* and *F* TESTS

Stationary time series has three important features: (1) it

has constant mean, which implies that the means of sub periods should not be statistically different (2) variance of a stationary series is also constant which means that variances of different sub periods should not differ significantly from each other (3) co-variance of the series is not affected by the time at which it is calculated. Application of t-test of mean differences and f-test of difference of variances are used to test stationarity. This supplements the results of Dickey Fuller test. Besides results of these tests also indirectly reflect the impact of economic slowdown on trade and GDP.

Table 3. *t* and *F* values for the difference in means and variance of trade and GDP

Trade	<i>t</i> <sub>1,2</sub> value	<i>t</i> <sub>1,3</sub> value	<i>t</i> <sub>2,3</sub> value	<i>F</i> <sub>1,2</sub> value	<i>F</i> <sub>1,3</sub> value	<i>F</i> <sub>2,3</sub> value
Bangladesh	1841.35	573.38	1138.87	1.016	1.935	1.968
Bhutan	359.11	103.62	195.51	1.57	2.91	1.85
India	7529.14	2299.33	4551.65	1.02	2.03	2.07
Sri Lanka	1113.36	127.45	686.38	1.117	1.998	1.788
Maldives	286.98	88.34	176.88	1.142	1.911	2.183
Pakistan	2015.16	615.34	1288.95	2.120	1.628	3.454
Nepal	516.38	164.85	339.19	1.409	1.605	2.263

GDP	<i>t</i> <sub>1,2</sub> value	<i>t</i> <sub>1,3</sub> value	<i>t</i> <sub>2,3</sub> value	<i>F</i> <sub>1,2</sub> value	<i>F</i> <sub>1,3</sub> value	<i>F</i> <sub>2,3</sub> value
Bangladesh	1879.6	579.9	1062.47	2.27	3.003	1.32
Bhutan	257.77	78.48	153.21	1.139	2.184	1.916
India	8443.8	2462.86	4546.02	2.06	3.26	1.57
Sri Lanka	1140.7	366.79	694.52	1.656	2.260	1.364
Maldives	541.55	163.08	291.73	2.986	3.77	1.265
Pakistan	2032.22	601.10	1193.80	1.139	2.131	2.427
Nepal	684.5	204.71	380.02	1.95	2.97	1.52

Source: Own calculations

The high *t* values and significant value of *F* again provide conformity to the non stationary time series of both trade and GDP of all the countries. These results support the results of Random Walk Model. The mean values of Trade and GDP of all member countries of SAARC significantly differ from pre to post slowdown period. Thus, these results lend credence to the

inference that these two series practically for all countries of SAARC are non stationary. The significant difference of means imply the significant differences between the variances of the two periods also.

### 5.4 DESCRIPTIVE STATISTICS: RATES OF GROWTH OF TRADE AND GDP

Table 4. Summary statistics of Year on Year Growth Rates of Trade of member countries of SAARC

YoY Trade	Bhutan	Bangladesh	India	Sri Lanka	Pakistan	Nepal	Maldives
Mean	9.957889	12.10978	14.63567	9.423712	7.601217	9.857113	13.22066
Standard Error	3.780616	2.276831	2.943807	2.447306	2.573167	2.309317	2.057507

Median	10.54934	13.39232	11.24485	10.35412	7.507725	11.37444	14.87338
Standard Deviation	18.1312	10.9193	14.118	11.73686	12.34047	11.0751	9.867458
Sample Variance	328.7404	119.2311	199.318	137.754	152.2873	122.6578	97.36672
Kurtosis	0.221919	-0.48677	-0.73798	1.343431	0.000277	2.542664	-0.55423
Skewness	0.222269	0.162462	-0.01092	-0.22101	-0.41342	-1.16316	0.162168
Range	78.48318	41.03212	53.28254	56.2323	48.82502	52.90174	38.87297
Minimum	-26.3891	-5.97131	-14.1018	-19.84	-21.718	-22.3234	-4.09622
Maximum	52.0941	35.06081	39.18076	36.39229	27.10703	30.57833	34.77674
Sum	229.0315	278.525	336.6203	216.7454	174.828	226.7136	304.0751
Count	23	23	23	23	23	23	23

Source: Own calculations

As economic slowdown has adversely affected both trade and GDP of all member countries of SAARC, it is expected that economic slowdown would have also adversely affected the growth of trade and GDP of these countries. This part of the study is designed to test whether growth of trade and GDP has been affected by economic slowdown or not. This is warranted by the fact that all member countries of SAARC are developing economies and inter temporal growth plays pivotal role lifting these economies from lower to higher stages of development. If economic slowdown has adversely affected both these variables then this objective of these economies gets frustrated. Besides, GDP is doubly adversely affected by economic slowdown: as trade is engine growth slower growth of trade leads to slower growth of GDP. Besides, economic slowdown results in domestic demand recession, which directly affects growth of

output. This discussion furnishes the context of evaluation of the distribution of rates of growth of trade and GDP.

The table shows that the value of t of difference of mean and median are not statistically significant for any country of SAARC. It implies that of rates of growth of trade are normally distributed though the distribution of absolute values of trade is skewed for all countries. It implies that the testing of stationary of time series in terms of rate of growth rather than first difference may give a different result. Because the rates of growth moderate the values of change and its volatility. These results imply that the distributions of rates of growth of trade will not be highly skewed or diverge greatly from normality. This is supported by very low values of coefficients of skewness and kurtosis.

Table 5. Summary statistics of Year on Year Growth Rates of GDP of member countries of SAARC

YoY GDP	Bhutan	Bangladesh	India	Sri Lanka	Pakistan	Nepal	Maldives
Mean	7.090814	5.443212	6.361434	9.423712	4.008592	4.447046	7.675842
Standard Error	0.711254	0.198944	0.519192	2.447306	0.403595	0.327256	1.332795
Median	6.778971	5.387677	6.330518	10.35412	3.737416	4.483715	7.653061
Standard Deviation	3.411055	0.954104	2.489958	11.73686	1.935575	1.569466	6.391862
Sample Variance	11.6353	0.910314	6.199889	137.754	3.746451	2.463222	40.8559
Kurtosis	4.017623	-0.56905	-0.16037	1.343431	-0.42392	2.421825	2.342804
Skewness	1.216574	-0.24596	-0.34426	-0.22101	0.491235	-0.23152	-0.5854
Range	17.18556	3.649753	10.12306	56.2323	6.6909	8.099426	31.30728
Minimum	0.740265	3.399815	0.42333	-19.84	1.014396	0.119814	-9.08119
Maximum	17.92583	7.049568	10.54639	36.39229	7.705296	8.219239	22.22609
Sum	163.0887	125.1939	146.313	216.7454	92.19763	102.2821	176.5444
Count	23	23	23	23	23	23	23

Source: Own calculations

The above results emanate from the descriptive statistics of year on year growth rates of GDP. Descriptive statistics of year on year growth rates of GDP of Bhutan, Bangladesh, India, Maldives and Pakistan from 1990-91 to 2013-14 indicates that the distribution of the series of these countries exhibit non

normal distribution since the mean values of all these series are 1.047, 1.011, 1.004, 1.002 and 1.074 times more than the value of median. The t values are not significant for the difference of mean and median for any country. The coefficients of skewness of Bhutan and Pakistan are positive while for rest others these are negatively skewed. So, the distribution of year on year

growth rates for Pakistan and Bhutan are nominally skewed positively. While the distribution for India, Sri Lanka, Nepal and Maldives are mildly skewed negatively. This suggests they will be peaks for all the countries. The value of Coefficient of Kurtosis is positive for Bhutan, Sri Lanka, Nepal and Maldives. It is negative for Bangladesh, India and Pakistan suggesting high peakedness of the distribution curves due to high degree of concentration of values of measures of central tendency of these ratios. The coefficient of variation for all the series is also high.

### 5.5 MEDIAN TEST

In order to examine the earlier inferences more rigorously median test is also applied. The assumption is that the sample values of year on year growth rates of GDP and Trade are drawn from the same population both for pre and post recession of 2007-08. The results are reported in the table below.

**Table 6. Chi 2 values for Year on Year growth rates of trade and GDP:**

Countries	YoY Trade	YoY GDP
	Chi <sup>2</sup>	Chi <sup>2</sup>
Bhutan	0.019	0.019
Bangladesh	0.591	8.177*
India	0.019	0.019

**Table 7. OLS estimates of the distributed lag model are as follows:**

Model	$Tr_t = \alpha_0 + \alpha_0 Tr_{t-1} + \alpha_2 O_t + \alpha_3 D_t$										
	Country/Coefficients	$\alpha_0$	$\alpha_1$	$\alpha_2$	$\alpha_3$	$t_1$	$t_2$	$t_3$	R <sup>2</sup>	F	h-statistic
Maldives	-115.81	0.946	0.316	239.78	10.57	1.402	1.403	0.988	541.66	>1.42E-18	1.38
Nepal	-72.12	0.845	0.101	844.62	8.42	1.116	3.082	0.986	479.22	>4.48E-18	0.09
Pakistan	-18218.5	0.422	0.390	5573.41	1.88	3.02	0.88	0.952	127.24	>9.32E-13	0.01
India	-153359	0.521	0.408	82167.62	3.62	3.42	1.45	0.978	283.03	>6.1E-16	0.13
Bangladesh	-7518.78	0.743	0.261	2629.87	4.35	1.96	0.85	0.977	280.04	>6.73E-16	0.33
Bhutan	-135.09	0.175	0.819	371.62	0.708	2.44	2.06	0.936	92.63	>1.6E-11	0.21
Sri Lanka	-7158.81	0.044	1.025	226.40	0.21	4.52	0.13	0.964	169.60	>6.84E-14	0.13

**Source: Own calculations**

The OLS estimates of the above function suggest that the model fits the data well for all SAARC countries so far as it has high explanatory power: the coefficient of determination ranges from a high of 93 for Bhutan to 98 percent for Maldives. All the multiple correlation coefficients are highly significant at almost zero probability. However, the coefficient of lagged trade is positive and statistically significant for Maldives, Nepal, India, Bangladesh at 0.05 probability level, but the coefficient for Pakistan is significant at 0.07 probability level. But the coefficient of lagged value of trade is not significant at all for Bhutan and Sri Lanka. It means that the preceding years trade, the benchmark for expansion of current trade, does not play an important role in current growth of trade which may be adversely affected by the shrinking of exportable surplus under the impact of recession. However, presence of serious

Sri Lanka	0.174	2.81*
Pakistan	0.174	1.092
Nepal	0.174	0.019
Maldives	2.81*	0.019

**Source: Own calculations**

The calculated value of Chi<sup>2</sup> of year on year growth rates of trade of Maldives is more than the table value. This indicates the significant impact of global recession on the growth rates of trade for this country. However, other countries rates of growth of trade are not impacted by recession. Similarly, year on year growth rates of GDP of Bangladesh and Sri Lanka are affected more by recession significantly than other member countries of SAARC. The inference is drawn from higher value of Chi<sup>2</sup> for Bangladesh and Sri Lanka.

### 5.6 DISTRIBUTED LAG MODEL

Recessionary effect on the volume of trade is more rigorously analyzed by distributed lag model. GDP, dummy for recession are used as predetermined variables of the model. The results are reported Country wise Distributed lag model is enumerated below as has been used on time series for all SAARC countries.

multicollinearity makes some coefficients emerge with inappropriate signs and/or a significant coefficient may also be made not significant. In view of this step wise regression as suggested by Klien is used to detect the location and seriousness of multicollinearity.

The coefficient of multiple determination, explanatory power of each of these models, as expected is much lower than that of the function discussed above. But the coefficient of correlation and slope are significant in all three cases. This shows that each of these three variables is important determinant of trade. Next step is the evaluation of three regressions each of which has two independent variables. The following table shows regression of trade on all three independent variable separately one by one.

Structural equations

## (i) Maldives

The structural equation represents long run relation of trade with its determinants. It shows an extremely high degree of impact of recession on the trade of Maldives. However, the adjustment of the short run to long run desired trade involves an extremely long period. Only .054 or 5.4 percent of total adjustment is completed in one year. Adjustment accomplished in two years is approximately 10 percent. Almost 40 percent of the adjustment is completed in four years and 100 percent adjustment to the desired value takes place in six years.

Structural parameters of Maldives:  $\alpha_0 = \pi_0/\lambda = 2144.63$ ,  $\alpha_1 = \pi_1 = .946$ ,  $\alpha_2 = \pi_2/\lambda = 5.851$ ,  $\alpha_3 = \pi_3/\lambda = 4440.37$

Hence the reduced form equation representing the long term change in Maldiver's trade is represented as follows:

$$\text{Trt} = 2144.63 + 0.946 \text{Trt} + 5.851\text{Ot} + 4440.37\text{Dt}$$

(ii) Nepal:  $\lambda = 0.155$ 

For Nepal, only 15 percent adjustment is completed in one year, 28 percent in two years, almost 52 percent in three years and 97 percent in four years. It indicates the strong impact of recession on the economy of Nepal which may take more than five years to complete the adjustment to desired trade levels for its economy.

Structural parameters of Nepal:  $\alpha_0 = \pi_0/\lambda = -465.29$ ,  $\alpha_1 = \pi_1 = 0.845$ ,  $\alpha_2 = \pi_2/\lambda = 0.651$ ,  $\alpha_3 = \pi_3/\lambda = 5449.16$

Hence the reduced form equation representing the long term change in Nepal's trade is represented as follows:

$$\text{Trt} = -465.29 + 0.845 \text{Trt} + 0.651\text{Ot} + 5449.16\text{Dt}$$

## (iii) Pakistan

For economy of Pakistan, 57 percent adjustment takes place in one year and almost 100 percent adjustment takes place in three years. The desired trade level may be achieved faster for this economy.

Structural parameters of Pakistan:  $\alpha_0 = \pi_0/\lambda = -31519.9$ ,  $\alpha_1 = \pi_1 = 0.422$ ,  $\alpha_2 = \pi_2/\lambda = 0.674$ ,  $\alpha_3 = \pi_3/\lambda = 9642.57$

Hence the reduced form equation representing the long term change in Pakistan's trade is represented as follows:

$$\text{Trt} = -31519.9 + 0.422 \text{Trt} + 0.674\text{Ot} + 9642.57\text{Dt}$$

## (iv) India

For India, almost 47 percent adjustment takes place in one year and more than 100 percent adjustment takes place in three years.

Structural parameters of India:  $\alpha_0 = \pi_0/\lambda = -320165$ ,  $\alpha_1 = \pi_1 = 0.521$ ,  $\alpha_2 = \pi_2/\lambda = 0.851$ ,  $\alpha_3 = \pi_3/\lambda = 171539.9$

Hence the reduced form equation representing the long term change in India's trade is represented as follows:

$$\text{Trt} = -320165 + 0.521 \text{Trt} + 0.851\text{Ot} + 171539.9\text{Dt}$$

## (v) Bangladesh

For Bangladesh the total adjustment takes place in five periods. In the first year, only 25 percent adjustment takes place, 44 percent adjustment takes place in second year 78 percent in third and 100 percent in fourth year. The impact of recession on trade of Bangladesh has been strong and it may take the economy to achieve desired trade levels in five to six years time.

Structural parameters of Bangladesh:  $\alpha_0 = \pi_0/\lambda = -29256$ ,  $\alpha_1 = \pi_1 = 0.743$ ,  $\alpha_2 = \pi_2/\lambda = 1.015$ ,  $\alpha_3 = \pi_3/\lambda = 10232.96$

Hence the reduced form equation representing the long term change in India's trade is represented as follows:

$$\text{Trt} = -29256 + 0.743 \text{Trt} + 1.015\text{Ot} + 10232.96\text{Dt}$$

## (vi) Bhutan

For Bhutan, almost 82 percent adjustment is done in one period alone. And desired adjustment may be achieved in two years time period.

Structural parameters of Bhutan:  $\alpha_0 = \pi_0/\lambda = -163.745$ ,  $\alpha_1 = \pi_1 = 0.175$ ,  $\alpha_2 = \pi_2/\lambda = -0.992$ ,  $\alpha_3 = \pi_3/\lambda = 450.448$

Hence the reduced form equation representing the long term change in Bhutan's trade is represented as follows:

$$\text{Trt} = -163.745 + 0.175 \text{Trt} + 0.992\text{Ot} + 450.448\text{Dt}$$

## (vii) Sri Lanka

Sri Lanka exhibits 95 percent adjustment in just one period and almost 100 percent adjustment in two years time period.

Structural parameters of Sri Lanka:  $\alpha_0 = \pi_0/\lambda = -7488.29$ ,  $\alpha_1 = \pi_1 = 0.044$ ,  $\alpha_2 = \pi_2/\lambda = 1.072$ ,  $\alpha_3 = \pi_3/\lambda = 236.82$

Hence the reduced form equation representing the long term change in Sri Lanka's trade is represented as follows:

$$\text{Trt} = -7488.29 + 0.044\text{Trt} + 1.072\text{Ot} + 236.82\text{Dt}$$

The results above indicate that size of the market and policies adopted by the government play an important role in determining the time period taken by the economy to come out of recession. The member countries of SAARC which are comparatively larger markets like India, Pakistan and Sri Lanka have been able to deal with demand recession in international markets faster than their smaller counterparts in the SAARC region. These countries have been able to come out of recession faster in almost two years time as compared to other member countries of SAARC.

**Table 8. OLS estimates of the distributed lag model with two explanatory variables**

Model	$\text{Tr}_t = \alpha_0 + \alpha_1 \text{Tr}_{t-1} + \alpha_2 \text{O}_t$								
	$\alpha_0$	$\alpha_1$	$\alpha_2$	$t_0$	$t_1$	$t_2$	$R^2$	F	h-statistic
Maldives	-207.06	0.982	0.415	1.63	11.20	1.89	0.987	773.96 > 1.14E-19	0.80
Nepal	-486.04	0.989	0.116	1.036	9.35	1.075	0.980	501.12 > 8.22E-18	0.20
Pakistan	-19642.4	0.556	0.371	2.525	3.394	2.937	0.950	192.6 > 8.58E-14	0.09

Sri Lanka	-7349.14	0.044	1.03	4.05	0.22	5.064			0.13
India	-173927	0.604	0.435	3.067	4.464	3.58	0.975	401.15>7.24E-17	0.04
Bangladesh	-8786.84	0.778	0.282	2.067	4.72	2.15	0.977	425.25>4.1E-17	0.29
Bhutan	-221.74	0.404	0.878	1.65	1.69	2.44	0.921	117.63>8.72E-12	0.33

Source: Own calculations

The OLS estimates of the above function reveal that it fits the data well in so far as the value of  $R^2$  is concerned. The value of coefficient of determination has remained practically unaffected by extruding the dummy. It means that dummy is an infructuous determinant of trade. Practically all the countries of SAARC largely export primary goods. Demand for which is more or less inelastic. Export of manufactures and handicrafts still constitute a small proportion of total trade. The coefficient of multiple correlation is highly significant. But the coefficient of lagged trade is not significant for Sri Lanka and Bhutan, for rest of the countries the coefficient is highly significant. This may imply that distributed lag model may not be appropriate for explaining the growth of trade of Sri Lanka and Bhutan. In this case the coefficient of GDP is significant at 0.07 probability for Maldives, but the coefficient is significant for all the countries except Nepal. The non significance of coefficient of lagged trade

for Sri Lanka and Bhutan and GDP for Nepal indicates the impact of multicollinearity. Since neither of these can be dismissed as an irrelevant determinant of trade: introduction of GDP in the regression on lagged trade alone or lagged trade in the regression of GDP alone brings about substantial improvement in the coefficient of determination.

Similarly, the coefficient of lagged trade is significant in all cases in the regression of trade on lagged trade and dummy. Though the coefficient of dummy is significant only in three cases, non significance in four cases is again explained by multicollinearity. Introduction of dummy as an additional determinant in the regression of trade on lagged trade or introduction of lagged trade in regression of trade on recession dummy brings about great deal of increase in the explained proportion of variation of trade through time. This inference holds true for regression of trade on GDP and Dummy.

Table 9. OLS estimates of the distributed lag model with dummy as the explanatory variable

Model	$Tr_t = \alpha_0 + \alpha_1 D_t$					
Coefficients	$\alpha_0$	$\alpha_1$	$t_0$	$t_1$	$R^2$	$F > F^*$
Maldives	852.82	2914.26	4.9	9.05	0.788	81.906>7.18E-09
Nepal	2704.38	4727.66	10.21	9.64	0.808	92.98>2.33E-09
Pakistan	27440.06	43409.39	10.57	9.23	0.802	85.21>7.71E-09
Sri Lanka	11952.5	17105.83	9.87	7.59	0.723	57.63>1.39E-07
India	145609.4	658472.4	4.02	10.04	0.827	100.82>1.8E-09
Bangladesh	14568.7	38714.67	6.03	8.66	0.773	75.07>1.53E-08
Bhutan	357.40	1190.13	6.03	10.84	0.842	117.70>2.69E-10

Source: Own calculations

The function fits the data well for all the countries. The explained value of proportion is lies between the range of 72.3 percent to 84.2 percent. The coefficient attached to dummy is significant in all cases indicating that there has been a change in

trade after the period of recession. It also ascertains the fact that dummy is not the superfluous variable in the multiple regression case.

Table 10. OLS estimates of the distributed lag model with output as the explanatory variable

Model	$Tr_t = \alpha_0 + \alpha_1 O_t$					
Coefficients	$\alpha_0$	$\alpha_1$	$t_0$	$t_1$	$R^2$	$F > F^*$
Maldives	-1230.8	2.738	5.320	14.33	0.907	205.35>2.59E-12
Nepal	-3996.65	1.073	6.28	13.36	0.894	178.65>9.73E-12
Pakistan	-41435.9	0.778	7.706	15.77	0.922	248.92>4.02E-13
Sri Lanka	809.84	1.034	0.663	15.30	0.917	234.36>7.26E-13
India	-391893	0.954	9.85	20.28	0.951	411.41>2.83E-15
Bangladesh	-25705.3	0.871	9.66	20.73	0.951	429.82>6.28E-16
Bhutan	-384.89	1.45	4.7	15.01	0.911	225.39>4.83E-13

Source: Own calculations

The function fits the data well for all the countries. The

explained value of proportion is very high in all cases, lying between the range of 89.4 percent to 95.1 percent. The

coefficient attached to output is significant in all cases indicating that GDP significantly influences trade and any change in GDP is bound to affect the trade of the country. The results of the table 10 and 11 indicate that the lagged value of trade seems to be the cause of multi-collinearity in the distributed lag models

used in table 8 and 9 since the value of the coefficient of determination not only improves as more number of explanatory variables are added to the model one by one but also the coefficients of explanatory variables are significant when regressed over trade separately.

Model	$Tr_t = \alpha_0 + \alpha_1 Tr_{t-1}$					
Coefficients	$\alpha_0$	$\alpha_1$	t <sub>0</sub>	t <sub>1</sub>	R <sup>2</sup>	F > F*
Bhutan	75.66	0.965	1.19	13.61	0.898	185.44 > 6.84E-12

Source: Own calculations

For Bhutan, coefficient of lagged value of trade in function above is significant however in multi regression case it was not significant. This lends support to the presence of multicollinearity in the function with output, dummy and lagged value of trade as explanatory variables in the same functions.

## 6. CONCLUSIONS

Above results for all the seven member countries of SAARC reveals that lagged value of trade, GDP and dummy are significant determinants of current trade. All three impact trade of the respective country to various degrees. The trade of all the SAARC countries has been affected by recession in the US economy in 2007 and these countries have just started to come out of the impact of it. So that SAARC countries can be least affected by the impact of recession, they need to focus upon trade creation rather than diversifying their existing trade to newer geographical regions. Also in the light of various trade agreements and the tariff agreements signed between the SAARC members since 1990, the focus should be to increase trade flows amongst the SAARC members. In light of this it needs to be reviewed periodically how much increase in intra regional trade has occurred between the members since the adoption of liberalization and globalization policy in their respective countries.

## References

- Balassa, B. (1965), Trade Liberalisation and 'Revealed' Comparative Advantage, The Manchester School, Vol.33, 99-123.
- Baysan, T. ; Panagariya, A. and Pitigala, N. (2006), "Preferential Trading in South Asia", World Bank Policy Research Working Paper, No.3813, World Bank.
- Bhagwati, Jagdish (1993), 'Regionalism and Multilateralism: An Overview, In New Dimension in Regional Integration', Cambridge University Press pp. 22-51
- Bharadwaj, R. (1962), "Structural Basis of India's Foreign Trade", University of Bombay.
- Brooks, Douglas, H, David Ronald Holst and Fan Zhai, (2005) 'Asia's Long Term Growth and Integration: Reaching Beyond Trade Policy Barriers', Asian Development Bank, Manila
- Chaturvedi, Sachin (2007), "Trade Facilitation Measures in South Asian FTAs: An Overview of Initiatives and Policy Approaches", RIS Discussion Paper, No.118.
- Daniel, Jose R.D. (2007), "SAFTA: Living In a World of Regional Trade Agreements", IMF Working Paper no. 07/23, February.
- Das, Dilip K. (2008), "The South Asian Free Trade Agreement: Evolution and Challenges", MIT International Review, Spring 2008.
- Dhungel, Kamal Raj, (2008) "Regional Energy Trade in South Asia", SouthAsia Economic Journal, Vol. 9, No. 1.
- Jain, Rajeev, Singh, J.B. (2009), "Trade Pattern in SAARC Countries: Emerging Trends and Issues", Reserve Bank of India Occasional Papers Vol. 30, No.3, Winter 2009
- Prakash, S. Anand, S (2014), "Balancing Factor Endowment, Economic Structure and Structure of Trade", IOSR-JEF, Volume 5, Issue 5.
- Prakash, S. Anand, S (2012), "Export Led Growth Strategy: Retrospect and Prospect", Beyond Norms: Strategies for Excellence, Bloomsbury, IMT Ghaziabad.
- Prakash, S. Anand, S (2013), "Is current export structure of India sustainable?", International Journal of Research in Economics and Social Sciences, Volume 3, Issue 6.
- Prakash, S. Anand, S (2013), "Trade Structure and Terms of Trade of India, International Journal of Business, Economics and Management Research", Volume 4, Issue 5-6.
- Kumar, Rajeev, "SAARC: Changing Realities, Opportunities and Challenges", German Development Institute Discussion paper
- Mathur, P.N. (1963), "Gains in Economic Growth From International Trade", Kyklos, Vol. No. 16.
- Mathur, P.N. (1988), "South-South Cooperation and Development", In Polenske, K.R. and Skolka (Editor) Applications of Input Output Analysis, Macmillan.
- Mohanty, S.K and Chaturvedi, Sachin (2006), "Impact of SAFTA on Trade in Environmentally Sensitive Goods in South Asia: Emerging Challenges and Policy Options", Asia-Pacific Trade and Investment Review, Vol. 2, No.2, December.
- Sawhney, A. / R. Kumar (2008), "Rejuvenating SAARC: the strategic payoffs for India", Global Economy Journal 8 (2), Article 8; online: <http://www.bepress.com/gej/vol8/iss2/8>

- Schott, J. J. (2008), "The future of the multilateral trading system in a multi-polar world", Bonn: Deutsches Institut für Entwicklungspolitik (DIE Discussion Paper 8/2008)
- Sengupta, N. / A. Banik (1997), "Regional trade and investment: case of SAARC", *Economic and Political Weekly*, 15 November, 2930–31
- Srinivasan, T. N. (2002), "Preferential trade agreements with special reference to Asia", New Haven: Economic Growth Center, Yale University
- State Bank of Pakistan (2006): Implications of liberalizing trade and investment with India, Karachi: Research and Economic Policy Department, State Bank of Pakistan
- Taneja, N. (1999): Informal trade in the SAARC region, New Delhi: Indian Council for Research on International Economic Relations (ICRIER Working Paper No. 47)
- Pohit, Sanjib and Taneja, Nisha (2000), "India's Informal Trade with Bangladesh and Nepal: A Qualitative Assessment," ICRIER Working Paper, No. 58, Indian Council for Research on International Economic Relations (ICRIER), New Delhi.
- Prakash, Shri (1996) New Economic Policy and Relevance of Nehru-Mahalanobis Strategy of Growth. In Sinha, Ajit Kumar (Editor), *New Economic Policy of India*, Deep & Deep Publication, New Delhi.
- Rosander, A.C., *Elementary Principles of Statistics*, Vol. No.3
- Marshall, Alfred (1891), *Principles of Economics*, Macmillan.
- UNCTAD, Online database.
- UNCTAD (2008), Joint Report by UNCTAD-JETRO on South-South Trade in Asia: the Role of Regional Trade Agreements, UNCTAD/DITC/TAB/ MISC/2008/2, United Nations Publications.

# The Alliteration form in the Twelve Muqam lyrics

*Ablimit Abdurahman*

(Minzu University of China, Beijing, P.R. 100081, China)

**Abstract:** Twelve Muqam is a large traditional Chinese classical music of the Uyghur people. It is a collection of songs, poems, music, dance, singing and performance. This is a major contribution of the Uyghur people to the splendid culture of the Chinese nation. It uses music, literature, dance, drama and other forms of language and art to express the good life and noble sentiments of the Uyghur people, their ideals and pursuits in any case, and the joys and sorrows produced under the historical conditions of the time. The text mainly analyzes the form of the "head rhyme" Alliteration of Twelve Muqam, and the "head rhyme" voice, syllable, vocabulary, and segment in the epic are dependent on a form of poetic and harmonic law.

**Key words:** twelve muqam oral literature "head rhyme" alliteration

## Introduction

Twelve Muqam is a huge musical wealth created by the Uyghur working people for a long time, based on their hard-working life experiences and knowledge of genius music. It has a vivid musical image and musical language, as well as a passionate pursuit of light and happiness. Because it is based on the art form of folk music, it has a distinct ethnic style. There are many types of Twelve Muqam music, rich musical instruments, including classical songs, folk dance music and smooth and beautiful narrative songs. Xinjiang (Šinjan) Muqam art not only inherits the characteristics of the comprehensive music set of the trilogy of songs, dances and music of the Western Region "Čoŋ Küy" (大曲, big song), but also is deeply influenced by the diversified music form<sup>[1]</sup>. Guan Ye wei further pointed out that "Capricorn" is intended to be "Čoŋ Küy" (大曲, big song) and is the "original form" of Muqam. Around the 4th century AD, the name "Muqam" appeared in the Kuča (库车) text<sup>[2]</sup>. The author states in another article that the name "Čoŋ Küy" (大曲, big song) is different in the different tribes and nationalities in the ancient Western Regions. The area of Yan ze (that is 盐泽, 罗布泊 Lop Nur) south of the eastern Tian shan Mountains(天山, täŋritay) is called "Mak-dor"; the area of Turpan(吐鲁番)and Turpan is called "Mak-kam"; the area of Kucha is called "Capricorn" Salt" (Maka-yakne). After the 6th century AD, the Xinjiang region, calling "Čoŋ Küy" (大曲, big song) "Yoŋan-küy". In Uyghur, it is called "ÜluyDor". In the Middle Ages, the Uyghur language

called it "Čoŋ Näymä"(琼乃合曼). "Since then, the Uyghurs developed it into a larger piece of music based on the original Čoŋ Näymä, called Mukam." The author believes that after the relocation of the middle of the 9th century, "Based on the music of Kuča (库车), Turpan (吐鲁番), Qäšqär (喀什), Yärkän (莎车) and other ethnic music traditions, Uyghur music was developed<sup>[3]</sup>."

Twelve Muqam includes Rak (拉克), Čäbbiyat (且比亚特), Mušawüräk (木夏维莱克), Čarigah (恰尔尕), Pänjigah (潘吉尕), Özhal (乌孜哈勒), Äjäm (艾介姆), Üššaq (乌夏克), Bayat (巴亚提), Näva (纳瓦), Sigah (斯尕), Iraq (依拉克), and other Muqam. Muqam is a legend about oasis. It is a necessity and a nutrient in the lives of the Uyghur people. Its performance venues are ubiquitous, with alleys, restaurants, restaurants, village fairs, squatting cars, camels, besides campfires, and a casual background, you can float out of Muqam, a small little Balang (child) You can dance, not to mention the old man with white hair, not to mention a handsome and strong man, that is, a passerby will carry a sly and forget to step into it. Each Muqam of Twelve Muqam is divided into three parts: Čoŋ Näymän(琼乃合曼), Dastan(达斯坦) and Mäšräp(麦西莱甫); each part consists of four main melody and several variations. Each of these pieces is an integral part of Muqam's main melody, and at the same time, it is an independent piece with harmony characteristics. Uyghur Muqam is a musical expression of Uyghur poetry. Each Muqam is paired with classical poetry that is meaningful, rich in content, colorful, catchy, lively and easy to sing, as well as Gezer (double line poetry) and folk songs. It is full of vitality and vitality. In particular, the

<sup>1</sup> Bernd Heine, Tania Kuteva. *World Lexicon of Grammaticalization* [M]. Cambridge: Cambridge University Press, 2004.

<sup>2</sup> Guan Ye wei. *The Formation and Development of Muqam--On Uyghur Muqam* [J]. in *Xinjiang Art*, 1982, No.4.

<sup>3</sup> Guan Ye wei. *The Relationship between Turtle Music, Gao Changle and Uyghur Muqam* [J]. edited by Liu Kuili and Lang Ying, *"The Study of Uyghur Muqam"*, Central Nationalities Academic Press, 1997 edition.



eighteen rhythms of the most fascinating Gezer in the Uyghur poetry make the Muqam music novel and chic. This makes the priceless treasure in the cultural treasure house perfect and radiant.

Most of the poems of this period were created or organized by Uyghur poets at the time. The first lyrics of Twelve Muqam's original lyrics (Alliteration) is a feature of the Twelve Muqam original. How do you explain the Alliteration? What is the formal classification of the rhyme method? The theory is that different lexicons have different interpretations of this phonetic rhetoric: (1) Alliteration —the appearance of the same sound or sounds at the beginning of 2 or more words that are next to or close to each other (as in "Round the rocks runs the river") [4]. (2) Alliteration - head rhyme (method); two or more words in a poem or sentence begin with a rhyme (method) with the same word or homonym. For example: sing, song, sixpence in sing a song of sixpence starts with s [5]. (3) Alliteration - the repetition of use .initial consonant sounds in two or more neighboring words or syllables (as wild and woolly, threatening throngs) [6]. (4) Alliteration - a repetition of a first consonant or a consonant cluster in a phrase consisting of two or more words. For example: safe and sounds [7]. We can see several definitions above. The rhyme (method) has two different meanings: (1) the same phenomenon of the first vowel or consonant, such as the definition of the first and second; (2) the same consonant The phenomenon, as defined in Articles 3 and 4. However, we note that the examples given in the first two definitions all belong to the meaning of (2). Therefore, the author thinks that the definition of rhyme in the English-Chinese Dictionary of Teaching Linguistics and the Dictionary of Webster's is more appropriate. Therefore, the examples given in this paper are defined by reference to some scholars in Russia and Central Asia. The phenomenon is called "Alliteration" and is called "Alliterations". For example, Dr. Alimjan Tilwald, a doctor of literature at the Kazakhstan Academy of Sciences, explained the concept of "head rhyme" in the article "On the rhyme of poetry": "The rhyme" was originally a Latin vocabulary, -(AL) AD means "self", -litter means "letter" means [8] (18). In any case, it refers to the structure of ancient poetry types. For the source of this term, there are still some ancient Indian literature and ancient A retelling of European literature. Some studies have

shown that the origin of the term is related to ancient Indian literature. There is a form of poetry called Anuprasa [9] (111-139), which is widely used. It refers to the same letter or the same. The poetry model composed of the sounds. In the research I proposed above, we can see that as a means of literary expression, in the original poems of Twelve Muqam, the ancients have long applied. "Alliterations" form.

For example, in a poem of "The Uyghur Twelve Muqam Original Lyrics Collection":

Yut qedrini sahlar bilmes  
Yurtdin yurtğa aşmağunçe;  
Yağsi yarning qedrin bilmes,  
Bir yamanga tüşmegünçe.

If you don't travel around the rivers and lakes, you won't cherish the rivers and lakes. People will not cherish lovers before they meet the wicked [10] (2).

The "Y" letter of the Uyghur Twelve Muqam original lyrics begins this beginning. The "Alliterations" form with this vertical structure. This "head rhyme" is called Anaphora.

Form and repeating form of rhyme [11] (10-11). For example, in a poem of "The Uyghur Twelve Muqam Original Lyrics Collection":

Eydi behar eyyamidur, sakiy leba-leb cam tut,  
Eysu tereb devranidur cami meyi gulfam tut.

The wine cellar, the Spring Festival is here, this is a time of joy and joy. Come with your full wine cellar, come on [12] (383).

Ma a ne yāru ne hemdem ma a ne dostu ne mehrem,  
Ma a ne çāre ne merhem ma a ne sebru ne emān.

I have no lover and a close friend. There is no way for the page to be hopeless, without patience and peace [13] (520 - 521).

In the above-mentioned poem, "Ey" and "ma a ne" have exactly one form of an authentic repeating mechanism.

According to the structural characteristics, researchers from all over the world divide the rhyme (form) form into three forms:

1. The form of the word "Alliterations".

This is a feature of the earliest form of "head rhyme". This form of character is often used in the lyrics of Twelve Muqam, especially in the hymns of the devout gods of all ethnic groups in western China. There are many words in this poem, and sometimes poetry can only be done in two

<sup>4</sup> Longman Dictionary of Modern English-Chinese Dictionary. [D] Longman Publishing (Far East) Co., Ltd., 1988

<sup>5</sup> Oxford Contemporary Dictionary. [D] World Book Publishing Company, 1997

<sup>6</sup> Webster's Dictionary [D] Merriam-Webster, 1996

<sup>7</sup> Dictionary of English-Chinese Teaching Linguistics [D] Hunan Education Press, 1988

<sup>8</sup> Kovat Kovowski, *The Dictionary of Poetry* [M], Moscow, Russian, 1985

<sup>9</sup> Kavaya Jescia. *Oriental Poetry*. [M], Moscow, Russian edition, 1996.

<sup>10</sup> Alimjan Tilwaldi. *On the Poetry of the Head*. [M] 2003, Ürümçi, Journal of Xinjiang University, the third issue

<sup>11</sup> Abdurup. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>12</sup> Abdurup. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>13</sup> Alimjan Tielwald. *On the Poetry of the Head*. [M] Ürümçi, Journal of Xinjiang University, 2003, the third issue.

repetitive forms. For example: Uyghur Twelve Muqam original lyrics in a poem:

Biri dep sodreli husrevge tegru,

Biri dep ileteli basini ayru.

One person between them said: "Take it directly to the king!" and another said: "Cut his head first and bring his head to it!"<sup>[14] (9)</sup>.

The word in the above poem is "Biri dep" which applies the form of the word "Alliterations". The first sentence of the poem repeats only one word. Let us analyze the "Alliterations" form of applying two words. E.g:

kaysi bir azarin aytay canima eǵyarni

kaysi bir aǵritqani könlümni dey dildarni

What kind of pain should I say to my destiny? From the sadness of the sweetheart Which one should I say?<sup>[15] (383)</sup>.

The two words "kaysi bir" in this poem constitute the word "Alliterations" form. E.g:

kaysi bir birehligini tali-i gumrahni,

kaysi bir kecrevligini cero-i kecreftarni.

Should I say that the unfair fate is unreasonable, or should it be said that it is arrogant and unreasonable?<sup>[16] (220)</sup>.

Bu yalghan söz igteg koni söz shifa,

Bu bir söz ozaqi urulsish mesel.

Lying is like a terminal illness, and the truth is like a cure. This is a saying from ancient times<sup>[17] (42)</sup>.

özgeler husnin temaşa eylesem, çixsun közüm

özge bir köz hemki husnu ni temaşa eylese.

If I look at the beauty of others, I will dig my eyes away; other eyes to see your beauty, let it be dug up<sup>[18] (190)</sup>.

Yene ne çihrege ot saldi meyki, heyranmen,

Yene ne çihreni yel açtikim, perişanmen.

I am very curious, the wine makes the face reddened? I mourn, which veil is the wind blowing?<sup>[19] (28)</sup>.

Vesl-i yar boldi muyesser kedrine ah bilmedim,

Vesl bolmay, cavidan furket kelurni bilmedim.

When I met, I didn't cherish him. It was very embarrassing. I can't see it in a hurry now, I didn't expect it to be a farewell<sup>[20] (294)</sup>.

Gül yüzü ge endelib ye lig kilip zâr eyledi ,

Gülmu sen yâ hârmu sen yâ hõrmu sen gilmânmu sen.

I am as long as the Lark is eager for flowers, longing for your beautiful face, whether you are a flower, a thorn or a fairy, or a fairy in heaven<sup>[21] (87)</sup>.

In the above poems, the words "kaysi bir", "Bu", "özge", "Yene ne çihre", "Vesl" and "Gül" constitute the vocabulary "Alliterations" form.

Second, the root form of "Alliterations".

This form of the "Alliterations" of ancient poets is normally applied. In the lyrics of Twelve Muqam, the form of the root "head rhyme" is common in the repetition of roots, and the pitch of the roots of poetry is consistent<sup>[22] (10)</sup>. This form refers here to the same repetition as the modern Uyghur syllable. That is to say, one or more speech repetitions in a syllable are the same. For example: "Twelve Muqam original literature":

Eydi behar eyyamidur, sakiy leba-leb cam tut,

Eyşu tereb devranidur cami meyi gulfam tut.

The wine cellar, the Spring Festival is here, this is a time of joy and joy. Come with your full wine cellar, come on<sup>[23] (146)</sup>

Atsa kebuter tenine okni,

Atkay mu'ellek ol dem kebuter.

If you shoot the sharp arrow of your eyelashes towards the white pigeon, it will immediately fall to the ground with a tumbling<sup>[24] (141)</sup>.

Neçe zencir eylesem kö lüm öyini işikin,

Neyleyin kaydın kekür zulfu heyali baş urup.

I use the chain to tightly lock the threshold of my heart, but still can't lock my thoughts on your hair, what should I do?<sup>[25] (142)</sup>.

Ni şah ani zati kebi yad bilur,

Ni tebi' ani teb' idek istep tapilur.

No king is as famous as him, like his character, he is not a group<sup>[26] (32)</sup>.

Desem, ko lumni zulfu eyledi bend,

Der,ey miskin, ani bir tsridur bu.

I said, "Your hair has stopped me." She said, "Oh, poor man, this is still one of its (my hair)"<sup>[27] (161)</sup>.

<sup>14</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005

<sup>15</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>16</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>17</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>18</sup> Abduruf. *Introduction to the Study of Uyghur Language in Cha-atay*. [M] Beijing, National Publishing House, 2017

<sup>19</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>20</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>21</sup> Abduruf. *Introduction to the Study of Uyghur Language in Cha-atay*. [M] Beijing, National Publishing House, 2017

<sup>22</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>23</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>24</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>25</sup> "Atayi Poetry", see Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] 162 pages, Beijing, National Publishing House, June 2005.

<sup>26</sup> Navayi: The Manuscript of Two Languages. [M], 32 pages

<sup>27</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

Ne sud emdi egerçe bolsa çun hor muhreler peyda,  
Netey emdi iki 'alemi durr-i bibeha ketti.

What is the use of pearls like the sun? I want to do both worlds, the priceless treasure has been lost<sup>[28] (83)</sup>.

The syllables such as "Ey", "AT", "Ne", "Ni", "De" and "Ne" in the above poems form the form of the root "Alliterations".

Third, the voice "head rhyme" (Alliterations) form. This repetition of poetry relies on the same initials. For example: in the poem "Twelve Muqam original literature":

Bu kö ülni barçe ğemlerdin helas kılğay edi,  
Bir nezer kılmağ bilen ol şöğ-i ğunharim kelip.

I believe that once my lover in my heart stepped into my house, look at me and all my mourning will disappear immediately<sup>[29] (284)</sup>.

Çek nevā'i nale köz mey bersunu bağr m kebāb,  
Çün bolur ol ay heyālī bizge mihmān her keçe.

Navayī! Start playing the melodious melody, let my eyes fill the tears like wine, and my heart is roasting; because that beautiful girl is coming to my heart every night<sup>[30] (106)</sup>.

Kes başımni guyték heyli adaki içre sal,  
Koyma sergerdan meni, iy Zulf-i çevganım meni .

My hair is like a long, beautiful lover like a polo stick. May you play my head as a polo in the game, just ask you not to abandon me<sup>[31] (240)</sup>.

Keçe-kunduz kilma gulbangi ni, bes, ey endelib,  
Kim sa a bes gun bu gulsen icre mihman boldi gul.

Hey, nightingale, don't scream day and night, stop, because the flowers in this garden are just five days for you<sup>[32] (250)</sup>.

Böylekim ol közi āfet yanar ot cān ma urd,  
Berğ-i āfet çağılır 'ālem ara her şererimdin.

My beautiful lover seems to have ignited my whole body with the fire of her eyes, and every glance at her is like burning the world<sup>[33] (106)</sup>.

iki cadu közlerige ehl-i alem bendedur,  
isimie'zem saçlari boynida tumar eylegeç.

Just like Ismi Aimu, the hair is hung around the neck to make a talisman, and the whole human beings are doing her

charming shackles<sup>[34] (204)</sup>.

Derdim besi köp heddin ziyade,  
Dayım köremen eldin melsmet.

My heart is suffering a lot. In addition, unsuspecting people also scold me<sup>[35] (113)</sup>.

The repetition of the first "B", "Ç", "K", "B", "i" and "D" voices in each of the above poems is referred to as the "head rhyme (method)" Alliterations form. Dr. Alijan Tiliwaldi said: "The ancient Uyghurs borrowed this "head rhyme" Alliterations form from ancient Indian poetry. After Buddhism entered the ancient Uyghur region, this "head rhyme" Alliterations form in poetry gradually integrated into the ancient Uyghur poetry creation behavior, and continued to prosper in the fertile soil of Uyghur literature, and long-term existence<sup>[36] (10-11)</sup>. As mentioned above, the ancient poets creatively applied the verse to the original lyrics of the ancient Twelve Muqam. I personally believe that this phenomenon is the inevitable result of some kind of literary spirit and creative tendencies such as simulation and inheritance. In addition, words in rhyming form are formed in the original lyrics of Twelve Muqam, and syllables or letters (speech) can express independent meanings; these words, syllables or letters (speech) are not imposed collusion. There are also many "Alliterations" forms of A.A.A.A or A.A.B.A or A.B.A.B in some poems of Twelve Muqam's original lyrics.

Not only that, Muqam's art is indeed rich in blood, and it is a reflection of the unpredictable changes in world history. It is always at the forefront of historical integration. Therefore, in Muqam, you can see the factors of Chinese Central Plains music and Mobei grassland music, as well as the influence of music and art in Central Asia, South Asia, West Asia, North Africa and other countries and regions. The unique testimony of the road music culture is also a treasure in the Chinese culture. This "multiple integration" and "mixedness" is a concentrated expression of the blending of Western civilization and Uyghur traditional culture since ancient times. At the celebration etiquette and festival gatherings of the old age, the "wake-up" effect of Uyghur Muqam's "discourse" has irreplaceable significance for local cultural identity and maintenance of unity. The discourse system of this cultural right has become an interpretation. The most important basis for Uyghur aesthetic psychology is the bond that sustains the national spirit. The establishment of Twelve Muqam means the establishment of a national

<sup>28</sup> Abduruf. *Introduction to the Study of Uyghur Language in Cha-atay*. [M] Beijing, National Publishing House, 2017

<sup>29</sup> Abduruf. *Introduction to Chahatai Uyghur Studies*. [M] Beijing, National Publishing House, June 2017.

<sup>30</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005

<sup>31</sup> "Secaki Poetry", see Tirifjiang, etc. *Selection of Uyghur Classical Literature*. [M] 240 pages, Ürümqi, Xinjiang People's Publishing House, 1980.

<sup>32</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>33</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>34</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>35</sup> Abduruf. *Uyghur Twelve Muqam Original Lyrics Collection*. [M] Beijing, National Publishing House, 2005.

<sup>36</sup> Alimjan Tilwaldi. *On the Poetry of the Head*. [M] Ürümçi, Journal of Xinjiang University, 2003, No. 3.

aesthetic spirit <sup>[37]</sup> (131). The rhythmic form of Twelve Muqam's original lyrics, whether consciously or unconsciously imitated and used, I personally believe that this form of rhythm creates the poems of Twelve Muqam and other Central Asian lyrics of ancient literature classic.

Although the study of Uyghur Twelve Muqam has been carried out since the founding of New China, The scholars are tireless and have done a lot of work with the Uyghur Muqam shin Success, Muqam has also attracted unprecedented attention from scholars at home and abroad, resulting in some very .There are some new breakthroughs in the academic value, but through the combing of the literature, We see that there are still many problems that need to be solved, and the number of related papers. In terms of research, there is not a direct trend between quantity and quality. Most of the research remains Staying at the surface of the research stage, the lack of deeper exploration of the study of music ontology. This is closely related to the artist's artistic background, cultural accomplishment, and national professionalism. Big relationships, while language barriers also become barriers to mutual communication, thus. The research work has not been carried out in more depth. Therefore, speed up the cultivation of the nation. The national music scholars are urgently needed to solve the problem, although the country has increased in support of Xinjiang, there has been a great tilt in policy, some well-known sounds. The music college has also set up a quota for enrollment in Xinjiang, along with mastere and doctoral research talents. Cultivation, scholars study the echelon gradually formed, but under the impact of the economic tide, the year whether the lighter generation can pass the positive role of their own thoughts and will. By music career pursuit, and willing to create a simple and simple life form, willing to be like an old the generation of scholars who regard this career as the goal to pursue throughout their lives is still one questions. In addition, in the Uyghur Twelve Muqam heritage education; with the 20th century 90 Compared with the pre-age period, it has explored a practical way and has also achieved a gratifying success. If, as Muqam inherits into the ranks of college art education, the flow in Dulan Muqam(刀郎木卡姆). The Muqam Exercise Center was established in MäKit County(麦盖提县), Qäsqär, Xinjiang, but how can it be In the process of inheriting education, it not only conforms to the characteristics of folk music, but also conforms to school education. The educational inheritance of the model is still an urgent problem to be solved. Xinjiang Uygur Twelve Muqam has become an international music school today. Research topics, research roads have a long way to go, only full of unlimited

folk music Love, full of mission to the development of minority music, down-to-earth to explore, To study, to support the development of Muqam music research in Xinjiang Green shade

After the founding of the People's Republic of China, the parties and governments at all levels attached great importance to the collection and sorting of traditional Chinese music. They organized special people to record, record, and publish the music of "Twelve Muqam", and recorded, organized, and published the lyrics. On the one hand, the excellent cultural heritage of Twelve Muqam was inherited, and on the other hand, it continued to flourish. The "Lake Song and Dance" adapted from Mukam is refreshing; "yerif and Sänam" (艾里甫与赛乃姆) sung with Muqam music is known as the Uygur's "Dream of Red Mansions" (红楼梦); the transplanted opera "Red Lantern" (红灯记), produced a huge response in the country, but also made into a movie. At the beginning of the 21st century, under the leadership of the Communist Party of China, the Autonomous Region of the People's Republic of China had an institution specializing in the study of Twelve Muqam. The Twelve Muqam, published on the staff, opened up a new path for its exploration and research to the world. UNESCO Director-General Koichiro Matsuura November 28, 2005 In Beijing, he presented the certificate of China's third batch of "Masterpieces of Human Oral and Intangible Heritage" to Chinese Minister of Culture Sun Jiazheng. The two projects are "China Xinjiang Uygur Muqam Art" and "Mongolian Long Tune Folk Song". On November 25, 2005, UNESCO announced the third batch of "Human oral and intangible heritage masterpieces" at the headquarters in Paris. The "China Xinjiang Uygur Muqam Art" and the joint declaration of China and Mongolia were reported by China. The Mongolian long-range folk songs are on the list. The Muqam music phenomenon is distributed in 19 countries and regions in Central Asia, West Asia, South Asia and North Africa. Xinjiang is at the eastern end of these countries and regions.

Before the founding of the People's Republic of China, Twelve Muqam had not systematically studied the naming of vagueness and inaccuracy. The boundaries of a region (local) and a region (local) Muqam were unclear, and even many of the first professional issues had some problems. The village exists. After the founding of New China, the study of Twelve Muqam has given many aspects of new protection and development opportunities. Academic topics on the topic of Muqam since the 1990s Seminars are also in full swing, such as the "International Muqam Symposium" and "Xinjiang" Uyghur Muqam Academic Seminar", "China Uyghur Twelve Muqam Symposium" Etc. How the meeting is effective in protecting and inheriting Muqam, how to further deepent it

<sup>37</sup> Huang Shi yuan. *Twelve Muqam's Broken Butterfly*. [M] Ürüçi, "šinjang Art", No. 2, 2016

discussion of the body's research has made the academic community's attention to Muqam reach an unprecedented height. degree. Has published a number of academic symposiums and research monographs, such as Xinjiang Uyghur Autonomous Region Twelve Muqam Research Society, "On Uyghur Twelve Muqam" (Xinjiang People's Publishing House; 1992 edition), The 6th International Muqam Symposium Anthology (Central Conservatory of Music Press, 2007 edition), has also published some Local forms of Muqam music, such as "Qumul Muqam"(哈密木卡姆), "Uyghur Dulan Mukam" (维吾尔刀郎木卡姆), Turpan Muqam (吐鲁番木卡姆), etc. The ecology and shape of Dulan Muqam, which was applied for by the Xinjiang Institute of Art State Research was selected as the national curriculum for the National Arts Science Ninth Five-Year Plan in 1997. question in addition to the well-known scholars in Xinjiang, the members of the research team also have some buzzing at home and abroad. The famous musicologist also actively participated in the research work of this subject, for the subject. The guarantee is provided on time and smoothly. The subject is in the field of art science research at the advanced level in the country, it fills the gap in the discipline in a certain sense. The study of Uyghur Muqam has the meaning of "model". November 2004, this the research results of the project "Study on the Ecology and Morphology of Dulan Muqam" by Central Musicology the Institute Press published a collection.

Chinese Xinjiang (Šinjang)Uyghur Muqam is the crystallization of cultural exchanges between the East and the West due to the "Silk Road" of ancient land transport arteries across Europe and Asia. It records and confirms the history of interaction and integration between different music and dance culture groups. Therefore, "China's Xinjiang (Šinjang) Uyghur Muqam Art" is known as "Chinese Treasures" and "Silk Road Pearls".

## References

- [1] Bernd Heine.*Tania Kuteva. World Lexicon of Grammaticalization* [M]. Cambridge: Cambridge University Press, 2004.
- [2] *Longman Modern English-Chinese Dictionary* [M], Longman Publishing (Far East) Co., Ltd., 1988
- [3] *Oxford Contemporary Dictionary* [M], World Book Publishing Company, 1997
- [4] *Webster's University Dictionary* [M], Merriam-Webster, 1996
- [5] *English-Chinese Dictionary of Teaching Linguistics.* [M] Hunan Education Press, 1988
- [6] Kovat Kovsky, *The Dictionary of Poetry* [M], Moscow, Russian Edition, 1985.
- [7] Cavoia Jr.*Oriental Poetry.*[M], Moscow, Russian edition, 1996.
- [8] Abduruf.*Uyghur Twelve Muqam Original Lyrics Collection.*(Uyghur), Beijing, National Publishing House, 2005.
- [9] Alimjan Tilwaldi.*On the Poetry of the Head.* 2003, Urumqi, Journal of Xinjiang University, the third issue.
- [10] Geng Shimin.*Ancient Turkic Literature Research.*[M], Beijing: Central University for Nationalities Press, August 2005, 1st edition
- [11]Geng Shi min. *Ancient Uyghur Literature Course.*[M], Beijing: Central University for Nationalities Press, June 2006, 1st edition
- [12] Cheng Shi liang.*Modern Uyghur Grammar.*[M], Xinjiang: Xinjiang People's Publishing House, 1996
- [13] Li Zeng xia.*The Foundation of Turkic Linguistics.*[M], Beijing: Central University for Nationalities Press, 1st edition, January 2011
- [14] Kirim Huja, Turson Ayuf, Israfil, etc by. Compilation.*Ancient Uyghur Literature Course* (Uyghur) [M], Beijing: Central University for Nationalities Press, September 1983 Version 1
- [15] Huang Shi yuan.*Twelve Muqam's Broken Butterfly.* [J], Ürümqi, "šinjang Art", No. 2, 2016

## Biography



**Ablimit Abdurahman**, Chinese, He was born at the doctor's home in Hotan city, Xinjiang on August 22, 1978. He graduated from Xinjiang Normal University in July 2010 with a major in Chinese minority language and literature. He is a postgraduate in Uyghur modern and contemporary language and literature research. In September 2017, he was a Ph.D. student of Chinese minority language and literature at the School of Chinese Minority Language and Literature of the Central University for Nationalities. The research direction is the study of Uyghur ancient modern language and literature, folk culture and toponymy.

# Critical Review on Language Learning Motivation in China

*Qingyi Qiu*

(Sichuan University, College of Foreign Languages and Cultures, Sichuan P.R. 610065, China)

**Abstract:** In order to present a balanced overview of the general level of L2 motivation in China through the lens of the L2 Motivational Self system, the original text reports on the findings of a large-scale cross-sectional survey of the motivational disposition of English language learners in secondary schools and universities in China. This essay mainly focuses on its achievements and improvements, thus drawing the conclusion that horizontal integrity of the original text is completely achieved, while vertical systematicness and relevance need to be further explored and improved. On the whole, the original text possesses a high quality of referential value for future research with its clarity, decency, and relevance.

**Key words:** L2 acquisition, motivation, L2 motivational self system

## 1. Introduction

Nowadays, Chinese learners constitute the largest English learner group in the world. Thus, the significance of knowing English has been dramatically raised in Chinese context. Based on the information, the researchers conducted a survey, within the participants from two learning contexts, three geographical regions, two types of secondary schools and universities, and two strands of universities, to obtain systematic and comprehensive overview of the motivational characteristics of learning English in China.

### *1.1 Important Aspects of the Language Learning Context in China*

In this part, three important aspects of the language-learning context in China are illustrated in detail. First, since economic disparities among regions result in uneven allocations of education resources, China displays considerable regional differences regarding English learning context. For example, in the past decades, eastern regions of the country have enjoyed better developmental opportunities, consequently students have better English proficiency than their peers elsewhere. The further developmental contrast within the regional differences is the urban disparity. Due to the scarcity in natural and social resources, priority has typically been given to urban areas over rural regions, and thus the gap between urban and rural areas in China has been widening. The third major source is educational discrepancy within the Chinese educational system: two different types of universities ("Project 211 and "Project 985" vs. ordinary universities).

Besides, there are two supplementary important aspects that are briefly introduced in the following passage: gender, English majors vs. non-English majors.

### *1.2 L2 Motivational Self System*

The basic tool of this study is introduced in this unit. They adopt L2 Motivational Self System that comprises three principal components: The Ideal L2 Self, the Ought-to L2 self, and the L2 learning Experience. The first refers to a desirable self-image of the kind of L2 user one would ideally like to become in the future. The core of Ought-to L2 self is an "imported" image i.e., the attributes that one believes one ought to possess to meet the expectations of others and to avoid possible negative outcomes. The L2 Learning Experience represents situated, "executive" motives related to the immediate learning environment/experience.

Within this model, two dimensions of the traditionally conceived instrumentality were proposed: promotional instrumentality and prevention instrumentality. The former refers to a "pulling a power", which denotes learning English is to facilitate professional achievement; the latter subsumes instrumental motives with an avoidance focus, including studying in order not to fail an English course or disappointing one's parents.

To be followed, a comparative study that highlights the significance of family aspects and "face", and a recent study focusing on the validity of the L2 Motivational Self System in both environments and interesting contextual variations are introduced to prove the system have been successfully used to analyze the learning motivation in China.

### *1.3 Research Paradigm*

In order to obtain a comprehensive and representative

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**Author:** Qingyi Qiu, Sichuan University, College of Foreign Languages and Cultures.

overview of English language learning motivation in China, special emphasis has been placed on the systematic nature of sampling. Additionally, two further categories are added here to increase sample size, serving as a supplement of the previous three aspects: gender, English majors vs. non-English majors.

## 2. Method

### 2.1 Participants and Instrument

The survey reported in the study investigates two different L2 learner populations — secondary and university students — evenly distributed across the three main regions of China: eastern, central, and western. It is conducted in the form of questionnaire, with the question aiming at three domains: (i) aspects of the L2 Motivational Self System, (ii) Intended Effort, and (iii) Language Learning Vision. However, the follow-up analysis mainly focuses on the first two.

### 2.2 Data Collection and Analysis

It is noteworthy that there is much work contributed to ensure the validity of experimental data. In the course of information processing, researchers ran several checks to spot any outliers or errors and to perform visual inspections of the questionnaires, in order to eliminate the meaningless ones.

As Reliability coefficients for the motivational variables are shown in Table 3, the data of good psychometric quality has guaranteed the appropriate quality of the survey administration procedures across the learning contexts.

## 3. Results and Discussion

### 3.1 Descriptive Results

Within the unit, the authors first describe the characteristics of second language learning motivation in China based on the comparative study, and then analyze the characteristics from five perspectives.

The descriptive information about motivational variables in Table 4 presents the highest scale value for intended effort, according to which the conclusion can be summarized that Chinese students in general are favorably disposed towards studying English as a foreign language.

Based on the fact that Ought-to L2 Self domain produced some of the lowest scores, results go against the common stereotype that the typical disposition of Chinese learners is less individualistic and more societally determined. On the contrary, the Ideal L2 Self scores are considerably higher across the board than the Ought-to L2 Self ones.

### 3.2 Comparison Across Genders

The researchers conclude that the core difference between male and female learners lies in their self-construal, since women's possible selves being characterized by more

interdependence and interpersonal qualities than those of men.

In the follow-up study, the idea of females' greater concern with interpersonal interaction and investing in self-other relationships makes it easier for them to envision themselves in future L2 communication situations, which thus allows for the development of more elaborate and phenomenological more robust motivational future self guides.

However, there are two exceptions to the robust gender-disparity trend in data. The first is the non-significant results in the two scales that directly reflect societal expectations. Second, there are fewer differences amongst university English majors than amongst the other students, for the high level of motivation overriding any gender differences.

### 3.3 Comparison Across Geographical Regions

Geographically bipolar, resulted from the economic stratification of China, is one of the most significant features. However, regional differences are making less difference in Chinese context. There are amount of phenomena to support this conclusion. First, the data that is least geographically affected subgroup is the university English majors. For another, similar to gender discrepancy, the commitments to pursue English studies override other influences. In addition, the more developed East was associated with higher levels of English-related disposition than the western region.

### 3.4 Comparisons Across Teaching Contexts

The study illustrates the relations between ideal language and education, i.e., the more advanced or specialized one's education, and the stronger ideal language image the student entertains.

Interestingly, it attributes the different picture that Ought-to L2 Self presents (the values for Parental Expectations in the university English majors, subgroup are higher than for non-English majors) for the "reciprocal duty" in Chinese society.

### 3.5 Motivational Impact on Intended Effort

Within this area, the study conveys three main findings.

For Chinese students, the desire to invest time and energy in language learning seems to be associated first and foremost with the evaluation of the learning process, which aligns with the previous study. It also reveals the relations between learners' attitude and age. The fact that the relations between Attitudes to L2 Learning and Intended Effort among secondary school pupils are higher than that in universities students indicates that the quality of the learning experience playing a more decisive role for younger learners than for their university counterparts. In addition, it proposes that one's idealized persona is a valid and potent motivator for Chinese learners of English.

### 3.6 The "Chinese Imperative"

The study proceeds the motivations based on a survey of Taiwanese learners. The uniquely Chinese factor, "a society emphasizing and even praising exam results", contributes to the Chinese achievement-related mindset that equates value with exam success. More importantly, the desire to avoid academic failure is indeed a powerful factor throughout all the subgroups, which is related to the Chinese concept of "losing face", and can be seen as East Asia-specific.

## 4. Comment

The follow-up essay will comment on the study conducted by CHEN JI NG (JULIA) YOU and ZOLTAN DORNYEI based on the "self language system".

### 4.1 The Structural Perspective

Regarding the title "Critical Review on Language Learning Motivation in China", it is directly and clearly stated, elucidating the purpose of the research. The only drawback is that the title indicates no sign of the experimental method or the theoretical basis. Having read the title, readers may realize the research area of this article, but they will find it hard to categorize the direction of research and to match the certain theory with. It would be clearer and more intuitive if L2 Motivational Self System could be referred in the title.

As for the introduction part, it briefly describes the evolution and the status quo of L2 learning in China, which leads to the rising significance of studying the language learning motivation. Geographical region, educational strand, university type, English major vs. non-English major and gender are regarded as the five perspectives to conduct comparative study. Researchers provide a brief introduction of L2 Motivational Self System. However, it seems for common readers there is a weak correlation between the system and the follow-up instrumentality: promotional instrumentality and preventional instrumentality. Therefore, my suggestion is that it had better intercalate the comparison of integrative motivation and instrumental motivation proposed by Gardner and Lambert, serving as a theoretical reserve.

With the respect of methods, the researchers clearly state their choice of sampling and questionnaire. The experimental object cover a wide range and invalid data are eliminated in the process of data analysis, which ensures the referential value of experimental results to the greatest extent. The researchers employ the method to analyze the connections among different variables, which makes the study more comprehensive and objective. Additionally, comparative tables are frequently used to contrast the different influence that different variables have on the

learning motivation.

The last part summarizes the conclusions that have been drawn from the study, while they are not systematically listed but mutually paralleling. However, those relative conclusions would become more systematical if reorganized from the perspectives as following. More importantly, language learning motivation has been determined by the joint operation of established components of the L2 Motivational Self System.

**Function.** Besides providing the comprehensive empirical description of the motivational set-up, the study also plays a role as baseline for future research that focuses on the evolution in Chinese context.

**Educational strand.** It is noteworthy that the researchers did not found a unique 'Chinese Imperative, factor that was conceptually different from Western notions of extrinsic motivation linked to the fear of academic failure. They also hold the idea that the principle of "reciprocal duty" is the main root of parents' motivational impact on Chinese students, especially for university English majors. I have my reservations about that, which will be explained from the perspective of contextual perspective later.

**Gender.** Its conclusion about gender is supported by ample information: gender difference plays a tiny role among university English majors.

**Geographical region.** It indicates that motivational set-up of Chinese learners of English is geographically bipolar. They deduce that the more advanced or specialized one's education was, the stronger ideal language image the student entertained. This slightly relates the characteristic of geographic region to education, which is good but not studied deeper or further.

### 4.2 The Content Perspectives

From the perspective of content, there are still three parts that should be improved, supplemented or replaced.

In this paper, single causality is the main analytical idea. However, a complex and dynamic research method should be introduced into the study. According to the conclusion part, we can find that the author has not systematically summarized and categorized the research conclusions, which weakens the interactive influence among the Ideal L2 Self, Ought-to L2 Self and L2 learning Experience. If the author could reconsider from the perspective of the interaction of the variables and their mutual effects, the content would be more comprehensive and multi-dimensional.

Second, due to a lack of detailed background information of previous study, there are some unnatural derivation of causality, which impedes the understanding and application of the research results. For example, in the first part, the authors introduce the L2 Motivational Self System, which directly lead to the two dimensions of instrumentality.



Personally, I think it would be better if the theory of integrative motivation and instrumental motivation proposed by Gardner and Lambert could be introduced in detail as background information first. In fact, the ideal L2 self is related to integrative motivation, since they both aim at eliminating the gap between actual self and ideal self; likewise, Ought-to L2 self is related to instrumental motivation, for they strive for avoiding the negative consequence caused by failure to learn foreign language. If readers are previously informed that integrative motivation has a strong sense of subjective purpose and both of the two sides constitute an organic integrity, they will have a better understanding of the system. With the theoretical root, the following conclusions based on the system would be more declarative and thus persuasive.

It is worth mentioning that in comparison across teaching context, the researchers explain the exception that the Ought-to L2 Self presents among university English majors. I agree with the first finding that the more advanced or specialized one's education is, the stronger ideal language image the student entertains. But I have my reservations that "reciprocal duty" in Chinese society is the main reason for that exception. When English is directly associated with their futures, the main impetus should be the subjective desire of the learners, instead of their parents expectation. Although parents' obligation encourages it to some extent, it merely plays a role as catalyst. As is mentioned above, China's national conditions are unique, but not incompatible with any other contexts. If so, the issue of ought-to L2 self can be transferred to the issue of Ideal L2 self, which proves that there is strong correlation within the system.

To conclude, analyzed from the perspective of

horizontal and vertical, the study covers a wide range of areas, mainly focusing on the "horizontal width". However, it is the too much emphasis on the width that makes the study omit the "vertical depths" to some extent, which in particular refers to the organic connection between various theories. Nevertheless, as we can see in the conclusion part, the results of the research are comprehensive and specific. On the whole, the article possesses a high quality of referential value for future research, with its clarity, decency, and relevance. Horizontal integrity is completely achieved, while vertical systematicness and relevance need to be further explored and improved.

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## References

- Qian Yu. (2018). A Study of L2 Motivation of Chinese College Students from the Perspective of Complex Dynamic Systems Theory.
- You, C., & Dornyei, Z. (2016). Language learning motivation in china: results of a large-scale stratified survey. *Applied Linguistics*, 37(4), pags. 495-519.
- Yihong Gao, Ying Cheng, Yuan Zhao, Yan Zhou. (2003). The Relationship Between Motivation Types and Motivation Intensity in English Learning: A Quantitative Investigation of a Pair of Undergraduates. *Foreign Language Research*(1). 60-64
- Xianjun Zhan. (2017) A Systematic Empirical Study of L2 Motivation. 2006-2015: *Foreign Language Journal*(3), 108-114

# Semantic Analysis of the Figurative Use of Chinese Physical Properties of ‘Tian- related’ Terms and ‘Suan-related’ Terms in NSM

*Ruixue Wu*

(Australian National University, Australian)

**Abstract:** There has been little work undertaken exploring the figurative use of Chinese physical property terms of ‘tian’ and ‘suan’ in the semantic aspect. Therefore, this article focuses on exploring figurative uses of Chinese physical properties ‘tian- related’ terms and ‘suan-related’ terms in the semantic aspect by using the method of Natural Semantic Metalanguage (NSM). All data will be collected from the online corpus of the Center for Chinese Linguistics (CCL) and the online corpus of BCC. Also, after analyzing the data, the basic use, and figurative uses of the ‘tian-related’ term and the ‘suan-related’ term will be represented by using semantic primes and semantic molecule in this paper. The findings indicate that the figurative use of Chinese physical properties of ‘tian-related’ terms and ‘suan-related’ terms are developed based on their basic use.

**Key words:** semantics, Chinese physical properties, figurative use, ‘Tian-related’ terms, ‘Suan-related’ terms, NSM, semantic primes, semantic molecule

## Introduction

This essay will focus on investigating figurative uses of Chinese physical properties ‘tian-related’ terms and ‘suan-related’ terms in the semantic aspect. The data in this study will be drawn from the online corpus of the Center for Chinese Linguistics (CCL) and the online corpus of BCC and semantic meanings of these data will be analyzed by using the method of Natural Semantic Metalanguage (NSM). Then, the basic use and one figurative use of the polysemous word ‘tian’ will be analyzed by elucidating the precise meanings and NSM templates of these uses will be given respectively. Similarly, the basic use and two different figurative uses of the polysemous word ‘suan’, will be analyzed respectively by elucidating the precise meanings and NSM semantic templates of these uses will be given respectively. Also, all the NSM explications in this study are framed in the vocabulary of semantic primes and semantic molecule. Furthermore, the semantic relationship between all basic use and figurative uses of ‘tian’ and ‘suan’ will be discussed in this study.

### 1. Data analysis of ‘tian-related’ terms

#### 1.1 Data analysis of ‘tian-related’ term of basic

#### use: the taste feature of ‘tian’

In Chinese, the term ‘tian’ is polysemous and the basic sense of ‘tian’ is a specific and good taste of something that can be eaten by people (Xu, 2018). What’s more, the basic sense of ‘tian’ can be found in a large number of sentences in Chinese. For example:

a. ST: 蜂蜜挺甜的, 从蜂蜜中提炼‘糖’, 算不得什么稀奇事儿! (BCC)

Lit. Honey very tian, from honey extract sugar, count not as some strange thing.

TT: Honey is extremely sweet; it is not strange to extract sugar from honey.

b. ST: 等到秋天你再吃鲜的, 那时候山丁子比橘子甜, 爽口宜人. (BCC)

Lit. Wait until autumn you again eat fresh, that time Chinese crab apple than orange tian, pleasant and enjoyable.

TT: You can eat fresh malus until autumn because Chinese crab apple is sweeter than orange at that time with enjoyable and pleasant.

From these two examples above, the word ‘tian’ is used to describe the taste of things like ‘honey’ and ‘Chinese crab apple’. From the second example, ‘等到秋天你再吃鲜的’ (Lit: Wait until autumn you again eat fresh), which demonstrates the physical sensation a person

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**Author:** Wu Ruixue, female, born in Nov 1993, majoring in Master of General and Applied Linguistics in Australian National University.

may experience when a food substance touches a person's mouth, it can be found that these things like 'honey' and 'Chinese crab apple' can be eaten by someone 'you' and this someone 'you' can use parts of their mouth to touch parts of these things like 'honey' and 'Chinese crab apple' when they eat them. Therefore, as well as encountering the taste of a food substance someone will also experience the physical properties and they can feel something existing in parts of these things. So, the semantic explication of 'tian' can be started with 'this thing is like this, this thing can be eaten, if some parts of someone's mouth touch parts of this thing, because of this, this someone can feel something in these parts of this thing, because of this, this someone can feel something in this thing'.

Besides, from the first example, '从蜂蜜中提炼糖' (Lit: from honey extract sugar), it can be found that something 'sugar' is existing in this thing and there can be more sugar in this thing. So, when this someone 'I' eat this thing 'honey', they will know that sugar is existing in this thing 'honey'. So, the semantic explication can be described as 'because of this, this someone can think like this: thing can be like this if there is much sugar in it, because of this, when this someone eats this thing in someone's mouth.' After that, from the second example, when this someone 'you' eat this thing 'malus', this someone 'you' can feel '爽口宜人' (Lit: pleasant and enjoyable). So, it can be found that when someone eats this thing, they can feel good. As a result, the semantic explication can be described as 'because of it, this someone feels something good.' As a result, the NSM template should be the following:

[1] This thing (e.g. honey, malus) is tian.

this thing is like this: this thing can be eaten [M], if some parts of someone's mouth [M] touch parts of this thing, because of this, this someone can feel something in these parts of this thing because of this, this someone can feel something in this thing because of this, this someone can think like this: 'thing can be like this if there is much sugar [M] in it, Because of this, when this someone eats [M] this thing in someone's mouth[M], this someone can feel something good, because of it' when people eat [M] this kind of things are always like this From this NSM template of 'tian' above, it can be found that the term 'tian' in these situations is a basic use of a good taste feature of something that can be eaten, and when someone eats something 'tian', they can feel something good.

## 1.2 Data analysis of 'tian-related' term of figurative use: the emotional state of 'tian'

According to Xu (2018), the term 'tian' always a

positive word, it was not only used to describe a good taste but also related to describe people's good feelings. So, in this section, the term 'tian' will be analyzed and the NSM template of its figurative use will be given based on the following examples:

a. ST: 我羞的满脸通红的直跺脚, 心里甜的恨不得赶紧管她叫妈. (CCL)

Lit. I shy full face red continue to stamp, the heart inside tian eager to rush her call mother.

TT: I was ashamed of the red face and continue to stamp feet, my heart feels happy and eager to call her mother.

b. ST: 听到别人如此表扬我, 心里感觉很甜, 像吃了蜜一样甜. (BCC)

Lit. Heard someone such praise me, the heart feels tian, like eat honey same tian.

TT: I was happy to hear people praise me so much.

From these examples above, both the first example '心里甜的恨不得赶紧管她叫妈' (Lit: heart inside tian eager to rush her call mother) and the second example '心里感觉很甜' (Lit: heart feels tian), use the term 'tian' to describe the feelings of someone 'couple' and 'me'. So, it can be found that the term 'tian' in these situations is a kind of emotion word, which stands for a typical way of thinking and feeling of people (Gladkova, 2010). From the second example, '听到别人如此表扬我' (Lit: Heard someone such praise me), it can be found that the feeling of 'tian' is happened right now after the positive action 'praise me' was done by someone else. This feeling of 'tian' often happened at the time after someone finishing the action 'praise', it will not be last for a long time. So, the semantic explication of 'tian' can be started with 'someone X feels something good at this time, like people can feel at many times when they think like this:'.

Also, in the example, after the positive action 'praise me' happened, the someone 'I' feels 'tian' and this someone 'I' wants this positive action to happen. Moreover, before this positive action happened, this someone 'I' wants this happened; after this positive action happened, this someone 'I' can be in a state of 'tian' in a short time because something good happened to this someone 'I'. So, the second part of explication can be described as 'someone X can think like this: many good things happened to me, as I want this good thing happened, because of this, I don't want anything else now'. After this, in the example of '心里感觉很甜, 像吃了蜜一样甜' (Lit: like eat honey same tian), this someone 'I' feel good and this someone's good feeling seems like this someone ate something that has much sugar in it. So, the last part of the semantic explication of 'tian' should be 'because of this, someone 'I' feels something good at this time, like

people often feel when they think like this.’ As a result, the NSM template should be described as the following:

[2] Someone X feels something good at this time like people can feel at many times when they think like this: ‘many good things happen to me now as I want this good thing happened because of this, I don’t want anything else now’ because of this, someone X feels something good like this someone eats [M] something is much sugar [M] in it because of this, someone X feels something good at this time like people often feel when they think like this From this NSM template of ‘tian’ above, it can be found that the term ‘tian’ in these situations is a kind of figurative use of ‘tian-related’ term and it was derived from the basic use of ‘tian-related’ item. Also, it can be used to describe someone’s good emotional state in some specific situations.

## 2. Data analysis of ‘suan-related’ terms

### 2.1 Data analysis of ‘suan-related’ term of basic use: the taste feature of ‘suan’

In Chinese, the term ‘suan’ is polysemous and it has more than one senses and usages. According to Ding (2010), it is common that the basic use of ‘suan’ is used to describe the taste feature of something that can be eaten, such as food or fruit. Besides, this basic use of ‘suan’ can be found in many sentences in Chinese. For example:

- a. ST: 我们拣了一颗红的吃了, 有李子的气味, 却是很酸. (BCC)

Lit. We picked up a red ate, have plums smell, but is ‘suan’.

TT: We picked up a red and ate it. It smelled like plums, but it was sour.

- b. ST: 乔安吃柳丁时, 脸上的表情跟别人在吃柠檬时一样。她一次最多只能吃一片, 她说柳丁很酸. (BCC)

Lit. Joanne eat mandarin, face’s expression and other person eat lemon the same. She once most only eats one piece, she said mandarin very ‘suan’.

TT: When Joanne ate the mandarin, she had the same expression on her face as when others ate the lemon. She could eat no more than one tablet at a time because she said mandarin was very sour.

- c. ST: 一颗颗很慢地吃, 仿佛没了刚才的爽甜, 酸结了秀眉啦. (BCC)

Lit. One by one slowly eat, as if not just now bright sweet, ‘suan’ wrinkle eyebrow.

TT: Slowly eat one by one, as if not just the cool sweet, sour taste wrinkle someone’s eyebrow.

In these three examples above, the word ‘suan’ was used to describe the taste of a kind of thing like plums and

mandarin. So, it can be found that ‘suan’ is a quality of something can be eaten in the examples above. As a result, the explication of ‘suan’ can be started with the component ‘this thing is like this: this thing can be eaten’.

Then, from these three examples above, it can be found that this ‘suan’ thing (like plums and mandarin) can be eaten by people with using part of their mouth to touch this thing. Also, from the second example, ‘她说柳丁很酸’ (Lit: she said mandarin very ‘suan’), this someone ‘she’ can feel something ‘suan’ in mandarins and she can know something exists in the mandarin. So, the second part of the explication of ‘suan’ can be described as ‘if parts of someone’s mouth touch parts of this thing, because of this, this someone can feel something in these parts of this thing’.

However, from these three examples above, someone like ‘Joanne’ feels not good when ‘Joanne’ eat this thing. Also, in the third example of ‘仿佛没了刚才的爽甜, 酸结了秀眉啦’ (Lit: As if not just now bright sweet, ‘suan’ wrinkle eyebrow), when someone eat this ‘suan’ thing, he thinks that this ‘suan’ thing taste not sweet, which means this thing has less sugar and someone feels not good when he eats this ‘suan’ thing with a not good expression. So, it can be found that because of this ‘suan’ thing is not sweet, people can think that this ‘suan’ thing has less sugar in them and this makes people feel uncomfortable and feels not good. Because of this thing has less sugar, when people eat this thing, their expression on their faces will be changed and someone else can know what happens when someone else sees their expression. So, the last part can be described as ‘this thing does not have much sugar in it, because of this, when this someone eats this thing in someone’s mouth, this someone feels something not good, because of this, this someone’s face is not same as before in some way, someone else can know what happened, because of this’. Finally, from these examples above, it can be found that when people eat this ‘suan’ thing, they will have similar feelings and expressions. As a result, the NSM template should be the following:

[1] This thing (e.g. fruit) is ‘suan’.

this thing is like this: this thing can be eaten [M], if some parts of someone’s mouth [M] touch parts of this thing, because of this, this someone can feel something in these parts of this thing because of this, this someone can think something like this: ‘this thing does not have much sugar [M] in it because of this, when this someone eats [M] this thing in someone’s mouth, this someone feels something not good because of this, this someone’s face [M] is not the same as before in some way, someone else can know what happened, because of it’ when people eat [M] this kind of things are always like this From this

NSM template of ‘suan’ above, it can be found that the term ‘suan’ in these situations is a basic use and it can be used to describe a bad taste of something that can be eaten.

## 2.2 Data analysis of ‘suan-related’ term of figurative use 1: the emotional state of ‘suan’

According to Ding (2010), the term ‘suan’ not only includes the basic use of taste feature, but also some relate figurative uses in Chinese. There are some examples:

a. ST: 韩某看到妻子和别的男人说笑, 心里酸溜溜的, 一脸不开心. (BCC)

Lit. Han saw wife and other man chatting and laughing, heart ‘suan’, face not happy.

TT: Han saw his wife chatting with another man with laughing, jealous in his heart.

b. ST: 她又和谁缠上了, 我在旁边一边犯酸, 一边想, 这个人好有福气. (BCC)

Lit. She again with somebody together, I at side feel ‘suan’, and think, this somebody has good lucks.

TT: She ties up herself with somebody again and I stay at the side feeling jealous with thinking of how lucky this person is.

From the first example, ‘心里酸溜溜的’ (Lit: heart ‘suan’), it can be found that the someone Han’s heart is ‘suan’ when this someone ‘Han’ saw his wife was chatting with another man. After this happened, he was ‘一脸不开心’ (Lit: face not happy). So, it is known that Han is not happy because something bad happened. In the second example, ‘我在旁边一边犯酸’ (Lit: I at side feel ‘suan’), the someone ‘I’ feels ‘suan’ at the time that this someone find that ‘she’ ties up herself with someone else ‘somebody’ again. From these two examples, it can be found that the term ‘suan’ in these situations is used to describe someone’s emotional state at the time after something bad happened. So, the semantic explication of ‘suan’ can be started with ‘Someone X feels something bad at the time, like people can feel at many times when they think like this:’.

From the first example, ‘妻子和别的男人说笑’ (Lit: Wife and another man chatting and laughing), it can be found that the wife feels happy when she chatting with another man with laughing. In this case, something good happened to someone else ‘another man’, but this something good doesn’t happen to Han. In the second example, ‘她又和谁缠上了’ (Lit: She again with somebody together), and ‘这个人好有福气’ (Lit: this somebody has good lucks), something good happened to the someone else ‘this somebody’ in this example, but it doesn’t happen to this someone ‘I’. Because of this, Han and someone ‘I’ feels ‘suan’. That is, for someone like

Han to be in a state of ‘suan’, because something good happened to someone else, something good did not happen to Han. So, Han will be in a state of ‘suan’ at the time because of this. Because of this, Han wants things like this to happen to him, he doesn’t want this something good happened to someone else. So, the second part of semantic explication of ‘suan’ can be described as ‘people can feel bad when they think like this: something good happened to someone Y, things like this didn’t happen to me, because of this, I want things like this to happen to me, I don’t want things like this to happen to someone Y because of this.’ As a result, the NSM template should be described as the following:

[2] Someone X feels something bad at the time like people can feel at many times when they think like this: ‘something good happened to someone Y things like this didn’t happen to me because of this, I want things like this to happen to me

I don’t want things like this to happen to someone else because of this’ because of this, this someone X felt something bad

like people often feel when they think like this

From this NSM template above, it can be found that the term ‘suan’ in these situations is a kind of figurative use and it can be used to describe someone’s bad emotional state in some specific situations at the time.

## 2.3 Data analysis of ‘suan-related’ term of figurative use 2: the emotional state of ‘suan’

Apart from the first figurative use of ‘suan-related’ term, the other figurative use can be found based on the following examples.

a. ST: 好像在乱离后遇见了亲人一般, 静突然感动, 几乎想拥抱她, 从头几诉说自己胸中的悲酸. (BCC)

Lit. As if at messy departure after met relatives likely, Jing suddenly moved, almost want to hug her, from beginning tell herself chest sorrowful suan.

TT: She seems to like to have met her relatives after a messy departure, Jing was suddenly moved and almost wanted to hug her, telling all things about how sad she was.

b. ST: 囤的米吃的见了底啦, 孩子不懂事, 还嚷着要上学……我鼻子一酸, 忍住了眼泪. (BCC)

Lit. Hoarding of rice to eat see the bottom, the child is not sensible, also shouted to go to school... My nose was suan and I held back tears.

TT: The rice was eating up and children are eager to go to school, I feel sad, but I hold back tears.

c. ST: 他的心都碎了, 只觉一股酸东西冲上鼻

腔，便把眼泪挤了出来。(BCC)

Lit. His heart all broken, only feel a stream suan thing dash up nasal cavity, then squeeze tear come out.

TT: His heart was broken, he feels sad, then he cried out with tears.

From the first example, Jing wants to express ‘suan’ in her chest after the thing ‘乱离’ (Lit: messy departure) happened to her. From the second example, the nose of someone ‘I’ was ‘suan’ and the someone ‘I’ want to cry with tears after the thing ‘囤的米吃的见了底啦，孩子不懂事，还嚷着要上学’ (Lit: Hoarding of rice to eat see the bottom, the child is not sensible, also shouted to go to school) happened to this someone ‘I’. So, from these examples, it can be found that the term ‘suan’ was an emotion word describing the state of people and they have this kind of emotion because something happened is bad. So, the semantic explication can be started with ‘Someone X feels something bad for some time, like people can feel at many times when they think like this.’

What’s more, it also can be found from the first example that Jing doesn’t want things bad to happen, she is in a state of ‘suan’ for some time because things bad happened to her. Because of this, Jing wants to do something to change the bad thing. Also in the second example, someone ‘I’ cannot do anything but ‘忍住了眼泪’ (Lit: held back tears) in the first example. So, the second part of semantic explication of ‘suan’ can be ‘this someone would think like this, thing bad had happened to me, I don’t want things like this to happen to me, because of it, I want to do something if I could, I know I can’t do anything because of this’. Because of this, someone ‘I’ and ‘Jing’ in the examples above, feel bad. Also, in the third example, someone ‘he’ feels a stream ‘suan’ thing and cried out with tears because of his heartbroken. So, the last part of the semantic explication of ‘suan’ can be ‘because of something bad happened, I feel something bad’. Because of this, this someone feels bad at some time, like people often feel when they think like this. As a result, the NSM template of ‘suan’ should be described as the following:

[3] Someone X feels something bad for some time

like people can feel at many times when they think like this: ‘something bad had happened to me

I don’t want things like this to happen to me because of it, I want to do something if I could I know I can’t do anything because of this because of this, I feel something bad’

because of this, someone X feels something bad for some time, like people often feel when they think like this

From this NSM template of ‘suan’ above, it can be found that the term ‘suan’ in these situations is a kind of

figurative use and it can be used to describe someone’s bad emotional state for some time in some specific situations.

### 3. Discussion

From the analysis of the term ‘tian’, it can be found that the term ‘tian’ not only has the basic use of describing something’s good taste feature but also has the figurative use of describing someone’s good emotional state at the time. After analyzing the basic use and figurative use of the Chinese term ‘tian’, this study finds that the figurative use of ‘tian’ of describing someone’s good emotional state is developed from the basic use of ‘tian’. According to Liu and Shang (2010), the taste ‘tian’ is a good taste and it can bring a good feeling to people who eat something ‘tian’. When people eat something ‘tian’, they will feel good and have a good emotional state. Then the figurative use of the term ‘tian’ is developed based on the basic use of ‘tian’ and it is to describe someone’s good emotional state in some specific situations.

From the analysis of the Chinese word ‘suan’, it can be found that the term ‘suan’ not only includes the basic use of describing something’s bad taste feature but also includes some figurative uses of describing someone’s bad emotional state at the time or for some time. After analyzing the basic use and two figurative use of Chinese term ‘suan’, this study finds that the two figurative uses of ‘suan’ were developed based on the basic use of ‘suan’. For example, the word ‘酸’ in the noun phrase ‘酸东西’ (suan thing) in the third example of the second figurative use of ‘suan’, ‘suan’ was used its basic use to represent people’s sad. Because the someone ‘he’ fell ‘suan’ after his heartbroken, which was similar as the bad feeling of eating ‘suan’ thing. According to Ding (2010), the taste ‘suan’ generally is a bad taste and people will feel uncomfortable and unpleasant when people smell of taste ‘suan’. After that, they also feel not good and will be in a bad emotional state. So, the figurative use of the term ‘suan’ was developed based on the basic use of ‘suan’ and it is used to describe people’s bad emotional state in some specific situations.

### 4. Conclusion

In summary, this article finds that the Chinese term ‘tian’ has one basic use, which was used to describe the good taste feature of something can be eaten. It also has one figurative use which was developed based on the basic use of ‘tian’ and it is used to describe someone’s good emotional state in some specific situations. Similarly, as for the Chinese term ‘suan’, it has one basic use which

was used to describe the bad taste feature of something can be eaten. Also, the term 'suan' has two figurative uses, which were developed based on the basic use of 'suan', and these figurative uses are used to describe someone's bad emotional state in some specific situation for some time or at the time.

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## References

- Gladkova, A. (2010). Sympathy, compassion, and empathy in English and Russian: A linguistic and cultural analysis. *Culture & Psychology*, 16(2), 267-285.
- Goddard, C. (2011). *Semantic analysis: A practical introduction*. Oxford University Press.
- Goddard, C., & Wierzbicka, A. (2007). NSM analyses of the semantics of physical qualities: sweet, hot, hard, heavy, rough, sharp in cross-linguistic perspective. *Studies in Language. International Journal sponsored by the Foundation "Foundations of Language"*, 31(4), 765-800.
- Zhan, W., Guo, R., & Chen, Y. (2003). The CCL Corpus of Chinese Texts: 700 million Chinese Characters, the 11th Century BC-present. Available online at the website of Center for Chinese Linguistics (abbreviated as CCL) of Peking University, <http://ccl.pku.edu.cn>, 8080.
- 丁慧 2010, "英汉语味觉词“酸”的语义特征之比较", *科技信息*, no. 8, pp. 162-
163. [Ding, H. (2010), Comparison of semantic features of the taste word acid in English and Chinese, *Science and technology information*, no. 8, pp. 162-163.]
- 刘明江, 尚 2010, "“甜”和“苦”的味觉隐喻现象浅析", *重庆科技学院学报: 社会科学版*, no. 6, pp. 132-134. [Liu mingjiang, Shang. (2010), Analysis on taste metaphor of "sweet" and "bitter", *journal of chongqing university of science and technology: social science edition*, no. 6, pp. 132-134.]
- 徐清婷 2018, 认知隐喻视角下味觉词“甜”的语义分析. *现代交际*, no.8, pp. 51. [Xu, qingting. (2018), Semantic analysis of the taste word "sweet" from the perspective of cognitive metaphor. *Modern communication*, no.8, pp. 51.]

# The Value and Effect of UK Seminar Teaching Models on Chinese Postgraduate Learning

Yizhou Ye<sup>a</sup> & Rong Zhou<sup>b</sup>

(a. The University of Glasgow; b. Foshan University of Science and Technology, Foshan, Guangdong, P.R. 528000)

This article is concerned with Chinese international postgraduate students' learning experience in seminar-based teaching models in UK. Studies shows that most of international students feel satisfied with the teaching approaches of university courses in the UK. Seminar-based teaching methods are one of the central components of higher education in UK. Semi-interviews are used in the study to investigate participants' attitude and experience of seminar-based teaching method. The results obtained in this research include that the majority Chinese student are satisfied and adaptable within seminar-based teaching and key issues are reflected in the assessment, classroom atmosphere, teacher attitude and teaching methods. Language and culture are the biggest barriers to learning and communication. The implications are that UK may offer more services to help them and Chinese universities will benefit from the promotion of seminar-based teaching methods.

## 1. Introduction

### *1.1 Satisfaction of Chinese and English higher education*

At present, there are more and more international students studying in higher education in the UK. International students from British universities are mainly from Asia. On the one hand, because of the promotion of national economic development policies (Iannelli & Huang, 2014), the growth of middle-class families in China has enabled more people willing to go abroad for further study, and parents are willing to support and send their children to go abroad to increase their knowledge of learning languages (Lin&Wang, 2015; Bodycott, 2009:361), but the most significant reason for the increase is the prestige of the education system and curriculum. Furthermore, since 2007, full-time students studying in England have shown an increase in the proportion of satisfaction in all areas of university life. The largest increase took place in assessments

and feedback (9 percentage points), followed by academic support (7 percentage points), and the percentage of satisfied with the course teaching increased by 4 percentage points (Steve Baskerville et al., 2011). In contrast, the satisfaction of Chinese students of Chinese higher education has declined. Although Chinese education has undergone reform, studies have shown that Chinese universities lack innovative and international high-quality postgraduate education, having less availability of good research facilities and conditions, and hard to find high-level tutors, which is an important reason for Chinese college students to be dissatisfied with their graduate education (ibid). Furthermore, the lack of creativity and in-depth learning in Chinese universities remains unresolved, manifested in the lack of learning skills to achieve deep learning at the undergraduate level (Yin, Lu, Wang He, 2014).

### *1.2 The advantages and disadvantages of Seminar Based teaching*

In Western educational thought, it is seen as a means of solving the relationship between the generality of theory and the diversity and complexity of reality, and a way of combining theory with practice. From the perspective of the relationship between lectures and "seminar", the two are very closely related. "Seminar" is the digestion, understanding and application of the lecture content (Sami, 1993). There is rarely a representative textbook of the whole program. Professors must design their own teaching plans according to the characteristics of the discipline, and clarify the key points, clues and methods of the discipline. In addition, it introduces a large amount of reading materials for students to think and grasp. Due to the extensive participation of "seminar" students, the discussion and communication between the special report and the audience also enhanced the inspiration and influence between the students, which has a cooperative effect. Finally, the ability to improve the ability to express ideas and thinking. Western liberal arts teaching pays attention to improving students' ability to effectively transfer learning outcomes in both oral and written form. It is

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Author: Yizhou Ye, The University of Glasgow. Rong Zhou, Foshan University of Science and Technology.



believed that all students' grades should reflect the level of mastery and expression of subject content.

Of course, there are also shortcomings in the seminar. First, the seminar may increase the pressure on graduate students and significantly reduce the time for graduate students to develop other abilities. Coursework and thesis are also very stressful. Second, the seminar may increase the cost of the university. The successful development of a seminar requires not only excellent teachers, but also hardware and material security. Third, the seminar may waste of time and students may feel disappointed as while focusing on communication, speakers may share incorrect knowledge, or have no knowledge at all, and may not have a positive effect on the topic, which may be boring.

### **1.3 Research objectives and questions**

The core theme of this small-scale study is to examine the experiences international Chinese postgraduate students of seminar-based learning. It is characterized by the improvement of students' academic research and self-learning ability. However, the teaching methods of the seminar are still in their infancy in China, and many universities do not offer such courses properly. However, almost all universities and colleges in the UK, regardless of their grade level, have launched Seminar to varying degrees and incorporated them into formal teaching programs, playing an important role in cultivating graduate students. The seminar studied in this paper refers to the graduate-oriented seminar, which is mainly divided into three parts: teaching mode, classroom form and interaction. The aim is, through semi-interview for 10 people to explore how seminars can improve the learning abilities, thinking patterns and language abilities of Chinese international graduate students, their attitudes towards educational research in the UK seminars, and their views on the promotion of seminars in China as a teaching method.

## **2. Review of seminar development**

### **2.1 Review of American/German universities**

The seminar was first seen in the normal school founded by the sectarian educator Frank in the 18th century. Gesner first introduced the seminar to university teaching. He founded the Seminar of philosophy at the University of Göttingen in 1737. Seminar was founded by individuals in the early days. Only a small number of humanities, such as philosophy and linguistics used this approach, which often disappeared following by their death. The concept was exported to the United States, and then passed to the United Kingdom. Until the first half of the 19th century, there were more seminars founded by individuals than by institutions in US. Despite this, the seminar has trained a large number of outstanding scholars for Germany, and has enabled many

universities, such as Giessen University and Berlin University, to become world-renowned universities. In the second half of 19th Century due to their famous seminars. The seminar has become the mainstream as the official recognition and funding of the government has greatly promoted the development of scientific research in universities. It has also made the form of the seminar increasingly formal and expanding, with not only specialized instructors, but also specialized libraries, places and funding (SeánM. Williams, 2011, cited from Lee, R., 2017:27).

### **2.2 Review of seminar-based learning in China**

Research on the implementation process of Seminar teaching. There are two main research ideas. One is to use Seminar as an advanced teaching method to discuss in detail which main procedures should be included in the Seminar teaching curriculum while the other is to build a Seminar teaching model.

The study of seminar-based teaching models in China has many limitations and difficulties in transitioning from a teaching confusion model to a more collaborative construction. It may be difficult for them to receive a mature and comprehensive seminar class until they reach other countries' universities as international graduate students. Therefore, it is important to examine the experiences of Chinese students and the influence of Seminar teaching methods different from traditional Chinese teaching on their learning and the transformation of their thinking.

## **3. Finding**

In qualitative research, data comes from the voices of participants and their stories and life experiences. 10 postgraduate students were interviewed, and details are provided below. Only by learning more about their views and their teaching experience can you understand this phenomenon. There were 9 females and 1 male interviewed, which reflects the gender split in Education Studies. Most students were aged around 21 - 24 years old. Thematic analysis was applied to the interview transcripts and six themes emerged which will be outlined following some description of the participants.

### **3.1 Context: teaching approaches, evaluation and schedule**

After the seminar teaching method, the students' learning concepts have changed. First, the view of a problem is more comprehensive and critical. The seminar not only allows students to master the content what they think but also the understanding of their own thinking process which led them to be clear about the content and methods of their thinking and learn to control their thinking process. It can be seen through the teaching approach and attitude. The seminar focuses on the democratic nature of education, with students

as the center and teachers' responsibility for guiding. Teaching and evaluation is also more diverse and open.

### ***3.2 Future influence: study habits, way of thinking, self-efficacy***

Self-efficacy refers to the ability judgment, belief or subject self-grasp and feeling of an individual's ability to complete an activity at a certain level. It is determined by the interaction between the individual, the environment and the action. Some students find the seminar useful, but others feel useless.

The seminar-based teaching method seems to promote students' learning ability and self-efficacy. What's more, seminars have changed their way of thinking and pushes them to prepare before having class. Besides, it nurtures leadership. On the other hand, someone thinks it doesn't work too much for themselves.

### ***3.3 Problems: Language and Culture***

The biggest problem is mainly in language and culture. Most students' English level are not good enough to keep up with class speed, and it also affects social and learning. They all said that it would be better if they switched to their native language. Culturally, it perhaps because of the Chinese educational environment and historical culture that Chinese students generally do not like to discuss in class, although the guidance of teachers and the help of foreign students have improved a bit.

### ***3.4 Attitude of Seminar in China: advantage, disadvantage, experience***

Most students think seminars will benefit Chinese university as it will improve student's critical thinking and pressure of learning. Nevertheless, although they think it is good for students, there are still some concerns about promoting the development of the seminar-based teaching method in China which mainly concentrate on cultural habit and resource allocation (place, staff, curriculum).

In summary, seminar-based teaching method improve most of participants' learning ability and critical thinking from teaching approach and assessment. However, some participants reflect that they are not used to the method and prefer Chinese one. Besides, some participants shared their unforgettable memory of seminar in China university and give advises for its promotion in China.

## **4. Conclusion**

This essay has investigated the value and effect of UK seminar-based teaching models on Chinese Postgraduate students who study in the UK. First, the brief background shows that Chinese student's study in UK are more satisfy

with the western education system and Seminar-based teaching method is the one of the most important characters embodies British education.

From the study, it has the function of two-way interaction, which is beneficial to mobilize the enthusiasm of students, and forms a student-centered classroom which improves their passion. Second, seminar-based teaching modes can change their learning habits as it enriches the scope of reading and improve reading and language levels because students need to understand the general principles of specific things, and the scope of the discussion can be multi-disciplinary. Third, the seminar-based teaching mode fosters the spirit of student exploration. In the process, the teacher acts as a facilitator, not only refuse interrupt but also discuss with the students. Fourth, the seminar-based teaching mode will help to increase team spirit and improve expression. The shortcoming of the seminar-based teaching mode is that it may consume a lot of manpower, material and financial resources, and it may take up students' time and sometimes students may not be involved in the classroom.

The implication is Chinese government may invest more to solve the insufficiency and build a better environment of Chinese higher education. It requires more experienced and well-trained teachers because teacher design papers may not match the content of teaching materials, and teaching design is not reasonable because of the lack of quality of teaching management (Yang et al., 2010) which is greatly related to whether students actively participate and prepare carefully. Some students are accustomed to passive learning, only talking casually when communicating and exchange, and their own harvest experience is not great (Jiang & Yu, 2011). Second, the content and form of course assessment should be developed in multiple dimensions rather than just staying in memory and test papers. Third, obviously the teaching of seminars requires certain conditions, such as books and materials, teaching places, etc.. Since the use of seminar teaching in classroom teaching is still in the pilot stage, teachers and students are not completely satisfied with the digital resources of schools, the use of libraries, or the use of open laboratories which needs more contributions. The limitation of this article is that the interview method can only cover part of the universality. The respondents are all students of the education college, and the interviewers are mostly women. There is no survey of the teacher's attitudes and no data on the relevant support institution. Therefore, more data from other professional and gender students, teachers and school institutions are needed.

# The Ethical Dimension of Deng Xiaoping's Reform Thought

*Junjian Dai*

(School of Public Administration, Nanjing Normal University, Nanjing, P.R. 210046, China)

**Abstract:** The ethical spirit of Deng Xiaoping's reform thought is embodied in four aspects: first, in the direction of reform, adhere to the ethical orientation of the socialist road with Marxism as the guiding ideology; second, in the goal of reform, adhere to the ethical spirit of fairness and justice with the aim of common prosperity; third, in the task of reform, focus on economic construction and adhere to the ethical principle of people's interests first. Fourthly, in terms of reform power, we should take the people as the source and adhere to the ethical thinking of historical materialism. A thorough study and interpretation of Deng Xiaoping's reform thought from the ethical dimension is of great theoretical value and practical significance for the CPC to achieve new great achievements in promoting reform and opening-up in the new era.

**Key words:** Deng Xiaoping, reform thought, ethical dimension

## Introduction

Entering a new era, our Party should push the cause of reform and opening-up to a new historical stage and be good at summarizing and drawing on the reform experience of our Party for more than 40 years. Deeply discussing and studying Comrade Deng Xiaoping's reform thought from the ethical dimension has important guiding significance for our Party to deepen the reform in an all-round way.

### 1. Adhering to the Ethical Orientation of the Socialist Road

Direction decides the road, and road decides success or failure. The first principle of socialist reform is to adhere to the direction of socialism as a guide, adhere to the guiding position of Marxism, and adhere to the ethical value orientation of socialism. This is the fundamental guarantee for the Communist Party of China to lead the people of all nationalities in carrying out reform and achieving significant achievements.

Deng Xiaoping expounded the necessity of adhering to the socialist orientation in the reform. He also discussed how to adhering to the socialist orientation in the practice of reform from both positive and negative aspects, that is, how to adhere to the guiding position of Marxism in the process of reform and prevent the erosion of the free ideological trend in Western society. First of all, we should always adhere to the guiding position of Marxist theory in the process of reform, which is the necessary prerequisite to

ensure that socialist reform follows the socialist road. According to Marx and Engels, the advanced nature of the Communist Party lies in its scientific world outlook as a theoretical basis, and this scientific world outlook is Marxism. Deng Xiaoping also pointed out in his talks in the South that "more and more people in the world will be in favor of Marxism, because Marxism is science" <sup>[1]</sup>. As the ideological and theoretical basis of our Party's science, only by adhering to its guiding position can we ensure that the socialist direction of reform remains unchanged and that reform can be successful. As Deng Xiaoping said, "It is very important for China to adhere to Marxism, and it is also very important for China to adhere to socialism. Belief in Marxism is a spiritual motive force for the victory of the Chinese revolution." <sup>[2]</sup> At the same time, Deng Xiaoping also emphasized that we should combine the general principles of Marxism with China's specific practice, so as to better play the guiding role of Marxism.

### 2. Adhering to the Ethical Spirit of Fairness and Justice

Fairness and justice is an important ethical spirit in ethics. It is the guiding principle and behavioral norm to coordinate the relationship between individuals and collectives. The second generation of the Party's leading collective with Deng Xiaoping as its core attaches great importance to the ethical spirit of fairness and justice in the process of reform.

Deng Xiaoping's reform goal of common prosperity is

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**Author:** Dai junjian (1988-), male, from taiyuan, Shanxi Province, majoring in political science.

not only the inevitable requirement of our country's reform to adhere to the socialist direction, but also the concrete and vivid embodiment of the ethical spirit of fairness and justice. Concerning what is common prosperity, Deng Xiaoping made two explanations according to the essence of socialism and the historical stage of socialism in our country. First, common prosperity is the fundamental feature and essential requirement of socialism. Secondly, Deng Xiaoping creatively put forward the way of common prosperity, which enriched and developed the Marxist concept of common prosperity. As Deng Xiaoping said, "In terms of economic policy, I think we should allow some areas, some enterprises and some workers and peasants to earn more and live better first because of their hard work. If some people live well first, they will inevitably produce a great demonstration force, influence their neighbors and bring people from other regions and units to learn from them. In this way, the whole national economy will continue to develop in waves, and the people of all ethnic groups in the country will be able to prosper relatively quickly."<sup>[3]</sup>

### **3. Adhering to the Ethical Principle of the Supremacy of the People's Interests**

Seeking the fundamental interests of the proletariat and the broad masses of the people is the basic starting point and destination of the Marxist political party, and also the ultimate value goal of the Ruling Ethics of the Marxist ruling party. Whether the Ruling Ethics is good or bad, its most fundamental value judgment lies in the extent to which the fundamental interests of the broad masses of the people have been realized.

The reform task centered on economic construction is a response to the concerns of the people's interests, adheres to the ethical principle that the people's interests are paramount, deepens the Marxist view of the people, and embodies the purpose of the CPC to serve the people wholeheartedly. Firstly, the reform task centered on economic construction embodies that the ruling ethical principle of the Communist Party of China is that the interests of the people are paramount, which is the adherence and deepening of the Marxist people's view. Marxist people's view is the basic viewpoint of the proletarian political party and the foundation for the proletarian political party to maintain its progressiveness all the time. Marxism holds that the proletarian political parties represent the interests of the broad working class and that the Communists have no interests different from those of the proletariat as a whole. When meeting with the Central Delegation of the Communist Party of India, Deng Xiaoping emphasized that "a true Marxist party must devote itself to the development of productive forces and gradually improve the people's

living standards on the basis of this."<sup>[4]</sup> Therefore, the reform task centered on economic construction is not for the CPC to seek its own private interests, but to serve the people and explore ways and policy options to improve their well-being, promote their all-round development and the common prosperity of all the people. Secondly, the reform task centered on economic construction embodies the purpose of the Communist Party of China to serve the people wholeheartedly. Only by focusing on economic construction and continuously developing production can we satisfy the people's interests and improve their living standards.

### **4. Adhering to the Ethical Thinking of Historical Materialism**

Historical materialism holds that the people are not only the creators of material and spiritual wealth, but also the tremendous power to promote social change. History is created by the people, and the progress of history is also promoted by the people. Our country's reform can achieve today's achievements precisely because we adhere to the ethical thinking of historical materialism and adhere to the historical dominant position of the people. China's reform is a socialist reform. The purpose of the reform is to liberate and develop productive forces, achieve the ultimate goal of common prosperity, and let the people share the results of the reform. At the same time, the achievements of the reform are created by the strength of the people. Only by sharing the achievements of the reform can the people provide inexhaustible impetus for the continuation of the reform. As Deng Xiaoping said, "When the people have a good environment and see the changes, they will have confidence, be happy, and things will be easy to do."<sup>[5]</sup> In addition, let the people share the reform results, not only refers to the reform results in the material field, but also refers to the reform results in the spiritual and cultural field, the latter even more far-reaching impact on the people. Literary and artistic creation in the field of spiritual culture should be oriented to the people, not only to obtain creative inspiration from the people, but also to contribute creative results to the people. Deng Xiaoping pointed out: "Literary and artistic workers responsible for the people should always face the broad masses, strive for artistic excellence, refrain from rough production, seriously consider the social effects of their works, and strive for the best. Spiritual food contributes to the people"<sup>[6]</sup>. Whether in the field of material or spiritual culture, the results of the reform will ultimately be shared by the people, thus providing impetus for the reform. After 40 years of reform and opening-up, China's reform and opening-up are still vigorous. An important reason is that the reform always adheres to the ethical thinking of historical materialism and regards the people as the relying force of

reform to provide impetus for reform.

Conclusion: At present, China's reform and opening-up has entered a new historical juncture. The task of promoting the reform and opening-up in the new era is no less arduous than that of more than 40 years ago. Therefore, we should unite closely around the Party Central Committee with General Secretary Xi Jinping as its core, keep in mind the initial heart, carefully sum up experience and help the reform and opening-up in the new era. Deng Xiaoping is the chief designer of reform and opening-up. Studying Deng Xiaoping's reform thought from a new perspective is the proper meaning of summing up the successful experience of reform and opening-up for more than 40 years, and the research results have theoretical and practical guiding significance for the CPC to deepen the reform in an all-round way and to lead the reform and opening-up in the new era to achieve new great achievements.

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## References

- [1] Selected Works of Deng Xiaoping Volume 3 [M], Beijing: People's Publishing House, 1993, P. 382.
- [2] Documentation Research Room of the Central Committee of the Communist Party of China: Chronicle of Deng Xiaoping (1975-1997), Volume 2 [M], Beijing: Central Documentation Publishing House, 2004 edition, P. 985.
- [3] Selected Works of Deng Xiaoping Volume II [M], Beijing: People's Publishing House, 1994 edition, page 152.
- [4] Documentation Research Room of the Central Committee of the Communist Party of China: Chronicle of Deng Xiaoping (1975-1997), Volume 2 [M], Beijing: Central Documentation Publishing House, 2004 edition, P. 905.
- [5] Selected Works of Deng Xiaoping Volume 3 [M], Beijing: People's Publishing House, 1994, P. 166.
- [6] Selected Works of Deng Xiaoping Volume II [M], Beijing: People's Publishing House, 1993, P. 211.

# Research on Internal Control for Administrative Entities and Public Institutions

Yeling Zhao<sup>a</sup> & Li Cheng<sup>b</sup>

(a. Office of Financial Affairs, Jiangsu University, Zhenjiang 212013, P.R. China; b. School of Finance and Economics, Jiangsu University, Zhenjiang 212013, P.R. China)

**Abstract:** Since the Ministry of Finance of the People's Republic of China issued "The Internal Control Standards for Administrative Entities and Public Institutions (For Trial Implementation)," the conflict has changed between the increasingly enrichment of economic activities of administrative entities and public institutions due to the ever-changing market economy and the lack of internal control standards for the entities and institutions to follow in China. On the basis of expounding the concept of administrative entities and public institutions and the connotation of internal control, the paper analyzes the problems in the current internal control for administrative entities and public institutions, explores the causes, and then puts forward proposals for strengthening the establishment and implementation of internal control in administrative entities and public institutions in China.

**Key words:** administrative entities and public institutions, significance of internal control, elements of internal control

## Introduction

In recent years, with the continuous advancement of the reform of administrative entities and public institutions, the state's investment in administrative entities and public institutions has been increasing, and public attention to administrative entities and public institutions has been continuously improved as well. Therefore, the efficient and rational use of financial allocations is also one of the major social responsibilities of administrative entities and public institutions. However, due to the far-reaching influence of the traditional system, there are many problems in the internal control of administrative entities and public institutions in China, such as the unsoundness of the internal control system, the weak awareness of the internal control, insufficient supervision, inaccurate financial information, the abuse of power and other frequent violations of laws and regulations. For a long time, the society has always focused on enterprises and neglected the construction of internal control systems for administrative entities and public institutions. Although the business objectives of administrative entities and public institutions differ with those of businesses, internal control is a guarantee to promote the smooth run of enterprises and institutions. Therefore, research on the internal control for administrative entities and public institutions is of strong theoretical and practical significance.

## 1. The concept of administrative entities and public institutions and the connotation of internal control

### 1.1 The concept of administrative entities and public institutions

Administrative entities or public institutions refer to non-profit organizations or groups engaging in public sectors established by the state or other organizations using state-owned assets to serve the public. Administrative entities and public institutions do not aim at profitability, mainly involving providing social welfare, meeting social stylistic, scientific and health needs and other fields. Administrative entities and public institutions can also be divided into two major categories: cultural sciences and public welfare undertakings. Cultural sciences include culture, information services, health, sports, etc. Public welfare undertakings include water conservancy, meteorology, environmental protection and so on. The main features of the institution are: funded by finance, non-profit, and public welfare.

### 1.2 The connotation of internal control

Internal control is the organization, plan, procedure and method of various constraints and adjustments implemented within the unit in order to improve operational efficiency, fully and efficiently obtain and use various resources, and achieve the established management objectives under certain circumstances. The objectives of internal control are divided into operational objectives, financial reporting objectives,

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**Author:** Yeling Zhao, Office of Financial Affairs, Jiangsu University; Li Cheng, School of Finance and Economics.

and compliance objectives. The principles of internal control include the principle of comprehensiveness, the principle of importance, the principle of checks and balances, the principle of adaptability, and the principle of cost-effectiveness. The elements of internal control include environment control, risk assessment, activities control, information and communication, and internal oversight. These elements run through the whole internal control process.

## **2. Analysis on the current problems and their causes in the internal control of administrative entities and public institutions and**

### ***2.1 Imperfect environment for implementing internal control***

#### *2.1.1 Lack of internal control consciousness*

In order to establish a complete internal control system in the institution, the management and employees should develop corresponding internal control awareness, which is the key and basic requirement for control management. As a public welfare organization serving the public, institution's internal control cannot be solely the responsibility of the finance department.

Some managers simply believe that internal control only responds to national regulations and guarantees business development, ignoring the role of internal control in preventing risks and improving operational efficiency. Some leaders may observe the emergence of problems that employees do not pay enough attention to internal control, work inefficiently, over budget, etc., but they cannot fundamentally find problems and solve problems based on internal control.

#### *2.1.2 Imperfect internal control system*

In some small-scale institutions, the establishment of internal control system is not comprehensive enough. Most of them are limited to textual narratives and lack practical operations. Meanwhile, the establishment of system is only prepared to deal with higher-level departments. Some administrative entities and public institutions have no external investment, project construction, etc., which causes the absence of the related internal control system. This is also a common problem in administrative entities and public institutions. The establishment of the internal control system is to guide the behavior in the future, so the relevant system should be prepared in advance rather than when the business is available. The internal control of some administrative entities and public institutions may be more comprehensive, but the regulations are too scattered and not systematic.

### ***2.2 Lack of risk assessment process***

#### *2.2.1 Lack of risk awareness*

Due to the influence of traditional consciousness and

the non-profit nature of administrative entities and public institutions, managers often ignore the fact that administrative entities and public institutions also exist in China's market economy environment, so they also face market risks. Especially in the case that some institutions have added overseas investment, physical leasing and other businesses, risk assessment has become increasingly important. Some managers follow the rules and lack the initiative to actively innovate. They believe that is fine as long as there are no serious problems in daily operations, or only when the problems occur will they take actions to make up for the lack of precautionary thinking. Although some managements have certain risk awareness, most of them disperse risk assessment measures into various business processes. For example, some large professional projects will hire external experts to conduct risk assessment. Only a small number of units have established separate risk assessment teams to conduct comprehensive risk assessments and establish regular risk assessment mechanisms. In general, the institution is in lack of comprehensive and systematic risk identification and assessment, and has no overall perspective on unit-level risk and business-level risk.

#### *2.2.2 Imperfect risk assessment mechanism*

Because some management lacks risk awareness, they are not aware of the importance of establishing a sound risk assessment mechanism. At present, most Chinese administrative entities and public institutions lack a risk assessment mechanism, and even the same problems exist in higher education institutions. For example, owing to the lack of risk assessment mechanism in a university, with the increase in the number of students enrolled, the dormitory and teaching settings are insufficient, and the student's tuition fee arrears rate is high, which leads to the lack of funds. The school can only improve the operation of school funds through loans. The situation, it can be seen that the establishment of financial indicators early warning value and a certain risk assessment mechanism is conducive to early risk prevention. The scope of risk assessment should include internal operational risks, asset management risks, etc., as well as external market risks caused by economic situation or changes in laws and regulations. A complete risk assessment mechanism should include four interlocking aspects: setting goals, risk identification, analysis, and response. Appropriate controls should also be considered when developing risk assessment mechanisms to prevent losses in virtue of leadership's personal risk appetite. In addition, the risk assessment mechanism is not monotonous, which should be adjusted and improved in a timely manner according to changes in the market environment and the development stage of the institution. Only in this way, the risk assessment mechanism can be effective and complete.

### **2.3 Irrationality of control activities**

#### **2.3.1 Incomplete separation in incompatible positions**

Generally, administrative entities and public institutions should establish positions in accordance with the principle, ensure the separation of the execution tasks and approval, the separation of property custody and recorders, and the separation of registration ledgers and general ledger positions. However, it can be seen from the survey results that due to the limited establishment of some administrative entities and public institutions and insufficient staff, the situation of one person with multiple posts will occur, which is also a significant factor that causes problems in the internal control of the administrative entities and public institutions. Some news reports have reported such incidents. The organization committee member of a village committee also serves as the cashier accountant of the village committee. In the past three years, the said member has repeatedly misappropriated public funds for hundreds of thousands of yuan for personal consumption. This situation of one person with multiple posts provides an opportunity for individuals to seek personal gain. Therefore, incompatible job separation can curb and prevent the occurrence of malpractices at the source.

#### **2.3.2 Incomprehensive control measures**

With the gradual improvement of the institution system and the popularization of internal control in the enterprise, internal control has gradually developed into comprehensive management not just accounting activity control, but accounting activities are still the most important component of activity control. However, many units are not aware of the importance of accounting activities. They believe that accounting is simply a “bookkeeping”, which neglects the integrity and efficiency of accounting work to control the budget and ensure unit funds. Management should adjust the elements of accounting work, such as stabilizing the financial operating environment, optimizing processes, and improving the overall level of accountants. In addition to the most basic accounting activity control, control activities include a series of risk control activities, such as authorization approval, asset security and so on.

### **2.4 Lack of effectiveness in information system and communication**

#### **2.4.1 Lack of information communication channels**

Information transfer is the path through which all departments of the entire unit can communicate and realize resource contributions. In order to complete a job efficiently within a specified time, it is inseparable from the information transmission and cooperation of various departments. However, many units are inefficient, a large part of which is caused by untimely information transmission. Most people think they only need to accomplish the tasks assigned by

their leaders, but communication is actually a two-way process. Whether it is between the upper and lower levels or between the levels, it is necessary to accept orders and provide timely feedback, as two-way communication is the most effective way to solve problems. But, due to the strict hierarchy of administrative entities and public institutions, there is often a lack of opportunities and channels for direct communication with superiors.

#### **2.4.2 Imperfect construction of informationization**

With the development of information technology, more and more information and communication have begun to rely on electronic information systems. The construction of informationization can reduce the error or fraud caused by human factors through the network setting authority and direct communication with relevant personnel. Similarly, publishing the required information on the system is beneficial to timely viewing and future data search, and improve communication efficiency. At the same time, the security and integrity of the data can be guaranteed. However, due to the different levels of business units and business requirements, the depth of informationization construction is also uneven, such as some units are not committed to information construction, for its small scale or fear of trouble.

### **2.5 Insufficient internal supervision**

#### **2.5.1 Weak daily supervision**

The internal supervision in administrative entities and public institutions generally includes two aspects: daily supervision work and performance evaluation. Managers are not aware of the importance of internal control and have not given sufficient attention and support to the audit department. Some units still have problems in which the audit department is affiliated with the finance department or the “top leader” level of the audit department is lower than other departments, resulting in the audit department having no real power. Inadequate daily supervision can often lead to corruption. For example, due to the expansion of colleges and universities, school leaders tend to regard infrastructure construction as a logistics task, putting less supervision on the departments such as logistics groups or school-run enterprises, which have a principal-agent relationship. Meanwhile, the audit department has no real power, and their supervision work of school-level leaders is almost blank. In accordance with the provisions of the regulations, the administrative entities and public institutions should establish a certain internal audit system, and ensure that the auditors have the corresponding professional qualities, and the internal audit must meet the requirements of the audit procedures.

#### **2.5.2 Lack of performance evaluation system**

Besides the daily supervision work, the performance



evaluation of employees and the clear reward and punishment system are very important parts as well. Contrary to the enterprises that pursue the maximization of interests, administrative entities and public institutions' business is mainly about public service activities, which can be seen from the survey results. In the administrative entities and public institutions, the wages of employees are basically not linked to performance, so it is prone to negative completion, and some institutions lack a clear reward and punishment system. On the basis of rationally setting up the organizational structure and clarifying the division of responsibilities, the administrative entities and public institutions shall establish a complete evaluation system and accountability system for the daily performance of employees and publish it in the form of systems and require employees to learn. In such a situation of incentive and accountability in parallel, the enthusiasm of employees can be stimulated through a benign competition mechanism.

### **3. Countermeasures for strengthening internal control in administrative entities and public institutions**

#### ***3.1 Optimizing the internal control environment***

As the basis of internal control, the internal control environment is an important factor affecting and establishing the internal control system. The internal control environment should be constructed by optimizing the organizational structure, strengthening internal audit and raising internal control awareness.

First, organizational structure should be optimized. The business objectives of the administrative entities and public institutions need to be implemented by organized groups. Therefore, the administrative entities and public institutions should set the organizational structure according to the operating characteristics of the unit, reduce unnecessary levels and post settings, avoid organizational redundancy and waste of personnel, and improve operational management efficiency. For each position, it is necessary to clearly define its duties and powers, so that the responsibilities are clear, and the implementation of the separation of incompatible posts is facilitated.

Second, internal audit should be strengthened. Internal audit as the most important means of internal supervision is a momentous guarantee for optimizing the internal control environment. The audit office must be set up independently of other departments and with higher powers and responsibilities than functional departments to ensure its authority and independence.

Again, employees' awareness of internal control needs to be improved. Due to the requirements of the Chinese civil service examinations, the employment requirements of the institutions are relatively high, and the cultural literacy of the

employees is high. Therefore, the human resources policy has a major impact on the internal control environment of the institutions. Nevertheless, administrative entities and public institutions should arrange regular professional training for improving employees' professional ethics and professional literacy, and incorporate the cultivation of their awareness of internal control into long-term, regular training work and indicators assessment, in order to encourage employees to actively learn internal control relevant knowledge and increase their enthusiasm for participation in internal control activities.

#### ***3.2 Establishing a complete risk assessment system***

In the Chinese market environment, despite less economic pressure on institutions, various activities they operate are still at risk. Leaders of administrative entities and public institutions should pay attention to the importance of risk assessment and establish awareness of risk management. Only leaders with good risk management awareness can discover various risks brought by internal and external work in time.

First, a specialized risk assessment team should be set up. Each institution should set up a special risk assessment team according to actual needs and unit size, and draw personnel from the finance department and the audit department as team members. The risk assessment team should collect information in a timely manner during the work, and make use of the risk list, financial statements, group interviews, field inspections and other methods to sort out the risk points existing in the unit and business. Systematic risk assessment should be conducted at least once a year, and risk assessments should be repeated when major adjustments are made by the institution.

Second, an economic responsibility system should be established. When conducting risk assessment activities, the institution should first clarify what the internal control objectives of the unit are, including fulfilling the duties of the unit, improving service efficiency, ensuring the authenticity of financial information, guaranteeing the integrity of the unit assets, abiding by national laws and regulations in all activities, etc. Only when the internal control objectives are clearly defined can the risk assessment activities be carried out on the basis of them. On this basis, an economic responsibility system should be established to ensure that liability risks after major decision-making mistakes or behavioral errors can fall into specific departments and positions, and each department is responsible for the risk liability of its own departments and positions.

#### ***3.3 Improving internal control activities***

First, the internal control system should be improved. As a guideline for all control activities, the improvement of the internal control system is the primary task of making

control activities sound. For the business involved in all levels of the institution, an internal control system should be established, which cannot be fixed. The system should be modified according to the changes of the activities of the unit. At the same time, the various systems are supposed to be compiled into a book and linked to each other, forming a complete internal control system. For the main economic business, it should also be equipped with a business flow chart to facilitate users to familiarize themselves with the process. In addition, in order to reduce the risk of decision-making and ensure the scientific nature of decision-making, significant decisions must be collectively studied by the leadership team and combined with expert opinions, and the leadership's opinions should be recorded and signed, ensuring that decisions are linked to responsibilities.

Second, positions should be set up reasonably. Institutions should strictly abide by relevant laws and regulations, and pay attention to the separation of incompatible duties when setting up jobs, including the separation of positions for authorizing and executing business, the separation of positions for performing and recording a business, the separation of positions for implementing and auditing, etc. Implement a policy of separation of incompatible positions to ensure mutual supervision and checks between positions. After reasonable positions are set up, each position should be strengthened. A clear authorization and approval system should be established and authorized personnel shall be responsible for the authorization and approval. The authorized approval personnel must be responsible for the examination and approval, and it is strictly forbidden to violate the procedures or to approve beyond authority.

Finally, the financial department should be set up. The financial department is the main executive department of the control activities. The administrative entities and public institutions should set up the financial department according to the scale of the unit, establish a sound accounting procedure, improve the professional and moral accomplishment of accountants, establish a post responsibility system, and set up rotation system when some positions need. At the same time, the finance department between each level should strengthen cooperation and information exchange to ensure the integrity and accuracy of accounting information. The finance department should do a good job in state-owned assets and budget control. The increase and decrease of assets are strictly examined and approved according to the examination and approval system and registered by accounting personnel. Regular and irregular asset inventory work is established according to the different characteristics of assets to improve the safety and

utilization of the assets of the administrative entities and public institutions. When preparing the budget, the unit ought to combine the experience of previous years, and prepare on the basis of the future business characteristics and business changes. It should leave some flexibility for itself during the preparation, avoiding the old-fashioned, making adjustments according to the actual situation if necessary, and improving the budget accuracy as much as possible.

### ***3.4 Improving information and communication system***

In today's society where technology is rapidly developing, the communication methods of administrative entities and public institutions are also undergoing tremendous changes. Institutions should maximize information channels, not limited to their official websites and OA systems. They can use QQ, Weibo, WeChat and other social tools to improve operational efficiency, and take advantages of the Internet to strengthen information transparency and establish a complaint reporting and protection system, providing opportunities for external supervision.

First, the information channels should be broadened. Institutions should use the official website, OA system, QQ, WeChat, accounting information system and other communication tools rationally to nest the internal control processes into the network information management, so that employees can consciously join the internal control through the limitation of the network process. In the work, it also provides information and data for internal control. For the construction of information systems, institutions can not only rely on their employees, but also strengthen cooperation with external information technology companies to jointly build the information platform

Second, feedback on information should be paid attention to. The information transmission directly carried out by the administrative entities and public institutions at all levels and in various business activities is one-way. The feedback mechanism of information should be valued and developed, so that the information transmitter can understand the results of information transmission and can improve the information according to the feedback content. In addition to the communication between the superior and the inferior, the institution should attach importance to the communication between the cooperation departments and the peer levels to prevent the occurrence of shirking responsibility.

### ***3.5 Improving internal evaluation mechanism***

The scientific and efficient internal control evaluation system is the basis for the detection and optimization of the results of internal control activities. In addition to the above-mentioned strengthening of audit work, institutions should establish an internal evaluation system and strengthen after-the-fact rectification and accountability.

First, an internal evaluation team should be established. The team is led by the discipline inspection, supervision and audit departments, and the financial department and office personnel participate in the composition. Through the development of evaluation plans, implementation of on-site testing, identification of internal control deficiencies, summary results, and preparation of evaluation reports, the internal evaluation team evaluates the construction and implementation of the internal control of the unit, and rewards individuals or departments with outstanding performance based on the evaluation results. It can also criticize and punish individuals or departments that violate the internal control system, and analyze the causes of internal control problems and propose improvements.

Second, the leadership should give the internal evaluation team sufficient support. The results of audits or internal evaluations are often left to the leadership and not publicly dealt with, so that the problems of internal control cannot be truly resolved. In the implementation of rectification and accountability, the leadership should give the audit office and the internal evaluation team sufficient support, rather than blindly covering the problem, so that the internal control problem can be optimized and solved.

### Conclusion

With the continuous advancement of the "Regulations on Internal Control of Administrative Institutions (Trial)", more and more leaders are gradually realizing the importance of internal control. In short, under the conditions of market economy in the new era, the improvement of internal control

of administrative entities and public institutions is a long-term work. We need to establish a sound internal control system, strengthen the professional ethics and professional quality of accounting personnel, and comprehensively improve the internal control of administrative entities and public institutions, to guarantee the stable and healthy development of the institution.

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### References

- [1] Cheng Ping, Yang Weiguan. Evaluation of Internal Control of Income and Expenditure Management of Administrative Institutions Based on Data Warehouse [J]. *Monthly Journal of Finance and Accounting*, 2019(14): 92-97.
- [2] Han Yingying. Problems and Countermeasures in the Internal Control Construction of Administrative Institutions [J]. *Economic Research Guide*, 2019(19): 124-125.
- Shi Tao. Institutions Strengthen Internal Control Research [J]. *Modern Economic Information*, 2019 (13): 35+37.
- [3] Feng Bin. Research on Internal Control of University Budget Management [J]. *Friends of Accounting*, 2019(14): 2-6.
- [4] Yu Haili. A Brief Analysis of Effective Strategies for Accounting Internal Control of Institutions [J]. *China Collective Economy*, 2019(19): 126-127.
- [5] Xie Mengxue. Financial Risk Identification and Internal Control Countermeasures of Administrative Institutions [J]. *Financial Economics*, 2019(12): 223-224.
- [6] Huang Haiqiao. Discussion on Internal Control of University Construction Project Bidding [J]. *China Management Informationization*, 2019, 22(12): 28-30.

# On Pedagogy is the Study of Human Studies

*Zhenglu Wang*

(Xi'an International University, Shaanxi, Xian, P.R. 710077, China)

**Abstract:** Education makes human generation and pedagogy fundamentally a study of human studies. The object of pedagogy research is human beings. The content of pedagogy research is human. The main body of pedagogy research is human. The purpose of pedagogy research is human. The ultimate pursuit of pedagogy research is human beings. Educational researchers should always stand on the standpoint of people and stand on the standpoint of all-round development of people to study pedagogy, and truly put people in the primacy of pedagogy research before they can win back the education discipline status.

**Key words:** education, pedagogy, human studies

## Introduction

Kant, a famous German philosopher, thinker and educator who first gave a lecture on education at the university, once said: "Education is creating people" [1]. The famous Soviet educator Suhomlinski has a sentence in "Providing the whole soul to the children": "Education---this is first of all human learning!" [2]. These are all expositions that educate everyone about the pedagogy of scholarship. However, in the current utilitarian and impetuous social trends, education has also become utilitarian and has become an economic and economic accessory. Some pedagogical researchers, through various experiments and tools, specializing in how to better produce large quantities of tools that only work in a specific area such as politics and economy. It is not deny that education has a side that is compatible with economics and politics. However, it is debatable that education cannot fully obey the political economy and other fiddlings, and become a humble maid of the political economy, and lose its independent and unique research field. In fact, fundamentally, pedagogy should study people, explore how to develop people, and commit to the liberation of human nature. Education is fundamentally a study of human learning, not a tool for alienation. At present, many pedagogical researchers have tried every means to cater to the political economy and so on. The phenomenon of pedagogical research has become a ubiquitous phenomenon, making the educational discipline increasingly a discipline without its own independent research field. And the disciplines that are uniquely contributing to human beings and are increasingly underlying. The fundamental reason for the situation of today's pedagogy is that pedagogical

researchers have given up the most fundamental research of pedagogy, so the solution is to return to the study of human studies. Therefore, it is necessary to re-discuss an old subject that is still very research-worthy. Pedagogy is a study of human beings. It is really in the position of people, and some people in the mind can study education in order to make pedagogy win its proper position.

## 1. Education makes people generate, and pedagogy is fundamentally a study of human studies

People are different from animals because they have received education. Only the living body that has received human education can be called a person in the true sense. Those who have been separated from the human education and born with pigs and wolves, are adopted by pigs and wolves, although they are adopted by pigs and wolves. There is no difference between the appearance and the human being, but the habit of being full of animal beasts is no different from that of the beasts. This difference is fundamentally because it has not received the education unique to human society. People in the sense. For these "pig children" and "wolf children" who have never received human education, they should be called "beast children" in strict sense. People evolved from apes, and the reason why people can identify each other is because in the process, some of them have taught their survival skills to their descendants. After this generation of education, they have finally generated people. In the process of changing people, it plays a decisive role in the purposeful skills education of their own generations. Through the process of forming "pig boy", "wolf child" and human beings, education is unique to people, and education is generated. Since education makes people generate, then

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**Author:** Zhenglu Wang, is an assistant researcher at the Seven directions Education Research Institute of Xi'an International University.

the subject education that regards education as its own unique research object should be the subject of research, and pedagogy is fundamentally human. Without education, there is no one. The same reason is that no education, no one learns, people as educational products, and constantly changing with the change of education. Therefore, studying education must study the humanities, and the relationship between education and human studies. The study of pedagogy is to study human studies. It is necessary to understand people, consider people, and regard people as all of educational research. It is pedagogy that generates people, and people promote education in the process of developing themselves. But fundamentally, pedagogy is human studies. This is because people who achieve education are not able to study by themselves but should act through it. The object of the person who can achieve it is to study education. Therefore, it is firmly believed that pedagogy is a human study, and it is a discipline that studies how adults and people become.

## 2. The research object of pedagogy is human

What is the research object of pedagogy? It can be an educational phenomenon, an educational issue, a revealing of educational rules, educational relationships, and educational activities. However, fundamentally speaking, the object of pedagogy is human. The phenomenon of education is inseparable from people. It is a phenomenon of education. The problem of education is discovered by people. The law of education is revealed by people. The essence of education is the relationship between people. The education activities are organized and completed by people. However, today's research on human beings is never enough... until today, perhaps only as Rousseau said: "I think the most useful and incomplete of all kinds of human knowledge is about human knowledge."<sup>[3]</sup> It is the complexity of human beings and the infinite understanding of human beings that determine the all-encompassing scope of educational research and the never-ending end of the research process. Researching human should always be the object of pedagogy and the only research object. If you leave people alone and do not put people in the first place in pedagogy research, then pedagogy research is like a fish leaving the water. It is destined to ask the fish to lose its research object and direction. Education research is destined to be counterproductive. The object of pedagogy research is human beings, which requires that in the process of pedagogy research, whether it is to study educational phenomena, educational problems, educational laws, educational relations, educational activities, etc., it is necessary to consider people in the most important position to consider Incorporating people into the study of pedagogy, always considering people, and doing all research in

pedagogy is a person, truly treating people in reality as the object of pedagogy research, in education Someone in the study should study people as an object to study pedagogy. This is the profound understanding and implementation of the research object of pedagogy; this can ensure that the study of pedagogy is not alienated, and that the situation of seeing things cannot be seen; this is the unique attribute of education. The pedagogy is flexible; this can deepen people's research and serve the education and serve people better. In short, education is unique to people. Without education, there is no one. It is that people have achieved education. To study education, people must be regarded as research objects. In one sentence, the object of education is human.

## 3. The content of pedagogy research is human

What is the research content of pedagogy? This is a question that every research educator must be clear about. It can be said that education thoughts, education systems, educational methods, and educational principles, but fundamentally speaking, pedagogy is about people. Educational thoughts are proposed by people. The education system is formulated by people. Educational methods and educational principles are also proposed and formulated by people. No one can have educational ideas, educational systems, educational methods, and educational principles. Studying these so-called educational contents is essentially studying people and studying people in specific eras. Education comes with the emergence of human beings, and develops with the development of human beings. Without education, no one is born. The education generates not a person with a body, but a smart life with a human mind. And this wise life person develops himself through the continuous improvement of education. People are naturally connected with education. It can be said that since the generation of people, educating their descendants to teach themselves the knowledge, skills and wisdom of their own life. The descendants of the descendants, let them carry forward on the basis of inheriting their own essence. This is the development of human society. This is the root of the development of human society. It can be said that educating one's own children to become human beings has become a parental nature, just as In the Doctrine of the Mean, the predicate of the destiny, the presupposition of the temperament, and the preaching of the monasticism, can be understood as the nature of the nature given by the heavens, and the way of doing things is called the Tao. The method of monasticism is called teaching. It can be seen that the ancient Chinese people realized early that education should be rooted in human nature. Education is unique to human beings and has a brilliant relationship between discourse, Taoism and teaching. Today's pedagogical researchers must study people

when they study the content of education. Specifically, people who study the education system must study the education system. Only those who have really understood the education system can really understand. How is the education system formulated? Only by truly understanding the changes in the influence of the education system on people can we truly understand the education system; researching educational thoughts must study the people who form the educational ideas, including humanity, outlook on life, and life. The encounter, the personality of the person and the background of the people in which they live can only truly understand the formation process of educational thought. Any kind of educational thought is human thought. If you do not have a deep understanding of it, you cannot be profound. Understand the educational ideology; when studying the principles of education, we must study and put forward the principles for formulating research and education. Only by truly understanding the people who have proposed the principles of education can we truly understand the principles of education, and the evaluation of the principle of education is the education. Principles adhere to the impact on people after implementation; research education methods are research and development. The only way to study the methods is to educate people who have developed their educational methods. Only when they understand their learning and educational experience can they truly understand their educational methods. If they are out of the human context, they will literally study their proposed educational methods. If you lose the essence of studying its methods, for example, the world's first recognized method of heuristic education is Kong Shengren. If you don't understand the experience of Confucius's study, I don't know if Confucius learned from a young age, and he's a long-term ambition. How can we understand the essence of this educational method of Confucius? Therefore, the content of educational research is human.

#### **4. The main body of pedagogy research is human**

In the study of pedagogy, the calendar has been well-founded and based on educational materials. However, everyone knows that educational materials have been collected, and it is the value orientation of researchers who decide to be chosen. So instead of talking about educational materials, it is better to say that the people who choose it are talking. The main body of pedagogy research is human beings, but people live in a certain society. People cannot exist independently from the society in which they live. People must be restricted by the society in which they live. No one can get rid of them. People follow Choose one's own value orientation, one more choice is one more limited to oneself. If you choose a certain research field as your

specific research direction, you can't give up other research fields. Therefore, "the human pursuit has no limit and recognizes its own limitations." Sex is the first step of self-transcendence."<sup>[4]</sup> As a pedagogical researcher, he collects educational materials, selecting educational materials, presenting educational materials, studying educational materials under the guidance of his unique and unique world outlook, outlook on life, and values. The "three views" of the researchers are formed in a specific social background and life background, and what attitudes and actions are taken to deal with the problems encountered in their particular social life. The "three views" of the researchers are consistent with their individual personality and way of life. This is the standard for researchers to judge themselves and judge others, and it is also the fundamental reason why he can become himself rather than others in social life. The "three outlooks" of the educational scholars determine what he studies and wants to examine the educational problems of the people who choose his particular time and space. This means that the education problem of the person he chooses only if he has emotional resonance. Only then can it be the scope and problem of its research. For example, if you have never been born at the bottom of society, you have never been touched by the ignorance and ignorance of the working people, and you have not experienced the growth of the Western people's democracy and freedom in the years of studying abroad. Inheriting the determination of the ancient Mohist family to "love the world" with the spirit of asceticism for the hard work of the masses, there will be no most famous modern Chinese modern and modern Mao Zedong inscription "Most Great People's Educator" Mr. Tao Xingzhi. It is precisely because Tao Xingzhi lived in the lower classes of the society from a young age, but also inherited the Mohist as the lower level of thought, borrowing and absorbing the advanced educational concepts such as Western democracy and freedom, only to trigger the Tao Xingzhi Li volunteers to do it at that time. Things - to solve the problem of people's education in the lower classes of the working people. Therefore, only by truly understanding the life background of Tao Xingzhi can we truly understand the greatness of the education thoughts of the people's educator Tao Xingzhi. Another example is the study of pedagogy. The study of Confucius did not know the age of Confucius's birth, the social background of Confucius at that time, the life experience of Confucius' life, the class of Confucius, and the human nature of Confucius. They only criticized one or two sentences that Confucius once said. Confucius, this is obviously unscientific, and it is a manifestation of demanding the ancients; only by truly placing himself in the social background in which Confucius is located, combined with Confucius' life experience, can he

have a correct judgment on Confucius' educational thoughts. Only then can we truly understand the rationality of using Confucius as a master's watch, and then we can truly understand the educational height that Confucius has achieved, and then be able to understand the Confucius of the Holy Master in a deep and shallow way. In short, the main body of the subject of pedagogy research is human beings, and people who study in all directions can profoundly study education.

### **5. The purpose of pedagogy research is human**

The purpose of education is to cultivate the people in need of a particular society. People are the purpose of education. As a pedagogy for the study of educational science, its research purpose should be consistent with education and should be human. Therefore, the purpose of educational research is human. Since General Secretary Xi Jinping proposed to realize the great rejuvenation dream of the Chinese nation, Minister Yuan Guiren then put forward the Chinese educational dream of "teaching without class, teaching students in accordance with their aptitude, lifelong learning, and being talented by everyone." It can be seen that education has been in close contact with everyone. Education must ensure that everyone can exert their potential talents as much as possible, show each individual's talents, make each one become his own, have his own professional strengths and distinct personality, which is the educational purpose of the times and the study of education. The purpose, as a professional pedagogical researcher, out of the conscience of scholars and the sense of mission of social responsibility, the purpose of research is not only to satisfy individual interest needs, but also to seek some kind of "private interest", more important It is to satisfy the interests of many people in the society at that time and the long-term interests of mankind, to promote the eternal purpose of education, to completely liberate human nature, and to promote the free and perfect development of everyone. This kind of person is the person in Plato's "ideal country"; it is Rousseau's "natural person"; it is the person in the "Great Harmony" that Confucianism said. Although the purpose of this kind of pedagogy research is too optimistic, it is the purpose of education, and there is a big gap between the reality and the actual educational purpose. But looking back at the history of the development of human education as a whole, we can see that humans are slowly approaching in this direction. Therefore, as an educational researcher, we should have the ideal to achieve the state of education and to do our best for the liberation of human freedom. What pedagogical researchers can do is to respect the facts of education, to reflect as much as possible the intentions and opinions of all parties behind the educational facts, and to liberate human beings for humanity

by studying the real development of real education stakeholders. Working freely and comprehensively, paying attention to the most basic human problems in pedagogy research. "Every country has a variety of problems in its education. However, if you think of it first from the perspective of educators and educational researchers, you should focus on the current development of our children and adolescents. To understand what problems a country has in education, the most important thing is to look at the development of children and adolescents in that country as a human being."<sup>[5]</sup> Adolescents are a vulnerable group in education, but they are the hope of the nation. Liang Qichao once said that a young boy is strong, but China is strong; Mao Zedong said that they are the sun at eight or nine o'clock in the morning; Deng Xiaoping also said that education should start from the doll. In modern times, these thought leaders pay great attention to adolescents and pay more attention to the education of young children. Therefore, as a pedagogical researcher, we should pay attention to the education of basic education for adolescents. These studies may not produce as fast as higher education, but their significance is more important. Only the ability to truly solve specific human problems in reality can fundamentally promote human development. The purpose of educational research is people. Education should study the problems of specific people for their own purposes.

### **6. The ultimate pursuit of pedagogy research is human**

"University science students can't afford liberal arts students. Students from foreign language schools can't look down on Chinese students. Students in Chinese literature department can't look down on philosophy students. Students in philosophy department can't look down on students in sociology. Students in sociology department can't look down on education. Students, students of the education department who can not look down on them, can only look down on the husband of the department."<sup>[6]</sup> This statement comes from "The Besieged City." This is Mr. Qian Zhongshu's description of the status of education in the discipline at that time. To this day, there are still many people who dismissed the study of education. Some of the leaders of primary and secondary schools, including the principals, believe that the study of education is ideal. What is more, some government officials and university presidents are also indifferent to the study of education. Attitude, they think that education is not scientific, educational researchers do not understand what they call actual education, and what the educational researchers have researched does not work in reality. In such an impetuous state of eagerness and quick success, some pedagogical researchers are despicable in pursuing the

so-called science of pedagogical research, using various tools and methods to reflect the so-called educational reality, understanding the so-called true state of education, and putting schools As a business to manage, the educational process is equated with the production process. The result is that education has produced a large number of tools that have no innovative ideas and will only blindly do things. This situation is caused by their indifference. Education makes people become human beings. Education is the achievement of human learning. People cannot be copied. It can't be explained by science, nor can it be gained by empirical authority. Only pedagogical researchers can stand on their own, stand on the stand of people and stand on the stand of people's all-round development to study education. With this sense of sacred sense of mission, they can confidently study pedagogy without losing their pedagogy. research direction. Standing on the stand of people and standing on the stand of people's all-round development to study education means that researchers must understand people, understand people, study people, and strive for the free development of human beings, and develop the potential of human beings as much as possible. Promote better development in all aspects and approach the goal of Rousseau's "natural person".

Education makes people generation. Pedagogy is fundamentally studying human studies, paying attention to people and researchers, and always putting people first in the

study of education. Education studies really do everything for people, for everyone. Always regard people as the starting point and the end result of educational research; only in this way, pedagogy research will not lose its nature, and not become a subsidiary of other disciplines, and pedagogy win its own unique research field and become a discipline with status.

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## References

- [1] Quoted from Zhan Dongliang. Principles of Education [M]. Taipei: Wunan Book Publishing Company, 1990.
- [2][6] Qingnian. Education is human learning [J]. Fudan Education Forum, 2011, 01:1
- [3] Lu Jie. Education Humanities—The Path of Human Studies in Contemporary Education (Preface) [A]. Wang Xiao. Education Humanities—The Humanistic Direction of Contemporary Education [C]. Nanjing: Jiangsu Education Publishing, 2003.1.
- [4] Wang Yanli, Li Lili. The Humanistic Exploration of Educational History Research[J]. Educational Research, 2013, 06: 24-28.
- [5] Da Tianwei. The Reform of Japanese Education [J]. Educational Research, 1986, (1).



# CATTI English Translation Test on the Verge of Change

*Yan Zhang & Li Yi*

(Sun Yat-Sen University School of Foreign Languages, Zhongshan, Guangdong, P.R 510442, China)

## Introduction

China Accreditation Test for Translators and Interpreters (CATTI) is a national professional qualification test entrusted by the Ministry of Human Resources and Social Security of People's Republic of China. Having been introduced in 2003 and incorporated into the national system of professional qualification certificates, CATTI is solely implemented and administered by China International Publishing Group (CIPG). It is a translation and interpretation professional qualification accreditation test implemented throughout the country according to uniform standards. CATTI consists of Senior Translator or Interpreter, Levels 1, 2 and 3 translation and interpretation test for English, Japanese, Russian, French, Spanish, German and Arabic and English simultaneous interpretation test. It is designed to assess the examinees' bilingual translation or interpretation proficiency. Since the introduction of CATTI in 2003, not much change has taken place in the test forms. But much change has taken place in the real society. In order to show this need of change of CATTI, the CATTI English translation test is taken as a case to study here, since English is the most popular foreign language in China and CATTI English translation test is most taken one by now.

The aims of CATTI English translation test are to measure and accredit the proficiency and competence of translation between the languages of English and Chinese. CATTI is designed to assess the proficiency of translators and students majored in translation and interpretation. It is connected with employment. Employers like the Ministry of Foreign Affairs, China Translation & Publishing require CATTI certificates as essential. CATTI is also connected to professional titles. CATTI certificate holder can acquire corresponding translation and interpretation professional titles, see the following table 1.

**Table 1 CATTI levels and their corresponding titles**

CATTI Level	Certificate holder's professional titles
Senior translator	professor of translation

Level 1 translator	associate professor of translation
Level 2 translator	translator
Level 3 translator	assistant translator

The CATTI English translation test Levels 1, 2 and 3 are held every May and Levels 2 and 3 are held again in every November. Levels 2 and 3 consist of two parts: the Translation Comprehensive Aptitude tests and the Translation Practice tests. Level 1 only consists the Translation Practice test and it is designed for top translators. Senior translator is only for translators above the age of 65 and having been in the translation engagement for more than 30 years. Seldom are there any translators crowned as senior translator except Li Wenjun and Huang Ai etc., who are acclaimed to be the top translators in China and translated many literary works. The Translation Comprehensive Aptitude tests in levels 2 and 3 include 110 multiple choice questions on grammar, vocabulary and reading comprehension. The full score is 100. Students need to get 60 to pass the test. It lasts for two hours. Take Level 2 as an example, the Translation Practice test includes two passages of Chinese to English translation around 600 words and two passages of English to Chinese translation around 900 words. Each type of translation takes 50% of the total score of 100 and the passing score is also 60.

## 1. Purposes of CATTI English translation test

CATTI is the only translation test incorporated into the national system of professional qualification certificates according to the relevant regulations of the Ministry of Human Resources and Social Security. The aim of CATTI English translation test is to accredit and measure the proficiency and competence of translating between the languages of English and Chinese. This means to get a CATTI certificate is the first step to be a qualified translator just like a lawyer needs to get a lawyer's certificate first. But the real situation is that CATTI certificate does not function like lawyer's certificate, which mandatorily rule out those without the certificates (Zhao et al. 2007).

### 1.1 Assessment of translation competence

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**Author:** Yan Zhang, Sun Yat-Sen University School of Foreign Languages. Li Yi, Sun Yat-Sen University School of Foreign Languages.

Translation competence is defined as “the underlying set of knowledge and skills that is put into operation when translating a source text (ST) into a target text (TT)” (Eyckmans & Anckaert, 2017). Translation competence assessment is often used interchangeably with translation quality assessment in Translation Studies (TS) (Al-Quinai, 2000; Stejkal, 2006). Translation competence is seen as automatically reflected by the translation product. This kind of translation competence assessment greatly resembles language assessment, where language proficiency is also assessed through evaluating language performance since we cannot open the “black box” of human mind to check the actual proficiency (Eyckmans & Anckaert, 2017).

The basic principle of these translation assessments is the notion of generalization, which means when somebody is capable of translating one or several particular texts, he is also capable of translating other texts. The extent of confidence placed on test scores got from this generalization is always different. This leads to the check of the reliability of the test scores and translation competence (Waddington, 2004). Reliability deals with the relationship between the test score and the competence. It often focuses on what can be measured, how measures relate to each other, and why measurement process can be wrong (Baker, 2001). Many things can affect the reliability of a test, but people generally believe that there is a link between the test score and the competence. If somebody can translate a text from source language to target language, it is generally valid to verify that the person can translate between these two languages. However, when verifying the translation competence with a certain type of test, the validity of the test is always in question.

Drawing from previous scholars' studies, Angelelli (2007) proposed five components in her rubrics of assessing translation competence: grammar and mechanics; style and cohesion; situational appropriateness; source text meaning; translation skill. This modal is widely adopted by translation assessment organizations worldwide. But the situation is different for CATTI. Students in the major of Master of Translation and Interpreting (MTI) were explicitly required by the committee to take CATTI test if they haven't passed Levels 2 and 3. If a MTR student take the Level 2 CATTI test, he or she can be exempted from taking the Translation Comprehensive Aptitude test. This design of connecting CATTI with MTI stressed on the purpose of CATTI assessing the college MTI graduates' proficiency in translation. But the real application of this policy is far from satisfactory and aroused many scholars' concern (Huang, 2007; Zhao et al, 2007; Huang, 2017). The education of MTI students in colleges now is trying to further incorporate the theories in translation studies by not only teaching students to understand the source text, learn target text grammar and style etc., but also teaching the rules and regulations, negotiation and

communication skills in the translation industry. CATTI need to be modified to assess in a form similar to how students are actually taught and how translators are really working in their translation career.

### *1.2 Accreditation of professional translators*

The accreditation of professional translators requires assessing not only translation competence, but also other qualities a professional translators must have. General knowledge and skills as well as domain-specific knowledge and skills are both important. Translation pedagogy generally takes translation as not only a product but also a process (Shreve, 1995; Angelelli & Jacobson, 2009). In the translation process, a hot issue is the ethics of translation.

The ethics of translation refers to “the set of accepted principles according to which translation should be done and hence the norms governing what translations should be like (Chesterman, 2018). Other translation theories like Skopos theory refers to translation ethics as “an ethics of service, prioritizing translator-client relations, efficient use of resources, the value of trust” (Nord, 1991). To sum up, translation scholars generally hold the view that translation ethics encompass far beyond textual relations (Koskinen, 2000; Pym, 1997; Venuti, 1998).

The real situation in CATTI is that the assessment design currently only focus on the quality or ethics within textual relations. Thus CATTI's purpose of fulfilling the accreditation of qualified professional translators is often challenged. There is an urgent need for CATTI to incorporate ethics assessment part like National Accreditation Authority of Translators and Interpreters (NAATI) in Australia does (Song & Fang, 2017).

## **2. Ethical issues in CATTI**

“The assessment of ethics raises ethical questions, questions about the ethics being taught and the ethics of the assessment process” (Stern, 2017). CATTI scores are used to provide evidence for making a lot of decisions, such as selection of outstanding translators, professional certification and resources allocation. The consequence of these decisions are that some people are rewarded and some are not. Tests might serve as door openers for some people and gate keepers for the others (Bachman & Purpura, 2008). In the process of making this decisions, many ethical problems arise due to the test construction and purposes of CATTI.

### *2.1 Problems in CATTI test structure*

As a test for assessing the proficiency of test takers and accrediting the potential professional translators, CATTI is complained for adopting patterns of assessing language proficiency without due attention to the real translation domain. Translation Comprehensive Aptitude part of CATTI is aimed to test translators' ability of proof reading and paraphrasing. But the question design of this part is all multiple choice questions

without much information of context. The Translation Practice test in CATTI is designed to test the translation ability in real practice. But there are not any information provided for the translators whereas in real situation, there are always some extra information like a translation brief or an oral introduction to the translation requirements. This deviation from the reality roused much concern on the reliability and validity of the test (Wang & Cui, 2010; Niu, 2011)

In the Translation Practice part, there are both Chinese to English and English to Chinese translation tasks which both take 50% of the total score. But in real practice, the ability to translate into or out of English or Chinese is quite different since translating into one's native language is generally considered easier than translating out of one's native language (Pan, 2004). It's likely that one might get a failing score in one part and an excellent score in the other part and passed the exam and finally get the accreditation to do translations in either directions. It is better to divide the Translation Practice test into two separate directions, i.e. Chinese to English and English to Chinese like what NAATI in Australia does.

To be a professional translator is not only about translation competence, but also the ability to handle the ethical issues arise in their work. Scholars are putting greater emphasis on translation ethics (Koskinen, 2000; Pym, 1997; Venuti, 1998). To behave ethically and maintain high ethical standards is quintessential to the development of the CATTI test. NAATI in Australia requires test takers to take a translation practice test either in the direction of Chinese to English or the opposite direction and also a test assessing translation ethics. NAATI in Australia included the following into the codes of ethics:

- respect their clients' right to privacy and confidentiality
- disclose any real or perceived conflicts of interest
- decline to undertake work beyond their competence or accreditation levels
- relay information accurately and impartially between parties
- maintain professional detachment and refrain from inappropriate self-promotion
- guard against misuse of inside information for personal gain.

(NAATI, 2016)

For NAATI in Australia, test takers need to get a passing score in translation ethics to get the CATTI certificate. If not, no matter how high the scores are in the other parts, they would not be accredited. Scholars highly recommend CATTI to learn from NAATI to add the ethics assessment part into the test (Liu, 2006; Wang & Cui, 2010; Niu, 2011).

### **2.2 Problems in CATTI test use**

The purpose of CATTI as the only accreditation assessment organized by government organizations endows CATTI with the role of a gatekeeper to the translation industry. But the real

situation is that most of the employers don't take CATTI certificate as a must for their future employees. Translators in the field also don't find CATTI certificate especially helpful (Pan & Liu, 2011; Miao & Wang, 2010). This might be caused by lacking of governmental laws and regulations in translation industry since CATTI is comparatively young in China and needs more time to be acknowledged by the general public.

The complexity of CATTI is also blamed by scholars for resulting in the limited popularity of CATTI. According to Song & Fang (2017), from the year 2007 to 2010, the pass rate for Level 2 and Level 3 is 12.44% and 12.12% respectively on average. According to the requirements of Translation Practice test, for Level 2 English translation, test takers need to translate at the speed of 400 words per hour for Chinese to English and 600 word per hour for English to Chinese. This is heavy work load for translation practitioners. Thus the low pass rate and the lack of recognition in the translation industry makes the CATTI a certificate of no due value.

Besides, according to the official website, a test taker has to pay 500 RMB for Level 3 and 590 for Level 2 for CATTI English translation test. This is a huge sum of money 10 times of the price of CET 4 and CET 6 (College English Test 4 and 6 widely acknowledged in China). For students with limited economic support, the test fee is a heavy burden for them and might prevent them from taking the test and raise much ethical concerns.

### **3. Technology issues in CATTI**

College students and professional translators nowadays seldom use paperback dictionaries in their practice. But CATTI test takers are still only allowed to take two paper back dictionaries to the test room just like 15 years ago. Translators nowadays seldom write on paper but use computers to type and edit their translation. Whereas the test taker are only allowed to write on their test paper when taking the exam. This is a severe deviation from translation learning and translation practice situation. Much concern of the organizers are on the questions of equity and plagiarism. People are worried that some test takers might have no access to computers and electronic dictionaries or when they are equipped with those facilities, they might use Internet for copying from existing literature. But in the real life, a competent translator must have computer skills the ability to use Internet to search for information. Some translators are even aided by machine translation system. In consideration of the different situation in the 21 century, NAATI again leads translation assessments in the world in by allowing some institutions, like Macquarie University, to allow the students to use computers to type and edit their translation but with no access to the Internet. This is a huge step for translation assessment (Song & Fang, 2017).

Technology should be adopted with enough consideration

of equity and plagiarism etc. to enhance test performance just like it does in everyday life for most of the people. It should not be something we avoid to use just to avoid ethical problems. In fact, avoiding technology in assessment is a much more severe ethical problem than applying proper technology in the present world. At least, people need to have the opportunity to choose whether to use these technology or not. Considering that much technology has been applied in designing the test paper and test paper marking, the application of computers in CATTI should also be considered.

#### 4. Conclusion

To sum up, there are two gaps in current CATTI test. The first is the gap between the present test system of CATTI and the real life. The second is the gap between the translation studies theories and the practice of CATTI. As discussed above, the actual working environment of professional translators today is quite different from the test situation. CATTI accreditation authorities always need to be aware what new technologies need to be applied to enhance the reliability and validity of CATTI test. Widely acknowledged translation studies scholars, such as Nord (1991), Shreve (1995), Pym (1997), Venuti (1998), Angelelli & Jacobson (2009) and Chesterman (2018), all proposed related theories about translation competence and its assessment. It is high time for CATTI to adopt appropriate theories to enhance the reliability and validity of the test and help the test realize its due value in China (Song & Fang, 2017).

#### References

- Angelelli, C. V., & Jacobson, H. E. (Eds.). (2009). *Testing and assessment in translation and interpreting studies: A call for dialogue between research and practice*. John Benjamins Publishing.
- Al-Qinai, J. (2000). Translation quality assessment: Strategies, parameters and procedures. *Meta*, 45(3), 497–519
- Baker, F. (2001). *The basics of item response theory*. University of Maryland, College Park: ERIC Clearinghouse on Assessment and Evaluation.
- Bachman, L. F., & Purpura, J. E. (2008). 32 Language Assessments: Gate-Keepers or Door-Openers?. *The handbook of educational linguistics*, 456.
- Chesterman, A. P. C. (2018). Translation ethics. *A History of Modern Translation Knowledge Sources, concepts, effects*.
- Eyckmans, J., & Anckaert, Ph. (2017). Item-based assessment of translation competence: Chimera of objectivity versus prospect of reliable measurement. *Linguistica Antverpiensia, New Series: Themes in Translation Studies*, 16, 40–56.
- NAATI (2016) *The Ethics of Translating and Interpreting: A Guide to Obtaining NAATI Credentials (Version 3.1)*, www.naati.com.au/ media/ 1257/ ethics\_ booklet\_ 200416.pdf.
- Pym, A. (1997). *Pour une éthique du traducteur*. Arras Presses Université.
- (English edition 2012: *On Translator Ethics. Principles for mediation between cultures*. Amsterdam/Philadelphia: John Benjamins.)
- Pan, W. (2004). Translating into/out of One's Mother Tongue: On the Feasibility of Translating Chinese Classics into English by Native Chinese Translators [J]. *Chinese translators journal*, 2, 008.
- Shreve, G. M. (1995). Prescription and description in translation teaching. D. C. Kiraly, *Pathways to translation: Pedagogy and process*.
- Song, Z., & Fang, J. (2017). Translation assessment in China and Australia: Gaps and prospects. In *The Routledge Handbook of Chinese Translation* (pp. 78-100). Routledge.
- Stern, J. (2017). The Assessment of Ethics and the Ethics of Assessment. In *Assessment in Ethics Education* (pp. 177-191). Springer, Cham.
- Stejkal, J. (2006). Quality assessment in translation. *MultiLingual*, 80(17), 41–44.
- Song, Z., & Fang, J. (2017). Translation assessment in China and Australia: Gaps and prospects. In *The Routledge Handbook of Chinese Translation* (pp. 78-100). Routledge.
- Venuti, L. (1998). *The Scandals of Translation: towards an ethics of difference*. London/New York: Routledge.
- Waddington, C. (2004). Should student translations be assessed holistically or through error analysis? *Lebende Sprachen*, 49(1), 28–35.
- Waddington, C. (2001). Different methods of evaluating student translations: The question of validity. *Meta*, 46(2), 331–325.
- 黄敏, 刘军平. (2017). 中国翻译资格考试二十年:回顾、反思与展望. *外语电化教学*(1), 49-54.
- 黄友义. (2007). 谈谈职业翻译人才培养与翻译人才评价以及翻译行业管理的接轨. *中国翻译*(4), 8-9.
- 刘连娣. (2006). 职业道德与翻译资格. *上海翻译*, (1), 74-77.
- 苗菊, 王少爽. 翻译行业的职业趋向对翻译硕士专业(MTI)教育的启示 [J]. *外语与外语教学*, 2010(3).
- 牛宁. (2011). 澳大利亚与中国翻译资格证书认证体系的对比分析. *上海翻译*, (4), 73-77.
- 潘华凌, 刘兵飞. 翻译人才需求状况调查及其培养对策研究——基于江西省的情况 [J]. *解放军外国语学院学报*, 2011(1).
- 王传英, 崔启亮. (2010). 本地化行业发展对职业翻译训练及执业认证的要求. *中国翻译*, (4), 76-79.
- 赵玉闪, 王志, & 卢敏. (2007). 全国翻译专业资格(水平)考试笔译试题命制一致性研究报告. *中国翻译*(3), 53-56.)

# Theoretical Research on Resource-Based View

*Fei Qin*

(Shanghai Maritime University, Shanghai, P.R 201306, China)

**Abstract:** This paper focuses on Resource-based View, a remarkable theory Resource-based View in the field of strategic management. This paper carries out theoretical research from the theory's development history, theoretical framework, main branch schools and other dimensions, in order to help researchers more accurately understand and apply Resource-based View to carry out strategic management of enterprises and some other Non-Governmental Organizations.

**Key words:** Resource-based View, development stage, theoretical framework, branch schools

## Introduction

Different from other theories in the field of enterprise strategic management, such as environmental adaptation theory and industrial organization theory, most of them regard enterprises as a "black box" and put the research perspective outside enterprises. Resource-based View pays more attention to the interior of the enterprise, and tries to open up the "black box" of the enterprise to explore and reveal some performance rules within the enterprise. Therefore, the birth of Resource-based View opens up a new perspective for the study of enterprise strategic management and becomes a theoretical school that cannot be ignored in the field of strategic management. This paper attempts to carry out theoretical research on the development history, theoretical framework and main schools of Resource-based View, in order to help us understand and apply Resource-based View more accurately.

## 1. Development History

### 1.1 The Origin of Theory

As early as the 1930s, economists such as Chamberlin and Robinson pointed out that the specific resources of enterprises are very important. Schumpeter (1942) proposed that competitive advantage is based on technological innovation and "creative destruction". The success of enterprises is influenced by management behavior and entrepreneurship behavior, rather than market power or industrial structure. Organizations with rich resources can survive the turbulence of the environment better. Selznick (1957) was the first person to rate identifying competence as a valuable resource in an organization, and suggested that the primary responsibility

of an organization's managers is to identify, invest and protect these resources. Penrose (1959) pointed out that enterprises are the aggregate of resources, and the root of their growth lies in resources. Enterprises acquire competitiveness not only because of their owning of resources, but also because of their ability to use their resources reasonably. The growth of enterprises is based on the effective use of resources and restricted by managerial resources. This view clarifies the Resource-based View of enterprise growth. These influential ideas provide a good basis for the formation of the following enterprise Resource-based View. Although there have been earlier research works on the importance of enterprise resources, it was not until the 1980s that the Resource-based View of enterprises began to take shape. In the past decade, academia has been dominated by theoretical frameworks that focus only on the external environment of enterprises, such as Michael Porter's Five Forces Analysis Model. However, with the emergence of Resource-based View, people began to re-focus from the outside of the enterprise organization to the inside of the enterprise organization. In 1984, Wernerfelt first put forward the enterprise Resource-based View, which marked the formal birth of the enterprise Resource-based View. But after the theory was put forward, it was quiet for a period of time in the 1980s. Until the 1990s, many industrial economists have done a lot of research on why there are still different business performances among different enterprises in the free competitive environment. Thus, Resource-based View gradually becomes one of the core theories in the field of strategic management. In 1991, Barney et al. put forward the enterprise Resource-based View, which established a view that resources and capabilities are very important for identifying the source of sustainable competitive advantage

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**Author:** Fei Qin (1976- ), female, Han nationality, Nanjing, Jiangsu Province, Ph. D., research direction: enterprise management.

of an enterprise, and help to define resources and capabilities as a series of tangible assets and intangible assets, as well as the management skills and organizational procedures of an enterprise, practices, as well as information and knowledge that enterprises have that can be used to select and implement strategies.

Barney (1991), Rumelt (1984) and Wernerfelt (1984) proposed that resources must be valuable, rare, imperfectly imitable and non-substitutable (commonly known as "VRIN") in order to become a source of competitive advantage and unique resources are the basis of analysis. Since being questioned that irreplaceability is only a manifestation of irreplaceability, Barney (1997) further optimized the VRIN attribute of resources emphasized in Resource-based View to VRIO, replacing non-substitution with organizational embedability of a resource, which emphasized the importance of organizational utilization of resources. Under the general framework of enterprise Resource-based View, some scholars try to study the basic principles of Resource-based View, the connotation and classification of resources, regard the head of an enterprise as resources, regard the organizational background as a source of sustainable competitive advantage for an enterprise, and whether Resource-based View has evolved into a new business theory and so on. More than 20 years later, Resource-based View has been widely regarded as one of the most prominent and powerful theories for describing, interpreting and predicting organizational relationships.

### 1.2 Development Stage

Like many other theories, the development of Resource-based View has gone through three stages similar to the first three stages of product life cycle: introduction, growth and maturity, and now it has entered a period of re-development. Table 1 summarizes some important studies of Resource-based View in these stages of development.

As listed in Table 1, a series of important documents have provided insights into how organizational culture, causal ambiguity, general resources and other elements contribute to the success of enterprises. In 1991, after the publication of a series of research literature on Resource-based View, it marked that the Resource-based View has entered a growing stage from the introduction stage. Since 1991, resource-based research in strategic management and related disciplines has been active and controversial. During 1992 and 1993, some studies further expanded and outlined the key elements of the Resource-based View. Until 2001, this theory has been very prominent in the theoretical circles, which has attracted a lot of criticism. Later, many economists made efforts to further expand and improve the Resource-based View, especially in the field of innovation and the interaction between enterprises and external resources, in combination with the development of new technologies and technologies. Furthermore, the Resource-based View has been successfully applied to human resources management, economics, and entrepreneurship, marketing and international business.

**Table 1. Main Documents in the Development of Resource-based View**

	<b>Period</b>	<b>Author</b>	<b>Main contributions</b>
<b>Introduction</b>	1959 - 1991	Penrose (1959)	This paper puts forward a theory of how the resources of an enterprise affect its growth, and especially points out that the lack of resources will restrict the growth of an enterprise.
		Lippman & Rumelt (1982)	The concepts of inimitability and Causal ambiguity are explained. These concepts become the core elements of Resource-based View.
		Wernerfelt (1984)	It emphasizes the importance of focusing on enterprise resources rather than its products, and formally puts forward the term "Resource-based View".
		Barney (1986)	This paper puts forward the theory of how organizational culture can become a source of sustainable competitive advantage.
		Dierickx & Cool (1989)	The idea that resources are especially valuable only when there are no effective alternatives has been developed.
		Barney (1991)	This paper puts forward and develops the core content of Resource-based View, defines resources in detail, and expounds a group of characteristics that a resource

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			should have if it is to become a potential source of competitive advantage, namely, value, scarcity, non-imitation and non-substitution.
		Harrison, Hitt, Hoskisson & Ireland (1991)	In particular, the value of resources and the synergistic effect between resources in different environments are put forward.
		Castanias & Helfat (1991)	The company bosses are listed as enterprise resources, and they have different characteristics, and master different amounts of common skills, specific industry skills and specific enterprise skills.
		Fiol (1991)	Organizational Background is a Core Competitive Ability
		Conner (1991)	Comparing the Resource-based View with the industrial organization economics, it shows that the Resource-based View has developed into a new enterprise theory.
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		Mahoney & Pandian (1992)	By combining the Resource-based View with the unique ability, organizational economics and industrial organization theory, the Resource-based View is further enriched.
		Kogut & Zander (1992)	The concept of comprehensive ability is introduced, and the importance of knowledge as a resource is emphasized.
		Amit & Schoemaker (1993)	The overall structure of resources is divided into two categories: resources and capabilities.
		Peteraf (1993)	This paper expounds the environment and conditions for the existence of competitive advantage.
		Hart (1995)	It introduces and expands an academic school separated from the Resource-based View, that is, the enterprise's natural Resource-based View.
		Grant (1996)	As a branch of the Resource-based View, the enterprise knowledge-based view has been created.
<b>Growth</b>	1992 - 1999	Miller & Shamsie (1996)	The relationship between resources and performance is tested by measuring resources directly.
		Conner & Prahalad (1996)	It is pointed out that the arguments based on opportunism and knowledge may lead to contrary predictions of organizational economic activities.
		Oliver (1997)	From the theoretical point of view, this paper expounds how to combine the Resource-based View with the institutional theory to better explain the sustainable competitive advantage.
		Teece, Pisano, Shuen (1997)	On the basis of Resource-based View, this paper puts forward the theory of dynamic capability, especially explains that competitive advantage comes from asset impact, its process and evolutionary path.
			The initiative discussed how to obtain excess profits through resources on the premise of meeting the needs of different stakeholders.
		Coff (1999)	This paper studies how to reconcile the contradictory predictions from Resource-based View and organizational economics to select organizational

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			structure.
		Combs & Ketchen (1999)	This paper explains the contribution of Resource-based View to entrepreneurship research, and expounds its possible greater role.
		Alvarez & Busenitz (2001)	The Resource-based View is very useful as a strategic and organizational theory.
		Priem & Butler, (2001a), (2001b); Barney (2001)	This paper explains the contribution of Resource-based View to the study of human resources management, and expounds its possible greater contribution.
		Wright, Dunford & Snell (2001)	The influence of Resource-based View on related disciplines is clarified.
		Barney, Wright & Ketchen (2001)	A theory is established that when enterprises try to purchase scarce resources, they need to pay special attention to information resources.
		Makadok & Barney (2001)	This paper synthesizes the concept of excess profit and the theory of dynamic capability put forward by the Resource-based View.
		Makadok (2001)	By introducing the perspective of paid payment, this paper initiates a discussion on the micro-basis of Resource-based View.
		Lippman & Rumelt (2003)	In order to create and maintain competitive advantage, entrepreneurs' strategic competence is introduced as the resource needed to identify and expand growth opportunities.
		Ireland, Hitt & Sirmon (2003)	The concept of higher-order ability is introduced and explained.
<b>Maturity</b>	2000 - 2010	Winter (2003)	By emphasizing the role of cognition and hierarchy, the theory of micro-foundation of dynamic ability is established.
		Gavetti (2005)	The conceptual relationship between Resource-based View and intellectual property theory is established.
		Foss (2005)	It is clear that in the open economic environment of rapid innovation, the essential and micro-foundation of ability is necessary to maintain better enterprise performance.
		Teece (2007)	The theory of the fuzzy process between resources and excess profits (i.e. black box) is established.
		Sirmon, Hitt & Ireland (2007)	The research methods used in resource-based diagnosis were reviewed and criticized.
		Armstrong & Shimizu (2007)	Using multi-angle analysis method, this paper puts forward that strategic resources are the main reasons for different business performance of enterprises.
		Crook, Ketchen, Combs & Todd (2008)	The value of criticizing Resource-based View is commented.
		Kraaijenbrink, Spender & Groen (2010)	Combining Resource-based View with resource dependence theory (RDT), it is proposed that rational allocation of internal and external resources is the key to gain competitive advantage.
		Nemati(2010)	By combining the Resource-based View with the unique ability, organizational economics and industrial organization theory, the Resource-based View is further



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		enriched.	
<b>Re-development</b>	2011 - now		
		Gavronski etc. (2011)	The Resource-based View is used to study how to effectively carry out green supply chain management.
		Lin & Wu(2014)	Under the framework of Resource-based View, it is proposed that dynamic capability is an intermediate transformer for integrating internal and external resources to achieve better corporate performance.
		Dutta (2015)	The Resource-based View is the source of enterprise heterogeneity.
		Barrutia, Echebarria (2015)	Relational network resources are important resources for organizations to achieve sustainable development.
		Kull, Mena, Korschun(2016)	The relationship between enterprises and relevant stakeholders is also an important strategic resource of enterprises.
		Silvestre(2017)	The Resource-based View is used to excavate the key factors affecting the competitiveness of waterworks.
		Popli etc. (2017)	Based on the Resource-based View of network resources, this paper studies the effect of group enterprises' acquisition on the performance of subordinate enterprises in the group.
		Costa, Angel etc. (2018)	The Resource-based View is applied to the study of competitive advantage of professional football clubs.
		Guesalaga etc. (2018)	Use the Resource-based View to find the resources and capabilities that affect the key customer management of enterprises.
	Teece(2018)	It further clarifies the internal construction of dynamic capabilities, and proposes that strong dynamic capabilities can produce and realize efficient business models (profit models).	
	Savino etc. (2018)	Based on Resource-based View, the key factors that can improve the production/logistics performance of enterprises are excavated.	
	Busby(2019)	This paper extends the Resource-based View which used to focus on competition as its premise, and puts forward and studies the mechanism of parasitic or imitative relationship between enterprises under the Resource-based View.	

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## 2. Theoretical Framework

### 2.1 Main Views

According to Resource-based View, enterprises are the aggregation of various resources and capabilities. The Resource-based View includes the following main points:

(1) Resource heterogeneity among enterprises is the source of different competitive advantages for enterprises. Enterprise is a entity with resources. The competitive advantage of an enterprise is not the result of the industrial

structure in which the enterprise is located, but the result of the unique or hard-to-replicate resources that the enterprise acquires. Therefore, the performance difference between enterprises ultimately comes from the resources owned by the enterprise.

(2) Not all resources can produce competitive advantage, only key resources can play a decisive role in the formation of competitive advantage. Key resources have value, scarcity, persistence, transparency, transferability, replicability or non-imitation, and

competitive superiority.

(3) Sustainability of competitive advantage can be achieved through isolation mechanism to prevent advantages from being imitated. Typical isolation mechanisms include causal ambiguity (it is difficult to confirm how advantages are created), complexity (due to the interaction of multiple resources), implied (due to intangible knowledge and skills of learning and doing), path dependence (which takes time to create competitive advantages), economy (imitation cost), and legal barriers (such as property rights and Patents, etc.).

## ***2.2 Theoretical Logic***

Within the framework of strategic management theory, the core competitiveness of enterprises has attracted much attention, because the strategic formulation of an enterprise should be based on the core competitiveness of the enterprise itself. According to the Resource-based View, core competence can be found from the resources and abilities owned by enterprises. Any difference of resource or capability between enterprises will affect their competitive advantages and disadvantages. Many scholars have analyzed and demonstrated the relationship between enterprise resource, capability and enterprise performance, and the result is that enterprise resources and capabilities are very valuable to enterprises at the strategic level. Therefore, these scholars have reached a consensus that in order to make full use of development opportunities and resist external environmental threats, enterprises must tap their own core competitiveness, that is, to identify the key resources and capabilities that enterprises have.

Resource-based View is the mainstream view in the field of enterprise strategic management. It is based on the concepts of economic rent, the aggregation of resources and capabilities of a company. The Resource-based View is based on the early model of monopolistic competition economy. Unlike neoclassical microeconomics, Resource-based View pays more attention to the heterogeneity of enterprises. In terms of communication between enterprises and environment, Resource-based View emphasizes economic rather than social or political communication. Similarly, it is premised on rationality, that is, the enterprise organization is regarded as a rational person who judges and makes decisions with the goal of maximizing its own interests. The proposition and application of Resource-based View is one of the most important achievements in the field of strategic management. It integrates other strategic decision-making theories and surpasses them to a certain extent. The importance of Resource-based View may be due to two main reasons. First, it can help us to explain many

enterprise strategies, such as diversification strategy, internationalization strategy, vertical integration strategy and alliance strategy. Second, Resource-based View emphasizes the role of specific resources in creating competitive advantages and explaining operational differences among enterprises. Therefore, the Resource-based View is to explain the creation, maintenance and renewal of enterprise competitive advantage from the perspective of the characteristics and operation mechanism of enterprise internal resources.

Researchers of Resource-based View believe that at least three major factors hinder enterprises from imitating each other:

1) Causality is ambiguous. The environmental changes faced by enterprises are uncertain, and the daily activities of enterprises are highly complex. The rent of enterprises is the comprehensive result of all the activities of enterprises. Even professional researchers can hardly tell the relationship between the activities and the rent of enterprises. The disadvantaged enterprises do not know what to imitate and what not to imitate. Moreover, the observation of the disadvantaged enterprises to the superior enterprises has cost. The more comprehensive and careful the observation of the disadvantaged enterprises, the higher the observation cost. Even if the disadvantaged enterprises can obtain a small amount of rent through imitation, it may be offset by the observation cost.

2) Path dependence. Enterprises may possess certain resources and occupy certain advantages because of their foresight or accidental possession, but the value of such resources or advantages was not recognized in advance or at that time, and no one imitated them. Later, the environment changed, the situation became clear, and the value of resources or advantages became more and more obvious, which became the object of enterprises' pursuit. However, due to the passage of time, other enterprises can no longer obtain that kind of resources or advantages at such a low cost, then enterprises with that kind of resources or advantages can obtain rent steadily.

3) Cost of imitation. The cost of imitation mainly includes time cost and capital cost. If it takes a long time for an enterprise to achieve the expected goal, it is possible that the advantage resources will lose their value due to the change of environment during this period, which makes the imitation meaningless. Under such a threat, many enterprises choose to abandon imitation. Even if the imitation time is short, the superior resources will not lose their value, the imitation behavior of enterprises will consume a lot of funds, and the consumption of funds will be qualitative; if the benefits of imitation behavior are not enough to compensate the cost, enterprises will not choose

to imitate.

Resource-based View holds that in order to create and maintain new competitive advantages, more attention must be paid to the resources and capabilities of the company and the ability to generate unique and difficult-to-imitate resource strategies, as well as the ability to integrate and synergize these resources with those of other enterprises.

### **2.3 Theoretical Contribution**

Traditional strategic models, such as Porter's Five Forces Model, mostly focus on the external competitive environment of enterprises. Most of the traditional strategic models do not attempt to study the enterprise interior. Different from the traditional strategic model, the Resource-based View pays great attention to the matching between the external market environment in which the enterprise operates and the internal resource capability of the enterprise. Resource-based View is based on the internal environment of an enterprise, that is, its resources and capabilities. For enterprise strategic decision-making, the internal environment is more decisive than the external environment. Resource-based View holds that the unique resources and capabilities of an enterprise provide a basis for strategic implementation.

Moon and Newman (2007) believe that the most important model to explain the competitiveness of enterprises should be the Resource-based View. Resource-based View can better analyze the competitiveness of enterprises than Porter's general model. Resource-based View regards enterprises as the aggregation of resources and capabilities, focusing on: (1) imperfection of factor markets; (2) heterogeneity of enterprises; (3) different degrees of specialization; (4) limited transfer of enterprise resources. The competitiveness of enterprises depends on the specific advantages of resources owned by enterprises, and how to utilize, internalize or balance strategic assets.

So far, the most important contribution of enterprise Resource-based View is to put forward the theory of competitive advantage. The assumption of enterprise Resource-based View is that the best effect of management behavior in an enterprise is to obtain sustained competitive advantage. The realization of sustainable competitive advantage may enable enterprises to obtain economic rent or excess profits. Therefore, enterprise Resource-based View pays more attention to how to realize and maintain the advantages of enterprises. According to Resource-based View, the answer to this question is to possess some key resources, that is, resources are valuable and not easy to be copied and embezzled. If an enterprise can effectively utilize these resources in its product market, it will gain sustainable competitive advantage. Therefore,

Resource-based View emphasizes strategic choice, requiring enterprise management to identify, develop and use key resources to maximize profits as an important task. Generally speaking, the core elements of Resource-based View are: sustained competitive advantage and better business performance, the characteristics and classification of resources that can form advantages, etc.

In short, the basic elements of enterprise Resource-based View are the key resources and the role of management in transforming these resources into sustainable competitive advantage, so as to achieve better business performance in the market.

## **3. Major schools**

Zhong and Xu (2006) believe that Resource-based View, dynamic capability theory, knowledge-based theory and evolutionary theory all seek the source of enterprise growth motivation from within the enterprise. Therefore, the basis of dynamic capability theory, knowledge-based theory and evolutionary theory is Resource-based View, which are branches of Resource-based View. Yu(2009) holds that the four schools of enterprise resource theory, core competence theory, knowledge-based theory and enterprise dynamic competence theory are relatively independent and complementary. They all believe that the growth of enterprises is closely related to the accumulation of knowledge and competence that enables enterprises to expand their production fields. As the branch theory can help this paper to further refine the Resource-based View and provide more breakthrough points for this paper, the following branch theories are elaborated in this paper, in order to provide guidance and theoretical support in carrying out some analysis onward:

### **3.1 Dynamic Capabilities View**

Dynamic capabilities view is an extension of Resource-based View by scholars in the context of rapid development of the market. The core elements of dynamic capability come from many theoretical foundations, such as enterprise behavior theory, transaction cost theory and company evolution theory. Teece et al. (1997) put forward the concept of dynamic capability in order to emphasize that it is very important for an enterprise to build, integrate and restructure its resources in response to the changing environment. Teece et al. (1997) argued that dynamic capabilities originate from the unique asset positioning and evolution path of enterprises and dynamic capabilities can include unique business processes and strategic practices fostered through long-term learning mechanisms. Eisenhardt and Martin (2000) regard dynamic capabilities as a process of integrating, reconfiguring, acquiring and releasing resources in response to market changes. Zollo

and Winter (2002) regard dynamic capabilities as a stable example of collective activities acquired through learning, which evolved through experience, knowledge expression and knowledge integration. D'Aveni et al. (2010) emphasized once again that dynamic capability is very important to gain short-term competitive advantage in dealing with highly competitive environment, which is difficult to achieve for enterprise resources. Wu (2007) proposed that dynamic capability can be used as an intermediary variable between enterprise resources and enterprise performance.

When the environment is relatively stable, it needs to rely on gradual dynamic capabilities to improve the enterprise resource base; when the environment shows strong dynamic characteristics, it needs to rely on the renewal of dynamic capabilities to transform the enterprise resource base; when the environment shows a high degree of Super dynamic characteristics, it needs to rely on the renewal of dynamic capabilities to update the first two levels of enterprise capabilities to realize the transformation of enterprise resource base, so as to adapt to environmental changes. Therefore, the inherent logic of competitive advantage generated by dynamic capabilities is that dynamic capabilities create competitive advantage by changing the resource base of enterprises.

Dynamic capability can promote the improvement and renewal of resources and the direct generation of economic rent of resources. Therefore, dynamic capability theory enriches and expands the view of Resource-based View (Zott (2003). Dynamic capability is a transforming ability, which goes far beyond the general management ability. It not only makes enterprises profit by inventing new products or new technologies, but also makes enterprises profit by innovation (Teece, 1986). If an enterprise has resources or capabilities, but lacks dynamic capabilities, it may be able to obtain competitive returns in the short term, and may even obtain short-term excess competitive profits, but not long-term excess competitive performance (Teece, 2007). Yan (2007) holds that dynamic competence theory is not a new theory competing with Resource-based View. The problem of its interpretation is still the internal problem of Resource-based View, and its theoretical scope is also completely within the scope of Resource-based View.

Therefore, in the market environment where new technologies are emerging and products and services are rapidly iterating, the dynamic competence theory emphasizes more on one kind of resources in the framework of Resource-based View, and lays another perspective for the classification and understanding of the Resource-based View, which forms a useful supplement to

the research of the Resource-based View.

### **3.2 Network Resources View**

Resource-based View focuses on the interior of the enterprise, regards the enterprise as a combination of resources, and holds that resources are owned or controlled by the enterprise. Gulati (1999) believes that enterprise resources can break through enterprise boundaries, and network resources are very important to enterprise performance. This expands the resource-mining boundary of Resource-based View. Zheng and Wang (2009) believe that a large number of network resources contained in the enterprise relationship network are the source of sustainable competitive advantage of enterprises; internal and external network resources are not independent of each other in the process of promoting the internationalization of enterprises, but there is a significant interaction between them. Lavie (2006) defines network resources as dynamic resources that can be metabolized through cooperative relationships and their connections. Fang (2012) put forward that besides the value, scarcity, irreplaceability and imitation of traditional resources, network resources also have more important characteristics, namely, sharing. Fang and Hu (2010) proposed that network resources can be divided into three types: network structure resources, network relationship resources and network node resources. Cao et al. (2011) proposed that resources, assets and skills acquired by enterprises from external networks are the key determinants for enterprises to establish their competitive position.

Therefore, in general, the Network Resources View holds that the resources that enterprises can grasp can be divided into two categories, one is the internal resources controlled by enterprises, and the other is the external resources acquired through the network connection relationship, that is, network resources. Network resources can be regarded as the status of enterprises in industrial networks. The more network resources enterprises control, the greater their influence in the industry, and the higher their network status in the industry correspondingly.

This paper holds that the concept of network resources has absorbed the essence of Resource-based View on the impact of resources on competitive advantage of enterprises and has also extended the thinking dimension of Resource-based View. However, most of the external resources referred in network resources are the resources that enterprises can control and possess. Therefore, the view of network resources finally is another perspective of classification of resources based on the Resource-based View.

### **3.3 Comprehensive Resource View**

Comprehensive Resources View is a basic theory and

an important viewpoint on the discovery, allocation and utilization of all-round resources inside and outside enterprises under the background of global economy, knowledge economy and network economy. The view of comprehensive resources holds that all factors that are disposable and conducive to the realization of the specific purpose of a subject should be called resources, including tangible, intangible, realistic, and potential and so on. The concept of comprehensive resources is not from the perspective of resource possession, but from the fundamental perspective of resource utilization to interpret the connotation of resources, thus putting forward new ideas for enterprises to build a resource utilization mode suitable for the open value network creation system and break through the constraints of resources on the development of enterprises. At present, the related research of comprehensive resource view is still in the early stage of exploration.

From the perspective of enterprises, enterprise resources include not only human resources, financial resources and material resources, but also market resources, relationship resources, information resources, management resources, knowledge resources, brand resources and policy

resources. Tao et al. (2006) believed that we should break through the "traditional" concept of enterprise resources and bring into the scope of enterprise resource management "all materials, energy and information that can be used to increase enterprise value".

The resource environment of an enterprise is a necessary condition for the survival and development of an enterprise. The elements directly supporting the sustainable competition and development of an enterprise can be called "elemental resources", while the external conditions indirectly supporting the sustainable competition and development of an enterprise by influencing "elemental resources" are called "conditional resources". Jiang et al. (2008) put forward that according to the role of resources in the growth of enterprises, they can be divided into two categories: elemental resources refer to those resources that directly participate in the daily production and business activities of high-tech enterprises, and environmental resources refer to those that do not directly participate in the production of enterprises, but their existence greatly improves the operational effectiveness of enterprises. At the same time, factor resources and environmental resources can be further subdivided, as shown in the table below.

**Resource Classification Table under the Comprehensive Resource View**

Conditional resources			Elemental resources		
Environment	Economy	Society	Hard	Soft	
			Tangible	Intangible	Capability
Natural raw material reserve, natural ecological balance, etc.	Financial capital environment, International foreign exchange Policy, etc.	Population changes, social and cultural atmosphere, etc.	Natural resources, financial capital, etc.	Market resources, human resources, etc.	Management Resources, Knowledge and Technology Innovation Resources

In fact, the classification of resources and environment to some extent is closer to the classification perspective of network resources view, that is, conditional resources are quite similar to external resources, and elemental resources are quite similar to internal resources.

This paper holds that the proposition of the concept of comprehensive resources tries to further broaden people's horizon of understanding resources on the basis of the concept of network resources, not only to find controllable resources within enterprises, but also to bring the exploration of uncontrollable resources outside enterprises into the scope of research. However, the systematicness and uniqueness of this view, especially in the field of enterprise management, are not clear enough, and some areas even overlap with the concept of network resources, which need further study in the future to seek breakthroughs and improvements.

### **3.4 Core Competence Theory**

In 1990, Prahalad and Hamel published the article "Enterprise Core Competence" in Harvard Business Review, and established the basic content and analysis method of strategic management based on core competence, thus establishing the position of core competence in the theory and practice of strategic management.

Competence in core competence comes from the Latin word *competentia*, which means "empowered to make judgments" and is further extended to "empowered to speak". Prahalad and Hamel (1990) put forward that the real source of enterprise advantages can be found from management ability, which can integrate technology and production skills within the enterprise into core competencies, thus helping the enterprise to seize the instantaneous opportunities for a business. Therefore, Core Competence Theory holds that an enterprise is a unique

aggregate of competence, and its long-term competitive advantage comes from its core competence. Hafeez et al. (2002) described core competence as the Pearl on the crown of an enterprise, which needs careful care and development. Chen (2002) elaborated that the core competence of an enterprise is related to its unique characteristics such as technology, structure, culture and values, showing such characteristics as value, uniqueness, derivation, accumulation of learning, difficulty in imitation, non-tradability and path dependence. In this respect, the discriminatory judgment of resource attributes in Resource-based View has been extensively extended. It is argued that core competence will not wear and tear with use, but will be continuously strengthened by application and sharing. Wang (2001) believes that the core competence of an enterprise is the competence in the sense of competition, not the competence in the sense of function, and then it is the core rather than the general or ordinary competence.

Chen & Pan (2001) and others believe that, generally speaking, the core competence of an enterprise refers to the special ability of an enterprise to make one or more of its own business obviously superior to its competitors in the industry through a combination of a series of skills and knowledge. Yan et al. (2008) believe that the core competence of an enterprise consists of three elements: core technology, organizational management knowledge and market knowledge, which are interrelated, interactional, complementary and mutually restrictive. In addition, Pan (2007), in the new background and field, should establish three new core competence viewpoints: without core technology, core competence can still be achieved; without core competence, core competence can still have competitive advantage; and core competence can be identified based on competition.

Generally speaking, the core competence theory tends to emphasize or highlight the importance of internal soft resources, but at the same time, the core competence theory limits its interpretation to soft resources, thus ignoring the fact that hard resources has a tremendous role in promoting actually competitive advantages for enterprises in some fields or backgrounds.

### **3.5 Knowledge-based View**

Knowledge-based theory holds that updating knowledge is the key to maintaining competitive advantage. A structured way to organize enterprises around knowledge is to formulate new competitive strategies for enterprises. Therefore, enterprises should not only improve the current knowledge utility, but also acquire future knowledge, which is the basic point of view of enterprise knowledge base theory. Knowledge-based theory includes four core principles: knowledge is the most decisive resource in an

enterprise, knowledge integration is the primary task of an enterprise, the primary task of management is to achieve effective coordination of knowledge, and management has the function of establishing isolation mechanism to prevent rivals from embezzling their own knowledge.

According to Knowledge-based View of enterprise, organizational knowledge is the most valuable asset of an enterprise, and organizational knowledge includes explicit knowledge and tacit knowledge. Explicit knowledge refers to the knowledge that can be acquired by oral transmission, reference materials, literature reading, and disseminated through language, text and other means. Tacit knowledge refers to the knowledge accumulated by employees or managers in their work, which is not easy to be learned or imitated by others. Explicit knowledge is easy to acquire, while tacit knowledge is difficult to acquire. Zollo and Winter (2002) put forward that enterprise capability comes from the accumulation of tacit experience, the clarification of explicit knowledge and the co-evolution of knowledge coding activities.

Enterprise knowledge-based theory is actually an internal subdivision of Resource-based View. Its main purpose is to emphasize the importance of enterprise internal knowledge in many enterprise resources and to arouse people's attention to the accumulation of this resource.

## **4. Summary and Prospect**

Nowadays, there are many signs that the Resource-based View has matured and become a theoretical system. Firstly, more and more scholars use Resource-based Theory to replace Resource-based View. This means that resource-based research has reached a certain degree of sophistication and complexity, so that such research is a theory rather than a point of view. Secondly, Resource-based View has derived many branches, especially Dynamic Capabilities View, Network Resources View, Core Competence Theory, Comprehensive Resources View and Knowledge-based View. Thirdly, the Resource-based View has been integrated into other fields, such as institutional theory and organizational economics. Finally, the research on Resource-based View has developed into a series of reviews and evaluations, including extensive empirical research on the core principles of Resource-based View, critical verification of research methods around Resource-based View, and combing the critical viewpoints of Resource-based View. Generally speaking, from the Resource-based View to the emergence of Resource-based Theory and branch schools, the integration of Resource-based View and other views, and the evaluation of the overall situation of the research

work on Resource-based View. These developments show that the Resource-based View has matured to a theoretical system and an important perspective to explore enterprises.

## References

- [1] Chen Shixiong, Pan Yonghui, etc., Enterprise Core Competence and Rebuilding the Competitive Advantage of Township Enterprises, Township Enterprises Research, 2001 No. 2, p5-7
- [2] Zhong Hongwu and Xu Quanjun. A comparison of the theoretical research on the growth of modern enterprises at home and abroad. Economic management. January 2006, P39-43
- [3] Yu Guiling, Theoretical Exploration of Foreign Enterprise Development, Economics, Issue 4, 2009, p47-50
- [4] Yan Dechun, is the concept and theory of dynamic capability valuable? Scientific Research, June 2007, P478-481
- [5] Tao Zhimei, Wang Yanyue, Resource Category Expansion Analysis of Public Resource Management, Journal of Social Sciences of Shanxi University, October 2006, p17-19
- [6] Jiang Renfeng, Sun Shiyong, Research on Growth Strategy of Small and Medium-sized Enterprises in China Based on Resource-based View, Business Research, 2008/08, p98-100
- [7] Yan Jianjun and You Daming, the formation of knowledge-based competitive advantage of enterprises and the modernization of management, Phase 1, 2008, P7-9
- [8] Fang Gang, Hu Baoliang, The Classification and Function Mechanisms of Network Resources: Research from the Perspective of Knowledge Transfer, Scientific Research, October 2010, Vol. 28 (10), p1511-1520
- [9] Fang Gang, Network-Oriented Resources and Enterprise Competitive Advantage, Journal of Hangzhou University of Electronic Science and Technology (Social Science Edition), March 2012, Vol. 8 (1), p23-27
- [10] Zheng Zhun, Wang Guoshun, An Analysis of the Internationalization Growth Mechanism of Enterprises Based on Network Resources - Taking Wenzhou Private International Enterprises as an Example, Business Economy and Management, February 2009, Vol. 208 (2), p41-46
- [11] Pan Jingang, Re-understanding of Core Competence Theory, China's High-tech Enterprises, Issue 14, 2007, p29,32
- [12] Wang Mingfu, Enterprise Core Competence Theory, Economic Guide, No. 4, 2001, p69-73
- [13] Chen Guoqiang, Core Competitiveness of Enterprises: Core Competence Theory, Journal of Hefei University of Technology (Social Science Edition), September 2002, Vol. 16 (s1), p187-190
- [14] E.T.Penrose, The theory of the growth of the firm, Oxford University Press, 1959, Oxford.
- [15] J.B.Barney, Strategic factor markets: Expectations, luck, and business strategy, Management Science, 1986, 32, p1231-1241
- [16] Jay B. Barney, Firm resources and sustained competitive advantage, Journal of Management, 1991, Vol.17(1), p99-120
- [17] Khalid Hafeez, YanBing Zhang, Naila Malak, Determining key capabilities of a firm using analytic hierarchy process, International Journal of Production Economics, Vol.76(1), Mar.,2002, p39-51
- [18] Jose M. Barrutia, Carmen Echebarria, Resource-based View of sustainability engagement, Global Environmental Change, 34(2015),p70-82
- [19] J.A.Schumpeter, Capitalism, Socialism, and Democracy, Harper & Row, 1942, New York
- [20] P.Selznick, Leadership in Administration: A Sociological Interpretation. University of California Press, 1957, Berkely
- [21] B. Wernerfelt, A Resource-based View of the firm, Strategic Management Journal, 1984,5(2),p171-180
- [22] Alexander J.Kull, Jeannette A. Mena, Daniel Korschun, A Resource-based View of stakeholder marketing, Journal of Business Research, 2016, 69, p5553-5560
- [23] Jay B. Barney, Gaining and sustaining competitive advantage, Reading, 1997, MA:Addison-Wesley
- [24] D.K. Dutta, Hypercompetitive environments, cooperation strategy, and the role of complementary assets in building competitive advantage: Insights from the Resource-based View, Strategic Management Review, 2015, 9(1),p1-11
- [25] M.F.da Costa, C.E.Costa, C.F. de Angelo, W.F.A de Moraes, Perceived competitive advantage of soccer clubs: a study based on the Resource-based View, RAUSP Management Journal, 2018, 53,p23-34
- [26] A.Nemati, Impact of resource based view and resource dependence theory on strategic decision making, International Journal of Business and Management, 2010, 5(12), p110-115
- [27] I.Gavronski, R.D.Klassen, S.Vachon, L.F.M.do Nascimento, A Resource-based View of green supply management,Transportation Research Part E,2011, 47, p872-885
- [28] R.Guesalaga, M. Gabriellson, B.Rogers, L.Ryals, J.Cuevas, Which resource and capabilities underpin strategic key account management?, Industrial Marketing Management, 2018,75, p160-172
- [29] H.C.Silvestre, R.C.Gomes, A Resource-based View of utilities: The key-determinant factors for customer prices and organizational costs in the Portuguese water industry,Water Resources and Economics, 2017,19,p41-50
- [30] H. Chang Moon and Newman S. Peery, Jr., Competitiveness of product, firm, industry and nation in a global business, Emerald Backfiles 2007, P37-43
- [31] J.Barney, M.Wright,D.J.Ketchen, The Resource-based View of the firm: Ten years after 1991, Journal of Management, 2001, Vol.27(6), p625-641
- [32] Steven A.Lippman, Richard P.Rumelt, A bargaining perspective on resource advantage, Strategic Management

- Journal, 2003, Vol.24(11), p1059-1086
- [33] D.J.Teece, Business models and dynamic capabilities, Long Range Planning, 2018, 51, p40-49
- [34] J.S.Busby, The co-evolution of competition and parasitism in the Resource-based View: A risk model of product counterfeiting, European Journal of Operational Research, 2019, 276,p300-313
- [35] M.M.Savino, M.Shafiq, An extensive study to assess the sustainability drivers of production performances using a Resource-based View and contingency analysis, Journal of Cleaner Production, 2018. 204, p744-752
- [36] Yini Lin, Lei-Yu Wu, Exploring the role of dynamic capabilities in firm performance under the Resource-based View framework, Journal of Business Research, 2014, 67, p407-413
- [37] D.J.Teece, G.Pisano, A.Shuen, Dynamic capabilities and strategic management, Strategic Management Journal, 1997, 18(7), p509-533
- [38] D.J.Teece, Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance, Strategic Management Journal, 2007, 28(13), p1319-1350
- [39] K.M.Eisenhardt, J.A.Martin, Dynamic capabilities: What are they?, Strategic Management Journal, 2000, 21, p1105-1121
- [40] R.A,D'Aveni, G.B.Dagnino, K.G.Smith, The age of temporary advantage, Strategic Management Journal, 2010,31(13),p1371-1385
- [41] M.Zollo, S.G.Winter, Deliberate learning and the evolution of dynamic capabilities, Organization Science, 2002, 13(3), p339-351
- [42] C.Zott, Dynamic capabilities and the emergence of intraindustry differential firm performance: Insights from a simulation study, Strategic Management Journal, 2003, 24, p97-125
- [43] L.Wu, Entrepreneurial resource, dynamic capabilities and start-up performance of Taiwan's high-tech firms, Journal of Business Research, 2007, 60(5), p549-555
- [44] M.Popli, R.M.Ladkani, A.S.Gaur, Business group affiliation and post-acquisition performance: An extended Resource-based View, Journal of Business Research, 2017,81, p21-30
- [45] M.Cao, Q.Zhang, Supply chain collaboration: Impact on collaborative advantage and firm performance, Journal of Operations Management, 2011, 29(3), p163-180
- [46] R.Gulati, Network Location and learning: The influence of network resources and firm capabilities on alliance formation, Strategic Management Journal, 1999, 20(5), p397-420
- [47] Richard Rumelt, Toward a Strategic Theory of the Firm. Competitive Strategic Management, 1984
- [48] D.Teece, Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy, Research Policy, 1986, 15(6), p285-305
- [49] D.Lavie, The competitive advantage of interconnected firms: An extension of the Resource-based View, Academy of Management Review, 2006, 31(3), p638-658
- [50] K.Hafeez, Y.B.Zhang, N.Malak, Core competence for sustainable competitive advantage: A structured methodology for identifying core competence, IEEE Transactions on Engineering Management, 2002, Vol.49(1),p28-35
- [51] C.K.Prahalad, G.Hamel,The core competence of the corporation, Harvard Business Review, 1990, May-Jun, p79-91



# E-commercial in the International Business

*Jing Pan*

(Royal Melbourne Institute of Technology)

**Abstract:** This article is mainly about the investment outlook and analyses of the e-commerce industry. The political economic, culture analyses, the Porter Dimond model, the key challenge and the future of the e-commerce are discussed. Besides, Alibaba as a typical e-commerce company example are analyzed in this article.

**Key words:** e-commerce, international business

## Introduction

In modern society, the Internet has become an integral part of people's lives. In fact, the e-commerce industry is replacing traditional retailers. This report presents the future of e-commerce industry and discuss how Alibaba become a global company in political economic, Hofstede culture analysis and the Porter diamond model.

## 1. Political economic

### 1.1 Introduce

In China, Alibaba Group is a multinational e-commerce, Internet enterprise group founded in 1999 by 18 people, at the present, the number of employees is almost 73,780. In end of 2017, Alibaba Group come into top 10 of world's biggest stocks ranked by market capitalisation and the market value of Alibaba Group over \$476 billion, and the Annual income \$158.27 billion with year-on-year growth of

56 percent which shows Alibaba Group has so much potential. Also, the most representative of B2B(Business-to-business) is Alibaba Group. B2B mode is commerce transactions between companies or businesses. For example, a manufacturer and a wholesaler or a wholesaler and a retailer. Nowadays, Alibaba Group tends to develop their other business mode in advance, such as B2C (business-to-consumer) and C2C (consumer-to-consumer).



### 1.2 HDI



The score of human development index(HDI) is 0.738 in 2015. China has high levels of human development, making to emerge from a low development level since 1990

to 2015, and China is presently ranked 90th of 188 countries on the HDI, according to the 2016 Human Development Reports of China which measures the trend of social and

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**Author:** Jing Pan, Royal Melbourne Institute of Technology.

economic development from 1990 to 2015.

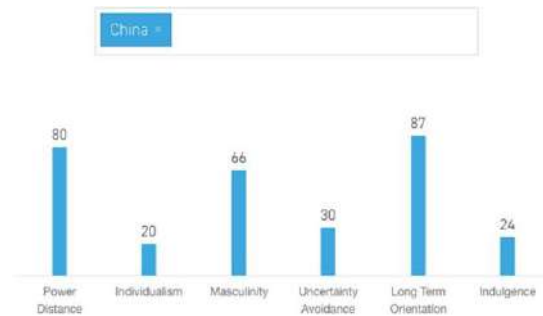
+ Health	Life expectancy at birth (years)	76.0
+ Education	Expected years of schooling (years)	13.5
+ Income/Composition of Resources	Gross national income (GNI) per capita (2011 PPP\$)	13,345
+ Inequality	Inequality-adjusted HDI (IHD)	n.a.
+ Gender	Gender Development Index (GDI)	0.954
+ Poverty	Multidimensional Poverty Index (MPI)	0.023
+ Work, employment and vulnerability	Employment to population ratio (% ages 15 and older)	67.6
+ Human Security	Homicide rate (per 100,000 people)	0.8
+ Trade and Financial Flows	Exports and imports (% of GDP)	41.2
+ Mobility and Communication	Internet users (% of population)	50.3
+ Environmental sustainability	Carbon dioxide emissions per capita (tonnes)	7.6
+ Demography	Population, total (millions)	1,376.0

The score of life expectancy is 76, well above the world's average of 70. In education and employment part, the score of expected years of schooling is 76. The universal 9-year compulsory education and elimination of illiteracy among youth will be a good example in education.

Then, the score of employ to population ratio is 67.6 and the score of Environmental sustainability (Carbon dioxide emissions per capita) is 7.6. the number of population in China is a big issue that has a very lasting effect in job opportunities and living standards.

The Gross national income is \$13,345, the average income is significantly greater than the median and wealth is skew forward a few provinces such as Shanghai, Beijing. Add to the fact that China has very high wealth(income)

**2. Culture analysis**



The power distance in China is quite high. Generally, promotion is controlled by a boss, but no one doubts the decision whether it is right or not. It's like that people are

inequality and you will see that the inequality isn't adding up to a recipe for Human Development Index.

In Mobility and Communication part, 50.3 present of population use internet in China, and the number of internet users has been growing up. In this case, with the rapid development of the society, the e-commerce becomes more significant than before.

Therefore, the report highlight issues is China mismatches between educational preparation and job opportunities, and includes an aging population, economic slowdown, population migrations. on the other side, China's rapid economic growth has acted a critical part towards its progress in human development.

willing to accept their inferior positions in the workplace.

The next is Individualism. China is a country of collectivist culture. This culture reflects in the workplace to a

great extent, mainly revealed as the honour of the organisation is more important than the single employee. Sometimes staffs are more willing to sacrifice themselves for the interest of the company.

The third dimension is masculinity. In China, people believe living is for work. And people purchase luxury is common; it's a symbol of status and success.

The following dimension is uncertainty avoidance. Usually, People in China have a fluid business structure and are willing to change the risk. People are more concerned with the long-term strategy than the day-to-day operations of the business.

Then is the dimension of Long-term orientation. China is more interested in long-term goals than achievement. People are tending to be more future-oriented by saving now

to reap the rewards later.

The last dimension is the indulgence. The Chinese are used to mastering their pessimism and cynicism. Indulging in desires or impulses is frowned upon in the Chinese culture.

### 3. The Porter Diamond Model

Alibaba are planning to get a double transaction volume. In order to reach this target, Alibaba aims to invest a huge number of moneys to build up the most efficient global logistics network in the world. (March Quarter 2018 and Full Fiscal Year 2018 Results). Alibaba's goal is to establish a future business infrastructure and become a company which can lasts at least 102 years.

#### Total Revenue Breakdown

	Three months ended March 31, 2018		
	RMB MM	% of Revenue	YoY%
<b>Core commerce:</b>			
China commerce retail	40,185	65%	56%
China commerce wholesale	1,883	3%	28%
International commerce retail	3,967	6%	63%
International commerce wholesale	1,699	3%	13%
Cainiao logistics services <sup>(1)</sup>	2,852	5%	N/A
Others	701	1%	101%
<b>Total core commerce</b>	<b>51,287</b>	<b>83%</b>	<b>62%</b>
Cloud computing	4,385	7%	103%
Digital media and entertainment	5,272	8%	34%
Innovation initiatives and others	988	2%	8%
<b>Total</b>	<b>61,932</b>	<b>100%</b>	<b>61%</b>

As the picture shows above, China commerce retail is still the most important part for Alibaba group, and they have express company and online payment platform to support the

commerce retail. They also invest related companies as the picture shows below.

	Core Commerce China Commerce Retail 天猫 Tmall.com 淘宝 Taobao.com 农村淘宝 天猫超市 天猫国际 Hema 中国仓促网 China Commerce Wholesale 阿里巴巴集团 International Commerce Retail Wholesale Cainiao Logistics Services 菜鸟网络	Cloud Computing Alibaba Cloud	Digital Media & Entertainment 优酷 UC UC News 土豆 Tudou 优酷土豆 阿里影业 阿里互娱 阿里影业	Innovation Initiatives & Others 高德地图 钉钉 芝麻信用	Un-allocated <sup>(2)</sup>	Consolidated
Mar 18 Revenue (MM)	RMB 51,287 USD 8,176 62% YoY	RMB 4,385 USD 699 103% YoY	RMB 5,272 USD 840 34% YoY	RMB 988 USD 158 8% YoY	-	RMB 61,932 USD 9,873 61% YoY
Mar 18 Adjusted EBITA (MM)	RMB 22,186 USD 3,537 19% YoY	RMB (353) USD (56)	RMB (2,595) USD (414)	RMB (860) USD (137)	RMB (1,573) USD (251)	RMB 16,805 USD 2,679 11% YoY
Mar 18 Adjusted EBITA Margin (%)	43%	(8%)	(49%)	(87%)		27%

Since 2016, Alibaba became the one of the largest e-commerce company which operations in all over the world. Its online revenue has exceeded Amazon and eBay, undoubtedly, Alibaba became the most valuable online retailer.

The government issued guidance on actively promoting the "Internet Plus" initiative which was first proposed by Premier Li Keqiang in his 2015 government work report. He

states the "Internet Plus" is crucial for the whole Internet industry. Besides, the government wants to buy Alibaba's 1% shares. That's the reason why Alibaba developed so fast.

The founders strived to accumulate money from institutions to builds the company. However, they are strong enough to open unstaffed convenience store and gas station. Customers can use Alipay to check out.

#### 4. The key challenge

For investing e-commerce industry, technical skills are huge challenges. There are various data management systems. These systems have huge differences in architecture and usage; often based on outdated technologies, they tend to stagnate. Those separate system will cost copious amounts of resource, for example highly educated staff and expensive equipment. The core tasks and business requirements will be interfered by these complicated systems (Chandra, 2017). In addition, e-commerce industry is booming in providing consumers with the best personalized experience. Managing the customer database itself is a challenge. Moreover, investing e-commerce industry must understand how to protect and use customers data properly.

#### 5. Future

Technology changes the world; it will create a historical shift in traditional E-commerce.

##### 5.1 Block-chain

As a decentralised technology, it has a Broad prospect use of the transaction. By using blockchain to pay in E-commerce, consumers' details will get adequate protection. The block-chain can record transactions between two parties in a verifiable and permanent way without the need for a central authority(anonymity).

##### 5.2 Artificial intelligence

Concentrating on the continuous growing labour cost, AI will be wildly used in this industry. Machine intelligence will partly instead of the humanity; machines can do more effective in packing, picking, posting and so on. Some companies have already employ Drone to post.

##### 5.3 Augmented reality

Augmented reality is another technology to fuel the industry. It pursues a better shopping experience. Consumers can get a Three-dimensional view of products, even the slight details can also be observed.

##### 5.4 Integrated industry trend

To make the price more competitive, the simple way is to produce itself. This way is not only reducing the procedure to deliver to consumers but also maximize the profit that the company can generate.

#### Conclusion

In conclusion, the e-commerce industry will become more convenient. Thought there are some challenge for invest this industry, it will cause a great shock or even replace the traditional retailers.

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#### References

- Alibabagroup.com. (2018). *Alibaba Group*. [online] Available at: <http://www.alibabagroup.com/en/about/overview>. [Accessed 7 May 2018].
- English.gov.cn. (2018). *Premier Li on Internet Plus traditional industries*. [online] Available at: [http://english.gov.cn/premier/news/2016/10/05/content\\_281475459076998.htm](http://english.gov.cn/premier/news/2016/10/05/content_281475459076998.htm). [Accessed 7 May 2018].
- Hofstede. 2018. *COMPARE COUNTRIES*. [ONLINE] Available at: <https://www.hofstede-insights.com/product/compare-countries/>. [Accessed 7 May 2018].
- Pavan Chandra. 2017. *Six key challenges facing modern e-commerce*. [ONLINE] Available at: <https://economictimes.indiatimes.com/small-biz/marketing-branding/marketing/six-key-challenges-facing-modern-e-commerce/articleshow/61503054.cms>. [Accessed 8 May 2018].

# Humanistic Care Training in Pharmacy Higher Education: Cases Study in Jinan University of China and Rhodes University of South Africa

Pei Yu <sup>a, b</sup> & Sunitha Srinivas <sup>c\*</sup>

(a. College of Pharmacy, b. International School, Jinan University, Guangzhou, P. R 510632, China; c. Faculty of Pharmacy, Rhodes University, Grahamstown, South Africa)

**Abstract: Background:** China has the largest population in the world and faces many challenges in aging population and a surge of non-communicable diseases. As the professional health care provider, pharmacists play an important role in the health service. But pharmacists cannot satisfy social needs either in quality or in quantity. To improve the service level, humanistic care ability is necessary to emphasize in pharmacy higher education.

**Method:** To investigate humanistic care training in pharmacy education by comparing the pharmacy curricula and practice-learning activities of Jinan University in China with that of Rhodes University in South Africa.

**Results:** It showed that Jinan University pay more attention and provide more detail method to develop the students' knowledge and skill in science and technology. Meanwhile, Rhodes University provided more practical method in course for clinical training and has specifically examined the impact of service learning on students' awareness of humanistic care in pharmacy.

**Conclusion:** This article has shed light on the difference between Jinan University and Rhodes University in pharmacy education, and indicated the potential value of humanistic care education. Along with the sustainable social economy development in China, the human-centered healthcare system requires for a high level services. A growth in the human aspects of pharmacy education is necessary.

**Key words:** humanistic care, pharmacy education, curricula, practice-learning

## 1. Introduction

China has the largest population in the world and faces many challenges in reforming and developing its healthcare system. The population is aging and there is a surge in non-communicable diseases. The number of people over 65 years old in China is now at 140 million, and is expected to increase to 230 million by 2030 (The world bank, Report Recommends Deeper Healthcare Reforms in China, 2016).

The Government of China promulgated drug safety planning in 2017 and specifically stipulate to increase licensed pharmacists service level. It is necessary that at least more than 4 licensed pharmacists per ten thousand people by 2020 (CFDA, 2017). That means the number of licensed pharmacists is over half million to the present Chinese population of 1.38 billion. The amount 0.245 million will be newly increased by 80% on the basis of 0.307 million now.

Due to the strong pressure from the resource and population, "doctor-patient relationships" in China have been

deteriorating for the past 10 years. Many Chinese health care professionals are involved in tense and conflictual doctor-patient relationships. Some patients do not trust them and even physical attacks on these professionals have become a common event. Health professionals face challenges every day when offering their services to people.

The situation makes an urgent case for China to reform and start instituting a "people-centered" integrated healthcare system to meet new challenges. The government of China has also recognized the need for a strategic change in the health system, and has taken many concrete steps in this direction (The world bank, 2016).

"It's time to put people first," said Margaret Chan, former Director-General of the World Health Organization. "This means strengthening services at all levels, from community through hospital care back to the community, and linking them more effectively, so people get the care they need every step of the way" (The world bank, 2016).

The human-centered quality integrated health care was already put on the core of the health system in China. As a

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**Author:** Correspondence: Sunitha Srinivas, Faculty of Pharmacy, Rhodes University, Grahamstown, South Africa. Email: s.srinivas@ru.ac.za

new care model, it put the needs of patients at the center of everything in health care process, as well as their healthcare professionals. It is integrated with higher level care and social service to make the healthcare experience more convenient, more effective, and less expensive.

It is organized around the health needs of individuals and families. In service, the health professionals need to be reflective in the context of patients, families, and communities every day. They are able to be reflective, critical, flexible, and comfortable. That means humanistic care requires a profession full of love, empathy, perception and performing caring behavior, expressing responsibility, patience and sincerity in health care practice. By focusing on the concept of humanistic care, health professionals will be able to understand the core values in their services and have the human-care skill and ability.

In most health care system, pharmacists are the first health care professional that patients access when seeking health advise, particularly for the minor ailments or when they making use of their medications (Gregório, 2017). Currently, pharmaceutical care is understood as the pharmacists compromise to obtain the maximum benefit from the pharmacological treatments of the patients, being therefore responsible of monitoring their pharmacotherapy (Berenguer, 2004). This profession has moved from a product orientation (dispensing medications) to a patient focus, clinical training and humanistic care requirements have expanded (Gregório, 2017).

A time-and-motion observational study showed the Portuguese community pharmacists provide care service on a mean duration of 3.98 mins per interaction with patients (Gregório, 2017). In China, the corresponding interaction time is expected be less 1 min, even be calculated in seconds, particularly in public hospital. Therefore pharmacist and patient interaction required higher level professionals and skills. Humanistic care becomes especially crucial for pharmacists in both hospital and community.

The health management produced in the background of western medicine has had a theory system about humanistic care. In regard to theory about humanistic care, Watson's 10 care factors (Watson, 2003) are: (1) formation of a humanistic–altruistic system of values; (2) instillation of

faith–hope; (3) cultivation of sensitivity to one's self and to others; (4) development of a helping–trust relationship; (5) promotion and acceptance of the expression of positive and negative feelings; (6) systematic use of the scientific problem-solving method for decision-making; (7) promotion of interpersonal teaching–learning; (8) provision of a supportive, protective, and/or corrective mental, physical, sociocultural, and spiritual environment; (9) assistance with gratification of human needs; and (10) allowance for existential–phenomenological forces.

At present, humanistic care training is popular in medical school and nursing education globally including China (Dobrowolska, 2016; Bates, 2017; Jones, 2017). It is also practically used in pharmacy higher education in western or developed countries, such as Pharm D program (Wu, 2013; Lin, 2012). Here through the comparison with education in China and South Africa, finding out the differences, in order to modify the pharmacy curriculum plan in China.

## 2. Methods

As a case study, we try to investigate humanistic care training in pharmacy education by comparing the pharmacy curricula and practice-learning activities of Jinan University in China with that of Rhodes University in South Africa.

### 2.1 Structure of curriculum

Jinan University of China was founded in 1906 and now is a key comprehensive university. The pharmacy curriculum in Jinan University is very similar to that offered by other schools and colleges across the country. Particularly, the curriculum is designed such that courses integrate information, building upon one another, and encompass theory, laboratory, and experiential learning.

The curriculum system, which is approved by Ministry of Education of China, showed that the liberal education credit point including mandatory and elective course almost account for 30% in four year educational curriculum (Table 1). In addition to this, over 30% credit points of basic professional courses such as mathematics, chemistry, biology and medical science were provided. Almost 40% professional backbone courses were taken by mandatory.

**Table1. Ratio of Liberal Education of Pharmacy in Jinan University (The cultivation plan of college of Pharmacy, Jinan University,2018)**

Liberal education	Credit Point (%)	Course name
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Mandatory course	19.3%	English, Computer science, Physical training, Ideological education, Chinese writing
Elective course	10%	Science or Art
Total	29.3%	

Rhodes University of South Africa was founded in 1904, with a well-established reputation for academic excellence. The curriculum enables students to qualify for or obtain exemption in respect of certain components of various professional qualifications (Rhodes University South Africa, Calendar 2017). The present curriculum of pharmacy was introduced in 2013 (Faculty of Pharmacy Handbook. Rhodes University, 2016). It is laid down by the South African Pharmacy Council and all students must pass all courses of the prescribed curriculum to be awarded the degree in Pharmacy. Whilst the general curriculum is prescribed, each of the universities that offer pharmacy has different emphases. In the first year study in Faculty of Pharmacy at Rhodes University, professional basic courses such as mathematics, chemistry, computer, statistics, cell biology were provided to the students as soon as they entered in. It is followed by professional backbone courses which are mandatory from the second year. In final year students are permitted to select electives and undertake a research project. For the electives in pharmacy, the students may select courses such as “Communication Skills”, “Influenced behavior”, “Consulting” as well as the service-learning courses which are relevant to Pharmacy. Normally it is required for two courses, whose credit points are  $2 \times 15 = 30$ , account for 6.2% in all four years.

Comparing the two curriculum system, Jinan University has much more liberal education credit points, the courses are broad and multiple, and lasting for one and a half academic years. But eliminating the “English”, “Computer science”, “Physical training” and “Chinese writing”, the humanistic education is restricted to ideology and politics curriculum. Therefore it is relatively less for the health-care professional educations. Through four-year study, 15 professional basic courses and 16 professional backbone courses were mandatory and over 20 courses were professional elective courses (The cultivation plan of college of Pharmacy, Jinan University, 2018). For example, “Pharmacy Practice” was an elective course for only one term (36 hours for theory and 18 hours for practice) in the final year. In this class, most of students know little about humanistic care in detail with none or very few class hours (3 hours for communication skill theory and 3 hours for practice). The pharmacy curricula are mainly in the professional areas, focusing on science and technology skills.

This program builds an education model of “wide scope, sound grounding, and high proficiency” in pharmaceutical science and pharmacy.

Rhodes University curriculum has no specific liberal education curricula in pharmacy, but its general curriculum allows for a wide combination of subjects in the second and third year (Rhodes University South Africa, Calendar 2017). Pharmacy program focused on backbone professional courses such as “pharmaceutical chemistry”, “pharmacology”, “pharmaceutics” and “pharmacy practice” as mandatory courses. For example, the course “pharmacy practice” is one of the most important courses and it is a mandatory for three academic years. Actually, the “foundations of pharmacy” in the first year is also a related course to “pharmacy practice”. Humanistic care ability training is continuously evolving it by the lectures about communication skill, ethic and law and so on. It takes quite lot class periods to train students the clinical skill through four years. In the final year, the humanistic care education was provided specific for pharmacy students, although only two elective courses, but focus on the detail skill improvement. Its effect is obvious and impressive.

### ***2.2 Practice-learning education***

Both Jinan and Rhodes universities appreciate practice education in pharmacy. Besides of providing research project in the labs, the internship and externship are mandatory for the students who going to the community or hospital, and participating activities to get the practice-learning. A case about “festival” activities in two universities was studied by comparing their contents.

The “Sasol National Festival of Science and Technology” (SciFest) is the largest science festival in sub-Saharan Africa. It is held annually in Grahamstown, where Rhodes University is located. The SciFest has become the largest science festival in Africa, attracting over 56,000 visitors over the seven days (Pharmacy News, 2017). Thus the elective course teachers of the Rhodes University’s Faculty of Pharmacy use the SciFest as a forum to reach out to the community and an opportunity for final year pharmacy students to be involved in health promotion and service-learning (Karekezi, 2007).

In the activities, the students learned the importance of the pharmacist’s role in adopting participatory approaches that enable people to take greater control of their health. A

cross section of children and adults of various ages and from a range of educational, social and cultural backgrounds visited and engaged in the activities prepared by pharmacy students in SciFest (Karekezi, 2007). From this experience, the students enhanced their communication skills, as well as developed caring ability in facing various people, particularly in helping the low literate people.

Similarly, a “Pharmacy Festival of Jinan University” is held annually in the university campus in order to create academic atmosphere, train high-quality pharmacist and cultivate creative vision. Hundreds of students participate in such activities. The 16th Pharmacy Festival was opened in May of 2019 with experimental skills competition, pharmaceutical knowledge competition, science story show, research symposium, exhibition and poster. The pharmaceutical knowledge is integrated into all the activities. Science and technology was emphasized via these activities and the students’ innovative capability was developed. From this experience, the students enhanced their team working ability, as well as developed knowledge in pharmacy. But the humanistic care practice is overlooked in this kind of campus activities.

### 3. Result and Discussion

Comparing the pharmacy curriculum system of Jinan University and Rhodes University, it showed that Jinan University pay more attention and provide more detail method to develop the students’ knowledge and skill in science and technology. Meanwhile, Rhodes University provided more practical method in course for clinical training and has specifically examined the impact of service learning on students’ awareness of humanistic care in pharmacy.

Like all the universities in China, Jinan University provided the liberal education curricula, but it is broad and interdisciplinary general education. In fact it lacks specific humanistic care training course in pharmacy, which is content emphases in health care education.

One of the reasons for long-standing tension relationship in the health care provider and patient in China is responsible for deficiency in communication skills among health care providers. To avoid misunderstandings that can lead to conflict, clear communication and humanistic care are essential. As a pharmacist, explaining the intentions to patient, whether asking personal questions and responding to patient requests should be always performed with humanistic care in order to increase the patients’ clinical compliance. The pharmacist’s work is not only scientific but also more humanistic by assisting people to achieve self-actualization and self-healing.

Therefore, there is still great potential to improve humanistic education centered on empathy in pharmacy teaching of China. Up to now, no guideline for improving

empathy and related skills in Chinese pharmacy education is likely a great barrier (Li, 2015).

As health care professionals, the pharmacists should provide health care services with integrity, excellence, compassion, altruism, respect, and empathy as well as the doctors and nurses. In view of humanistic care training in medical and nursing education was offered in China (Guo 2011, Yan 2013), we suggest that the related curriculum in pharmacy also be designed and offered as the professional elective or mandatory courses. In the liberal education, humanistic course should be provided for all the students with different majors in university. In the professional education, some courses are suggested be offered as followed: “Introduction to Pharmaceutical Patient Care”, “Professional Studies: Effective Learning, Career Management”, “Professional Workplace and Scientific Communication Skills”, “Pharmacy Health Services Policy and Practice”, “Inter-professional learning and working for prescribing” (Programme Specification 2013-214, Aston University, UK) and “Influenced behavior” and “Consulting” and so on.

The strategies for the courses about humanistic care are recommended to be adopted such as theoretical course, group learning, problem-based learning and case study, narratives or diaries written, simulation—transforming technology into teaching, service learning, blended and e-learning, self-directed study, movie and exhibition, creative and care-activity practice (Branch, 2016; Jones, 2017; Dobrowolska, 2016; Lee, 2016; Eukel, 2014; Shiau, 2008; Messinger, 2016).

### 4. Conclusion

This article has shed light on the difference between Jinan University and Rhodes University in pharmacy education, and indicated the potential value of humanistic care education. Along with the sustainable social economy development in China, the human-centered healthcare system requires for a high level services. Although it shows a growth in interest in the human aspects of pharmacy education, it still has a long way to go to be universal in China. In the trend of globalization, the complete educational reform of higher education in pharmacy is necessary and inevitable. With the Chinese government’s help and universities’ support, it will be improved from teaching plan to curriculum system in order to train the high level health care professionals.

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## References

- Bates, V., (2017). Yesterday’s Doctors: The Human Aspects of Medical Education in Britain, 1957–93. *Med. Hist.*, 61(1), 48–65.



- Berenguer B., La Casa C., de la Matta M.J., Martin-Calero M.J. (2004). Pharmaceutical Care: Past, Present and Future. *Current Pharmaceutical Design*. 10(31), 3931-3946.
- Branch, W. T. Jr., Frankel R (2016), Not all stories of professional identity formation are equal: An analysis of formation narratives of highly humanistic physicians. *Patient Education and Counseling*, 99( 8), 1394–1399.
- CFDA. 13.5 National drug safety planning, 2017. <http://www.sda.gov.cn/WS01/CL0852/169745.html>
- Dobrowolska B., Palese A (2016). The caring concept, its behaviours and obstacles: perceptions from a qualitative study of undergraduate nursing students. *Nursing Inquiry*. 23, 305–314.
- Dobrowolska B, Palese A (2016). The caring concept, its behaviours and obstacles: perceptions from a qualitative study of undergraduate nursing students. *Nursing Inquiry*, 23, 305–314.
- Eukel H.N., Frenzel J. E., Skoy E.T., Focken R. L., Fitz A. L. (2014) An introductory pharmacy practice experience using simulated patient care activities in a pharmaceutical care laboratory environment. *Currents in Pharmacy Teaching and Learning* 6, 682–691.
- Faculty of Pharmacy Handbook. Rhodes University.2016
- Gregório J, Cavaco AM, Lapão LV. (2017). How to best manage time interaction with patients? Community pharmacist workload and service provision analysis. *Research in Social and Administrative Pharmacy* 13, 133–147.
- Guo J, (2011) Theoretical Construction and Experimental Study on the Caring Teaching Model. Ph. D. thesis.
- Jones E. K, Kittendorf A. L, Kumagai A. K. (2017) Creative art and medical student development: a qualitative study. *Medical Education*. 51, 174–183.
- Karekezi C.W, Wrench W., Quinn L., Belluigi D, Srinivas S. C. (2007). Design, Implementation and Preliminary Evaluation of an Introductory Service-Learning Elective for Pharmacy Students. *Education as Change*, 11(3), Dec 2007, Special Issue: CSL.
- Lee W. K., Harris C. C. D., Mortensen K. A., Long L. M., Sugimoto-Matsuda J. (2016), Enhancing student perspectives of humanism in medicine: reflections from the Kalaupapa service learning project. *BMC Medical Education*. 16,137.
- Li L, Wang J., Hu X, Hu X, Xu C. (2015) Empathy In Chinese Pharmacy Undergraduates: Implication for Integrating Humanities Into Professional Pharmacy Education. *Indian Journal of Pharmaceutical Education and Research* 49 (1) 31-39.
- Lin Y, (2012). Evolution of Pharm D Education and Patient Service in the USA. *J. Exp. Clin. Med.*, 4(4) ,227-230.
- Messinger A, Chin-Yee B.( 2016) I and Thou: learning the ‘human’ side of medicine *Med Humanit*, 42, 184–185.
- Pharmacy News, 2017: Science Festival highlights indigenous knowledge on its 21st year. <https://www.ru.ac.za/pharmacy/latestnews/sciencefestivalhighlightsindigenousknowledgeonits21styear.html>
- Programme Specification 2013-214, Aston University, UK
- Rhodes University South Africa, Calendar 2017.
- Shiau SJ, Chen CH.(2008) Reflection and critical thinking of humanistic care in medical education. *J Med Sci* , 24(7),367-372.
- The cultivation plan of college of Pharmacy, Jinan University (unpublished).2014.
- The world bank. Report Recommends Deeper Healthcare Reforms in China. 2016. <http://www.worldbank.org/en/news/press-release/2016/07/22/report-recommends-deeper-healthcare-reforms-in-china>
- Watson J. (2003). Love and caring ethics of face and hand— an invitation to the heart and our deep humanity. *Nurs Adm Q*. 27:197–202.
- Wu, S. Yu C., Zhang X.(2013) Comparison and Inspiration to Practice Cultivation Modes of Pharmaceutical Education in Foreign Countries and Regions. *Pharmacy Education*, 29(2),4-7.
- Yan J, Chen X. (2013), Exploration of curriculum of medical humanistic education for 5-year program clinical medicine majors. *China Higher Medical Education*. 9, 48.

# Implementing Effect and Treatment Guarantee of Serious Disease Insurance System of Resident Medical Insurance: Taking Yangxin County of Shandong Province as an Example

Ximing Wang

(County Social Labor Insurance Officer, Yangxin, Shandong, P.R 251800, China)

**Abstract:** *Objective:* According to the implementation of serious disease in Yangxin County of Shandong Province from 2014 to 2017, this paper makes an empirical analysis of the implementation effect of serious disease insurance and its treatment guarantee, and puts forward relevant suggestions. *Methods:* The total medical expenses of patients enjoying major disease insurance from 2014 to 2017 were randomly sampled by systematic trained professionals, and the questionnaire was formulated according to the unified method of on-site investigation. *Results:* The serious disease insurance system was gradually improved, the personal burden of residents was significantly reduced, and the security capacity was significantly enhanced. *Suggestions:* Establish a unified basic health insurance policy and standardize long-term financing mechanism, and further improve the serious disease insurance system.

**Key words:** serious disease Insurance system, implementation effect, treatment, guarantee

## Introduction

The implementation of the new rural cooperative medical system has played an important role in reducing the economic burden of disease of the insured residents, but it is undeniable that because the financing level of the new rural cooperative medical system is relatively low and the level of security is limited, once farmers suffer from serious diseases, they are prone to disastrous health expenditure.<sup>[1]</sup> To further improve the medical security system, on August 24, 2012, the State Development and Reform Commission and other six ministries and commissions jointly issued *the Guiding Opinions on the Development of Serious Disease Insurance for Urban and Rural Residents (No. 2605 of the Development and Reform Society (2012))*. They proposed that we should strive to avoid catastrophic medical expenditure in families and establish medical insurance for urban and rural residents. The insurance system further guarantees the high medical expenses incurred by patients with serious diseases<sup>[2]</sup>. By the end of 2013, nearly 30 provinces in China have introduced the implementation plan of major medical insurance, and more than 130 cities have carried out pilot projects, benefiting more than 200 million people. On October 16, 2012, the General Office of the Shandong Provincial People's Government issued *the*

*Opinion on the Development of Medical Insurance for Serious Diseases in New Rural Cooperative Medical System(Trial Implementation) (No. 65 of Luzheng Office, 2012)*, which marked the formal start of the work of medical insurance for serious diseases in Shandong Province. This paper takes the implementation of serious diseases insurance in Yangxin County of Shandong Province from 2014 to 2017 as an example, carries out empirical analysis on the implementation effect of serious diseases insurance and the protection of treatment, and puts forward relevant suggestions.

## 1. Material and Methods

### 1.1 Sources

Total medical expenses of patients and reimbursement expenses of basic medical insurance for residents are directly transferred from the residents' insurance system in Binzhou City. The reimbursement fee of patients' serious diseases medical insurance is drawn from the reimbursement system of Binzhou Property Insurance Company. Family income and expenditure information and subjective perception of the degree of economic burden relief were obtained through questionnaire survey.

### 1.2 Survey method

The total medical expenses of patients enjoying serious

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**Author:** Ximing Wang , Yangxin County Social Labor Insurance Office. Email: wxm-yx@163.com

diseases insurance from 2014 to 2017 were divided into sections. 100-150 people were randomly sampled in each section, and on-site surveys were conducted by professionals trained systematically according to a unified questionnaire.

### **1.3 Data processing**

Quantitative data are processed by general descriptive statistics, t-test and x2-test. The interview questionnaire was recorded and analyzed by thematic framework method.

## **2. Results and analysis**

### **2.1 Basic Policies and Characteristics**

#### **2.1.1 The fairness of the residents' major illness insurance system has gradually increased**

In 2014, only 20 kinds of major diseases were included in the insurance coverage of major diseases. The large expenses of non-20 diseases were not included in the compensation. There was a situation that large medical expenses such as illness and expenditure amount could not be reimbursed, which could not solve the disastrous medical expenditure of insured residents. On March 17, 2014, the provincial government office promulgated the Opinion on Developing the Work of Resident Serious Disease Insurance (No. 13 of Luzheng Office). It stipulated that the reimbursement of medical expenses should be increased on the basis of retaining reimbursement for 20 major diseases in 2014. It also stipulates that since 2015, the residents' major illness insurance will no longer carry out 20 kinds of major illness compensation policies, and reimburse the residents according to the medical expenses. The major illness insurance system will be gradually improved, and the fairness of the major illness insurance system will be enhanced.

#### **2.1.2 Implementing major illness medical insurance does not increase the burden of payment of insured residents**

According to the requirements of the Provincial Government Office "Opinions (Trial Implementation) on Developing Medical Insurance for Major Diseases of New Rural Cooperative Medical System", The funds needed to participate in the major illness medical insurance are directly allocated by the resident medical insurance (New Rural Cooperative Medical System) agencies from the fund expenditure households as the major illness insurance funds, which are used to purchase the major illness insurance of commercial insurance institutions, and the insured residents do not need to pay the individual fees.

#### **2.1.3 High level of overall planning**

Resident medical insurance (New Rural Cooperative Medical System) shall be coordinated at the provincial level, formulate unified implementation plans, invite tenders or

negotiate, and be handled by selected commercial insurance institutions. However, because the basic medical insurance for residents is coordinated at the county level, there are differences in reimbursement policies. When implementing the policy of major illness insurance, the "compliance fees" which exceed the starting line and enter the scope of no-illness insurance are different, which is not conducive to balancing the treatment level of major illness medical insurance in different regions.

#### **2.1.4 Strong support**

Firstly, with the continuous improvement of financing level, the standard of major illness insurance is gradually raised, with an average per capita of 32 yuan in 2015, which is higher than the national average fund-raising amount (21.06)<sup>[3]</sup>. Secondly, there is a breakthrough in the catalogue of medical expenses for residents' major illness insurance. The catalogue of reimbursement for major illness insurance is executed according to the catalogue of basic medical insurance in cities and towns and the catalogue of medicines, diagnostic and therapeutic catalogues and service facilities of the new rural cooperative medical system after the merger. The drugs and medical materials partially paid by the pooling fund are included in the reimbursement scope of the compliance fees of major illness insurance.

#### **2.1.5 Convenient "one-stop" reimbursement settlement services**

Serious illness insurance, basic medical insurance for residents and civil medical assistance shall be settled through one-stop network in designated medical institutions, and reimbursement funds shall be paid in a timely manner. The insured residents need not reimburse the expenses of commercial insurance companies and civil administration departments, so as to provide convenient, efficient and high-quality services for the insured residents, and the accessibility of serious illness insurance will increase.

### **2.2 Major Disease Insurance Policy and Fund Raising**

As can be seen from table 1, the number of insured persons and the funds for major illness insurance are increasing year by year. In 2017, the average per capita is 52 yuan, and the total amount of funds reaches 20.664 million yuan. The reimbursement ratio and the capping line are increasing year by year. From 2015 to 2017, the capping line for major illness insurance has increased to 300,000 yuan, and the capping line for basic medical insurance has reached 450,000 yuan. The system of major illness insurance has been gradually transformed from reimbursement according to disease type to reimbursement according to the amount of medical expenses, and the system is more perfect and fair.

**Table 1. Serious Disease Insurance Policy and Fund Raising in 2014-2017 (Unit: Yuan)**

Time	Number of insured persons	Per capita quota	Per capita quota	Deductible	Reimbursement ratio	Capping line
2014	382212	15	5733000	0	17% below 8000 yuan and 73% above 8000 yuan.	200000
2015	399980	35	13999000	10000	50% below 100,000 yuan and 60% above 100,000 yuan; 20 major diseases, 17% below 10,000 yuan and 73% below 10,000 yuan.	200000
2016	404505	32	12944000	12000	50% below 100,000 yuan, 60% between 100,000 yuan and 200,000 yuan, 65% above 100,000 yuan.	300000
2017	397389	52	20664000	12000	50% below 100,000 yuan, 60% between 100,000 yuan and 200,000 yuan, 65% above 100,000 yuan.	300000

### 2.3 Compensation for serious illness insurance for residents

Table 2 shows that the rate of return of insured residents has gradually increased. Because of reimbursement by disease type in 2014, the benefit rate of insured residents is low, and the per capita benefit is also low. In 2015, the benefit rate was increased, but the benefit margin was still relatively low. From 2016 to 2017, all medical expenses were reimbursed according to the amount of medical expenses.

The average benefit rate and the amount of benefit increased significantly. In 2015, the beneficiary rate of major illness insurance was 0.69%, and the average reimbursement cost was 9851 yuan, which was higher than the national average (0.41%, 2974.82). In 2016-2017, the insurance company's compensation rate exceeded 100% for two consecutive years, showing that there are problems in the financing mechanism and the insurance system.

**Table 2. Compensation for major illness insurance in 2014-2017**

Year	Number of people enjoying major medical insurance	Benefit rate (%)	Total amount of compensation (10,000 yuan)	Average revenue (yuan)	Annual Fund Utilization Rate (%)
2014	1662	0.43	546	3285	95.2
2015	2716	0.68	963	3545	68.9
2016	2364	0.58	2029	9851	156.8
2017	2758	0.69	2189	7936	105.9

### 2.4 The security situation of residents after reimbursement for serious illness

The basic medical insurance reimbursement ratio and the total reimbursement ratio are higher in 2014. The first reason is that the reimbursement according to the disease type is implemented in 2014, and the large expenses beyond

the prescribed reimbursement are not included in the reimbursement. Second, some of the reimbursed diseases are mainly hospitalized in secondary and lower hospitals, with lower costs, such as cerebrovascular diseases, diabetes and so on. Third, there is no starting line for major illness insurance, such as reimbursement of 17% below 8000 yuan.

After 2015, the reimbursement rate of basic medical insurance has decreased and tended to be stable. The main reason is that the reimbursement rate of major illness insurance is based on the cost quota. The beneficiaries are mainly concentrated in tertiary hospitals and above. The reimbursement rate is low (45-50%) and the average cost is high. Table 3 shows that after the implementation of the major illness medical insurance, it has increased by more than 10 percentage points compared with the basic medical

insurance, greatly reduced the self-payment amount of the major illness insurance enjoyers, reduced the personal burden of the insured residents, and highlighted the important role of the major illness insurance in solving the disastrous expenditure caused by the poverty caused by the major illness.

Year	Number of people enjoying major medical insurance	Basic medical insurance					
		Actual total medical expenses	Amount of reimbursement	Reimbursement ratio	Medical reimbursement for serious illness	Total reimbursement ratio	Increased reimbursement ratio
2014	1662	3882	1842	47.4%	546	61.5%	14.1%
2015	2716	8446	2953	35.0%	963	46.3%	11.3%
2016	2364	11690	3904	33.4%	2029	50.7%	17.3%
2017	2758	13725	5053	36.8%	2182	52.7%	15.9%

**Table 3. Resident security after the implementation of major illness insurance in 2014-2017 (unit: yuan)**

### 2.5 Economic affordability and degree of satisfaction of persons enjoying major illness insurance

The survey of 616 people enjoying major illness medical insurance by random sampling shows that major illness insurance really solves the burden of medical expenses of patients with major illness, especially for patients with more than 100,000 yuan, the extent of reduction is obvious, which is reduced to 50,000 yuan before major

illness reimbursement. But the personal burden is still heavy. The personal burden of more than 100,000 yuan has reached 46,000 yuan, far exceeding the disposable income of the family. The problem of "poverty caused by illness and poverty returned due to illness" still exists. At the same time, it can be seen from Table 4 that with the increase of medical expenditure, the worse the economic affordability, and the lower the satisfaction of medical treatment.

**Table 4. Survey on economic affordability and satisfaction of major illness insurance in 2015-2017**

Medical Expense Quota	Number of investigators	Average medical expenses	Average reimbursement of basic medical insurance	Medical reimbursement for serious illness	Total reimbursement ratio %	Average personal expenses	Economic Tolerance and Satisfaction		
							Yes satisfied	Average Basicall y satisfied	No Dissatisfied
≤3 million yuan	146	23617	8318	2210	43.3	13089	96	32	18
3-5 million yuan	146	42889	14002	6880	49.7	22007	78	40	28
5-10 million yuan	128	77912	28812	16800	58.5	32300	31	33	64
10-15 million yuan	101	125124	45045	33465	62.8	46614	18	22	61
15-20 million yuan	76	175232	65124	44335	62.5	65773	6	21	49
≥20 million yuan	19	225686	85115	55420	62.5	85151	1	2	16

### 3. Discussion and Suggestions

Major illness medical insurance is a system arrangement of high medical expenses for patients with major illness on the basis of basic medical insurance. It is the expansion and extension of basic medical insurance system<sup>[4]</sup>, which can further enlarge the effectiveness of security. With the implementation of the major illness insurance system, the medical security level of urban and rural residents has been significantly improved, the burden of personal medical expenses has been significantly reduced, and the problem of "expensive medical treatment" of insured residents has been alleviated. However, in order to precisely prevent the problem of "poverty caused by illness and poverty returned due to illness" and avoid catastrophic health expenditure, we must gradually establish a perfect insurance system and give full play to the synergy between basic medical insurance and major medical insurance.

#### ***3.1 Establishing a basically unified residential health insurance policy throughout the province to increase the fairness of major illness insurance***

Serious illness insurance shall be carried out at the provincial level, with unified policies throughout the province, unified bidding or negotiation, and be handled by selected commercial insurance institutions. However, most of the basic medical insurance systems of residents in all parts of the province are co-ordinated at the county level, and their reimbursement policies are inconsistent. When implementing the major illness medical insurance policies, the "compliance costs" that exceed the starting line and enter the scope of major illness insurance are different, which to some extent affects the fairness of major illness insurance. At the same time, it is not excluded that in order to save the local basic medical insurance fund, some regions depress the reimbursement ratio of basic medical insurance, invisibly increasing the fund payment of major illness insurance, affecting the healthy operation of major illness insurance work. It is suggested that we should gradually unify the policies of raising funds, starting payment, payment ratio, annual maximum payment limit and chronic diseases in outpatient clinics, so as to balance the treatment level of basic medical insurance and enhance the fairness of major diseases insurance system.

#### ***3.2 Establish a long-term financing mechanism for the sustainable development of major illness insurance to ensure the healthy operation of major illness insurance***

From Table 1, we can see that since the implementation of the major illness insurance system in our province in 2014, its financing standard has been based on the operation of the last year's major illness medical

insurance to determine the next year's contribution base, which has nothing to do with the annual collection standard of residents' basic medical insurance. Firstly, it may affect the accuracy and standardization of cases handled by insurance companies and lack responsibility for fund management. Because if the over expenditure in this year may increase the base in the next year, there is a lack of initiative in service input, major disease reimbursement qualification review, medical expenses audit and reimbursement, settlement and payment, and business consultation. Secondly, the residential medical insurance agencies do not fully understand the allocation of major illness insurance funds in the next year, and cannot ensure the operation plan of basic medical insurance in advance. Therefore, the provincial medical insurance authorities and insurance companies should scientifically calculate the allocation ratio of major illness insurance according to the level of economic development, reimbursement level of basic medical insurance, the scope of major illness medical insurance and the level of security of the whole province, and according to the amount of residents' basic medical insurance (including government subsidies), and then determine the allocation ratio of major illness insurance. During the contract period, the fund-raising mechanism for long-term sustainable development should be established to ensure the healthy operation of major illness insurance.

#### ***3.3 Further improve the major illness insurance system to effectively solve the financial burden of patients with high cost***

The goal of the major illness insurance system is to use limited funds for patients with large medical expenses, and to reduce the problem of "poverty caused by illness and poverty returned due to illness" to a greater extent. According to the current starting line and reimbursement standard, the benefits of major illness insurance are wide, but the depth is not enough. Under certain circumstances, the breadth and depth of major illness insurance are inversely proportional. The wide income shows that the starting line of major illness insurance is low, and the depth is not enough to explain the unreasonable design of reimbursement ratio. This kind of system design disperses the effect of the fund of serious illness insurance, and reduces the function of serious illness insurance in resolving the risk of high medical expenses. So in the case of a certain fund scale, how to solve the problem of disastrous health expenditure of insured residents? First, it is suggested to improve the starting line of major illness medical insurance, by reducing the population of major illness insurance and improving the level of major illness reimbursement, to guarantee the key population and large expenses; second, to increase the proportion of major

illness insurance reimbursement. Through careful design, scientific calculation and subsection reimbursement, we can improve the reimbursement level of large medical expenses for patients with heavy medical burden and improve the efficiency of the fund. Thirdly, we should incorporate the self-paid expenses of chronic diseases into the scope of medical security for major diseases, and appropriately broaden the "compliance costs". After estimating the operation of serious illness insurance in Yangxin County in 2017, such as the starting line of 20,000 yuan, 60% reimbursement of less than 100,000 yuan, 65% reimbursement of 10-150,000 yuan and 70% reimbursement of more than 150,000 yuan, the actual reimbursement ratio increased by 14.5 percentage points, and the total reimbursement ratio averaged more than 70%. This greatly reduces the burden of medical personal expenses of insured residents, effectively reduces the occurrence of catastrophic health expenditure of patients with extremely high character costs, and the fund balance

rate can be controlled at about 10%.

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## References

- [1] Gong Xifei. Study on the role of the new rural cooperative medical system in reducing the economic burden of disease [D]. Shandong University, 2009.
- [2] Central Committee of the Communist Party of China, State Council. Decision on Further Strengthening Rural Health Work(Zhongzhong [2002] 13) [Z]. 2002-10-19
- [3] Wang Wan. Discussion on Funding Mechanism and Guarantee Policy of Serious Disease Insurance-Based on the Comparisons of the Implementation Plan of Serious Disease Insurance in 25 Provinces [J] Journal of Central China Normal University: Humanities and Social Sciences Edition, 2014, 53 (3): 16-22
- [4] Xiangli, Luo Huiqiu. Analysis of Compensation Model and Compensation Effect of Serious Illness Medical Insurance [J] Research on China's Health Policy, 2015, 8 (3) 29-33

# Analysis on Efficacy and Complications of Posterolateral Approach in Treating Posterior Ankle Intra-articular Fracture

*Bowen Ni*

(Weihai Municipal Hospital, Weihai, P.R. 264200, China)

**Abstract:** *Objective:* to investigate the clinical effect and complications of posterolateral approach in the treatment of intra-articular fracture of posterior ankle. *Methods:* from January 2016 to December 2017, 104 patients with intra-articular fracture of the posterior ankle were randomly divided into two groups: control group (n = 52) and treatment group (n = 52). The treatment group was treated with posterolateral approach. The clinical efficacy and complications of the two groups were observed. *Results:* the AOFAS score, flexion activity, valgus activity, excellent and good rate of bony healing in the treatment group were higher than those in the control group, and the time of bony healing in the treatment group was higher than that in the control group. The incidence of complications was lower than that of the control group ( $P < 0.05$ ). *Conclusion:* posterior lateral approach can clearly reveal the fracture of posterior lower tibiofibular ligament and posterior malleolus in patients with posterior ankle intra-articular fracture, which is beneficial to reduction and internal fixation, and has less soft tissue damage to patients. The risk of postoperative complications is low, the curative effect is remarkable, and it is worth applying.

**Key words:** posterior ankle intra-articular fracture, posterolateral approach, efficacy and complications

## Introduction

Ankle fracture is a common lower limb trauma in orthopedics department, with a morbidity rate of about 2%. The posterior ankle is affected in 25% of patients with ankle fracture [1]. The anatomical structure of this site is very complex, and it is also the joint with a higher range of motion (ROM), which is also the main guarantee to maintain the ankle stability and coordination. The unsatisfactory posterior ankle intra-articular fracture fixation restoration can cause adverse effect on the recovery of ankle-foot function, which causes poor prognosis of the patient, and weight-bearing walking ache and inadequacy of ankle joint activity as well as other issues may also occur [2]. At present, open reduction and internal-fixation is frequently adopted in clinical treatment, however, the rationality of surgical approach has a certain effect on the prognosis of patients, when choosing the surgical approach, the choice is commonly made according to individual variation of fractured patients and individual habit of the butcher physicians. Anterior ankle-approach via cutaneous lag screw fixation and posterolateral approach fixation are the two commonly observed surgical approaches, each surgical effect of these two approaches has differences. Based on the above background, the study explored the clinical efficacy and complications of posterolateral

approach in treating posterior ankle intra-articular fracture, and compared it with anterior-ankle approach. A total of 104 patients with posterior ankle intra-articular fracture admitted and treated in the orthopedics department of our hospital from Jan. 2016 to Dec. 2017 were selected and divided into groups for observation. Details are as follows.

## 1. Patients and Methods

### 1.1 Grouping of patients

A total of 104 patients with posterior ankle intra-articular fracture admitted and treated in the orthopedics department of our hospital from Jan. 2016 to Dec. 2017 were selected and divided into the control group and the treatment group by random sequence software and parity method, with 52 patients in each group. In the control group, there were 37 male patients and 15 female patients, with the age of 26~67 years old ( $44.23 \pm 2.57$  years old); injury causes include injury due to crushing in 5 cases, twist fall injury in 13 cases, injury due to falling down from high place in 15 cases, traffic accident injuries in 19 cases; CT classifications include IIB type in 15 cases, III type in 24 cases, IV type in 13 cases; fracture sites are left ankle in 29 cases and right ankle in 23 cases. In the treatment group, there were 39 male patients and 13 female patients, with the age of 24~68 years old ( $44.20 \pm 2.71$  years old); injury causes include

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**Author:** Bowen Ni, Weihai Municipal Hospital.



injury due to crushing in 7 cases, twist fall injury in 12 cases, injury due to falling down from high place in 14 cases, traffic accident injuries in 19 cases; CT classifications include IIB type in 12 cases, III type in 25 cases, IV type in 15 cases; fracture sites are left ankle in 27 cases and right ankle in 25 cases.

Inclusion and exclusion criteria: ① All the patients have fresh closed fracture, the time from injury to admission surgery was within 30 hours, important nerve and vessel were not injured, it was definitely diagnosed as posterior ankle intra-articular fracture by X-ray examination in the hospital, the diseased limb of patients has obvious swelling and ache; ② Patients with disturbance of coagulation mechanism, concurrence with malignancy, disturbance of consciousness or poor tolerance were excluded. All the patients have signed informed consent form with our hospital preoperatively, and medical ethical principles stipulated in the *Declaration of Helsinki* were followed.

### 1.2 Method

Anterior-ankle approach fixation surgery was adopted in the control group, general anesthesia or CSEA was undertaken, the patient take supine position, sterilization and drape paving were conducted after fixation of tourniquet, firstly, C arm fluoroscopy was used for observation, after expected restoration effect was confirmed, manual restoration was conducted by pushing and pressing fractured mass downward at the outward region of Achilles's tendon, during this period, dorsal extension of ankle joint was maintained, resort to posterior joint capsule tension to assist fracture restoration, after restoration was satisfied, anterior and posterior fixation was conducted at the region (about 2cm above articular surface) parallel to tibiotalar joint surface above the pretibial ankle mortise, percutaneously place 2 pieces of hollow guide pin to conduct fixation on posterior anklebone mass, C arm fluoroscopy adem position was used to conduct x-ray confirmation on posterior anklebone mass, after depth and direction of guide pin insertion were correct, use it as the true center to open skin incision with 1cm in length, subcutaneous tissue was separated up to bone surface, screwing in 4.0mm half-thread hollow pin, C arm fluoroscopy was used to observe screwing pin length, and proper adjustment was conducted on it, afterwards, guide pin was seceded, incision was sutured.

The treatment group adopts posterolateral approach fixation surgery. General anesthesia or CSEA was undertaken, the patient was assisted to maintain supine position, longitude surgical incision was opened from the region at midline between Achilles's tendon and lateral malleolus that was 5 to 10 cm above ankle, when it reached the tip region of the lateral malleolus, it was changed to arc incision, which was incised for about 2cm along toe to avoid injury of the sural nerve. The fascia was cut open, Achilles's tendon was pulled to expose peroneus longus and brevis muscles and foot flexor pollicis longus muscle, afterwards, the muscles were pulled toward two

sides by entering into the interspace of the two muscles, posterior region of the tibia was exposed, descending along the lateral fascia, the peroneal muscles were undermining dissected to expose the peroneal bone. Firstly, restoration was conducted on tibia, afterwards, Kirschner wire was used as temporary fixation, and steel plate was locked to conduct fixation on the posterior lateral region of tibia. After tibia and lateral fractured mass were exposed, muscle tissue was dissected from distal end to proximal end, both sides of muscle was pulled and Kirschner wire was used to fix it on posterior ankle bone mass, proximal fracture line on the posterior region of tibia was used as marker of ankle fractured mass after Kirschner wire assisted restoration. After restoration was satisfied, use Kirschner pin to fix it on tibia, use reconstructed steel plate or T shape steel plate to conduct fixation on fracture, firstly, stamp 1 piece of forcing screw on lateral region of tibia, stamp 1 piece of screw on posterior ankle fractured mass region according to specific situation, use C arm fluoroscopy to observe restoration effect, relying on steel place pressure to fix posterior ankle bone mass, however, screw exceeding joint surface and issues of irregular joint surface should be avoided. After restoration, under direct vision surgical field, to conduct observation on whether the posterior lower tibiofibular ligament was injured, if it was found that torn or broken ligament was present, use strip line anchor to conduct suture at injured region. After fixation of posterior ankle and tibia, conduct inspection on stability of the lower tibiofibular combination, if tibiofibular combination separation was found, stamp 1 piece of pull screw from lateral malleolus to anterior interior 30° at region that is 1cm above ankle, after 4 layers of bone cortex was penetrated, conduct fixation on lower tibiofibular combination. If fracture leads to the posterior interior region of tibia being affected, then posterior interior incision should be increased to expose diseased site, afterwards, conduct treatment on fracture.

### 1.3 Observation method

Follow-up of 1 year, compare function of ankle and foot function, flexion, introversion and eversion activity of surgical side ankle, bony union effect and time and incidence of complications of the two groups of patients. ① Conduct evaluation on ankle and feet function according to AOFAS<sup>[3]</sup>, including 5 sub-items as an ache, walking function, anterior and posterior activity function, ankle-feet stability and foot alignment, 50 points was critical value, total score was 100 points, the higher the score, the better the recovery of ankle-foot function; ② Use x-ray examination to evaluate bony union effect, which was divided into three grades as excellent, good and poor, the fractured lateral ankle surface of patient was regular, X-ray examination found fractured line was healed completely, ankle foot function was normal and the patient can walk with weight-bearing, then the patient was viewed as excellence. The bony ankle surface was regular, x-ray

examination showed fracture healing, ankle and foot joint function was recovered and the patient has main complain of mild ache during walking with weight-bearing, then the patient was viewed as excellence. Joint function activity was limited, x-ray examination found that fracture was unhealed, joint has varied extent of deformity, obvious pain was present during weight-bearing walking, the patient was viewed as excellence. Fine rate = (Excellent rate + Good rate) case number/total case number×100.

**1.4 Statistical analysis**

Use SPSS 20.0 to conduct statistical analysis on data,

**Table 1. Comparison of Ankle and Foot Function, Surgical Side Ankle Flexion activity, inversion and eversion activity, Bony Union and Time; (n=52).  $\bar{x} \pm s$**

Group	AOFAS (points)	Surgical side ankle flexion activity (°)	Surgical side ankle inversion and eversion activity (°)	Bony union time (d)
Control group	83.24±5.56	60.51±5.49	17.29±2.81	158.29±5.71
Treatment group	91.35±6.75	64.63±5.87	21.17±3.03	147.38±4.62
<i>t</i>	6.687	3.697	6.771	10.711
<i>P</i>	0.000	0.000	0.000	0.000

**2.2 Bony union fine rate and complication incidence rate**

Bony union fine rate of treatment group is higher than that

measurement data was expressed as ( $\bar{x}$ ), *t* test:  $\bar{x} \pm s$  Numeric data were expressed in n (%), chi-square test. *P*≤0.05 shows that statistical results exist significant difference.

**2. Results**

**2.1 Surgical effect**

AOFAS scoring, surgical side ankle joint flexion activity, inversion and eversion activity of the treatment group were higher than that of control group, and bony union time was shorter than that of control group, *P*<0.05. (Table 1)

of control group, and incidence of complications is lower than that of control group, *P*<0.05. (Table 2 & Table 3)

**Table 2. Comparison on Bony Union Fine Rate of Two Groups of Patients [n (%); n=52]**

Group	Excellent	Good	Poor	Fine rate
Control group	27 (51.92)	16 (30.77)	9 (17.31)	43 (82.69)
Treatment group	29 (55.77)	21 (40.38)	2 (3.85)	50 (96.15)
$\chi^2$	/	/	/	4.981
<i>P</i>	/	/	/	0.026

**Table 3. Comparison on Incidence of Complications of Two Groups of Patients [n (%); n=52]**

Group	Fat liquefaction	Superficial skin necrosis	Tibia tendon irritation	Numb of dorsolateral region of foot	Total occurrence rate
Control group	2 (3.85)	5 (9.62)	5 (9.62)	3 (5.77)	15 (28.86)
Treatment group	1 (1.92)	2 (3.85)	2 (3.85)	1 (1.92)	6 (11.54)
$\chi^2$	/	/	/	/	4.833
<i>P</i>	/	/	/	/	0.028

Remarks: Patients with occurrence of incision subcutaneous fat liquefaction were provided with debridement dressing change, and it was healed 7d later; patients with superficial skin necrosis was healed at 10d after dressing change; the steel plate was taken out at 1 year after operation in patients with tibia tendon irritation, symptoms disappeared immediately; at the 3<sup>rd</sup> month of follow-up in patients with foot dorsolateral numb, symptoms disappeared naturally, which may be caused by tibia superficial nerve compensation or due to pulling of intraoperative abnormal nerve

**3. Discussion**

Of patients with whole body fracture, 3.9% patients had posterior ankle intra-articular fracture, the causes are mainly falling down, bump, heavy matter crush injury and other violence induced injury [4]. The clinical study has shown that weight-bearing function of the ankle is very important for maintaining of human body stability, and motion change and anatomy morphology of this site are complex, the contacted articular surface has high activity, once affected by violence factor destroy, it will cause the ankle to lose stability, the risk of

patients undergoing traumatic arthritis increases <sup>[5]</sup>. As such, adoption of effective treatment method to restore ankle stability is the key measurement to decrease risk of traumatic arthritis in patients and treat posterior ankle intra-articular fracture.

Although malleolus and lateral malleolus restoration fixation surgery became mature as time goes by, posterior ankle fixation is the most tough difficult problem in clinical surgery, anterior ankle approach fixation was adopted in clinical practice, stamp lag screw from anterior to posterior of tibial distal end, by indirect stress, to conduct fixation on posterior ankle, the disadvantage of surgical approach is that it cannot expose posterior fracture site directly, soft tissue and hematoma that were not conducive to clear entrapment, which is difficult to achieve good anatomy restoration effect, and postoperative ankle-foot stability recovery is relatively poor, complications are relatively more, which is not conducive to improve long term efficacy of patients.

The study adopts posterolateral approach for treatment group, results showed: AOFAS scoring, surgical side ankle flexion activity, inversion and eversion activity, bony union fine rate in the treatment group is higher than that in the control group, and all the complication incidences are lower than those in the control group,  $P < 0.05$ . Cause analysis: ① To conduct reasonable design on surgical incision, it can improve direct vision surgical field of posterior ankle, which can be exposed clearly and completely, the surgeon can conduct restoration and fixation on posterior ankle under direct vision status, which is conducive to enhance anatomy restoration effect of posterior ankle intra-articular fracture mass, which can decrease risk of traumatic arthritis <sup>[6]</sup>; ② Compared with conventional anterior ankle approach incision, posterolateral approach cannot aggravate injury of exterior ankle soft tissue, choose to open longitudinal incision at midline between tendon and exterior ankle, from posterior region of exterior ankle, conduct dissection on part of tibial brevis and fractured mass can be exposed completely, when restoration, ankle restoration effect can be improved according to anterior ankle, interior ankle and posterior ankle, which can improve restoration effect of ankle <sup>[7]</sup>, enhance AOFAS scoring and activity degree of ankle flexion/inversion activity; ③ During posterolateral approach, the inner fixation steel plate was usually placed at the posterior side of tibia, soft tissue coverage area of this site is large, it has a relatively strong anti-infection ability, as such, incidence of exposure of steel plate, fat liquefaction, skin superficial necrosis, tibial tendon irritation and other complications is even lower. Screw stamping direction is from posterior to anterior, which can

reduce operation errors of screw stamping into joint cavity, anteroposterior diameter of tibia with thick screw penetration can acquire even stronger holding strength, which was conducive to enhance patients' bony union rate.

In conclusion, adoption of posterolateral approach fixation surgery for patients with posterior ankle intra-articular fracture can clearly expose posterior lower tibiofibular ligament and posterior ankle fracture diseased site, which is conducive to restoration and inner fixation operation, and the surgical approach has a smaller injury on the soft tissue of the patient, the risk of postoperative complications is low, therapeutic effect is obvious, which is worthy of application.

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## References

- [1] YU Peng, LI Junhao, LI Zhonghua, etc. The Effect of Treatment of Cotton's Fracture by the Posterolateral Approach on Wound and Fracture Healing Rate [J]. Chinese and Foreign Medical Research, 2019, 17 (08): 55-57.
- [2] LIANG Bengao. The Clinical Efficacy of Application of Posterolateral Approach Steel Plate Fixation in Treating Posterior Ankle Fracture [J]. World Latest Medicine Information, 2019, 19 (04): 17-18.
- [3] YAN Guangbin. AOFAS ankle-posterior scoring system [J]. Chinese Journal of Joint Surgery (Electronic Version), 2014, 8 (04): 557.
- [4] LUO Bin, JIANG Hao. Effects of Posterolateral Approach Open Reduction and Internal Fixation of Posterior Malleolar Fracture [J]. Medical Journal of Chinese People's Health, 2018, 30 (15): 12-13.
- [5] ZHANG Donghong. The Effect of Fixation of Lateral and Posterior Malleolus through Posterolateral Approach of Ankle Joint [J]. The Medical Journal of Thepresent Clinical, 2018, 31 (03): 3883-3884.
- [6] CHENG Jinlei, LYU Feifei, XIE Wukun, et al. The Clinical Efficacy of Posterolateral Approach in Treating Trimalleolar Fracture under Floating Position [J]. Clinical Journal of Medical Officers, 2018, 46 (06): 674-675.
- [7] ZHANG Jun, XU Rongming, CHA Weibin, et al. The Effect of Posterolateral Approach Sugary in Treating Lateral and Posterior Malleolus Fracture [J]. Chinese Journal of Bone and Joint Injury, 2017, 32 (04): 416-417.
- [8] CHEN Baishan, HOU Jun. Clinical Efficacy of Posterolateral Approach in Treating Lateral and Posterior Malleolus Fracture [J]. Guide of China Medicine, 2017, 15 (01): 107-108.

# Analysis on Diagnostic Delay and Clinical Feature of Pulmonary Mycobacterial Infection

Hui Jing & Yan Wang & Hui Jia & Junling Wang & Yunfeng Deng

(Shandong Chest Hospital, Shandong, P.R. 250013, China)

**Abstract:** *Objective:* Nontuberculous mycobacteria (NTM) infection is an emerging, but neglected public health concern in China. *Methods:* To investigate diagnostic delay of NTM diseases in China, we analyzed 181 patients with pulmonary NTM infection in Shandong Province. *Results:* The median diagnostic delay time of the analyzed patients was 84 days, which was significantly associated with rural inhabitance (135 days vs. 73 days of urban inhabitance,  $p < 0.01$ ) and lower level of first visiting hospitals/clinics (70 and 82 days of tertiary and secondary hospitals/clinics respectively vs. 120 days of primary hospitals/clinics,  $p < 0.05$ ). *Conclusions:* Our results indicate a significant diagnostic delay of NTM diseases especially for rural patients with limited access to higher-level healthcare services.

**Key words:** nontuberculous mycobacterium, diagnostic delay

## Introduction

Nontuberculous mycobacterial (NTM) disease was neglected in most developing countries [1]. With the global scope prevalence of Aids and aging of population, relationship between NTM and human pulmonary disease became even closer [2]. In China, MTB is still the main pathogenic bacteria in most pulmonary mycobacteriosis. However, in the past ten years, NTM isolation rate in China showed an obvious increasing tendency [3,4]. The pulmonary NTM disease is extremely similar with symptoms of pulmonary tuberculosis, early diagnosis and treatment in clinical practice exists certain difficulties. Delay diagnosis or misdiagnosis of NTM disease may aggravate disease status and increase body burden and economic burden of patients. The present study retrospectively analyzed diagnosis history, clinical features and status concurrented with other disease of pulmonary NTM patients in Shangdong Chest Hospital to better understand relevant factors of NTM diagnosis delay.

## 1. Study population and method

The present study was conducted in Shangdong Chest Hospital, Shandong Province is the second largest province of China (population scale was 96 million, rural population accounted for 59%), there were about 40000 cases of newly occurred tuberculosis each year. Shandong Chest Hospital is a provincial hospital in Shandong Province specializing in tuberculosis and other pulmonary infection disease, networking in 139 county/city-level tuberculosis clinics. For

each case that was suspicious of mycobacteria patient, multiple ( $\geq 2$ ) phlegm specimens were collected to conduct rapid cultivation of mycobacteria. For bacteria strains with mycobacteria cultivation positive, use mycobacterium tuberculosis (MTB) antigen MPT64 kit to identify whether it was mycobacterium tuberculosis, for those identified as non-MTB, further 16S rRNA gene sequence analysis was undertaken (MicroSeq ID Microbial. Software V2.0, PE Applied Bio.) Conduct identification at species level [7]. In order to decrease possible species identification error, conduct two times of DNA extraction and 16S rDNA gene sequencing on each NTM isolate respectively. From Jan. 1 2017 to Dec. 31 2017, according to diagnosis criteria of AST/Infectious disease association of America [5], patients who were diagnosed as pulmonary NTM disease, case information of these patients was collected.

## 2. Results

Of 2449 patients with mycobacterium cultivation positive, 181 patients with pulmonary NTM infected persons were detected (mean age  $\pm$  SD,  $45.7 \pm 16.2$  years old; age scope: 15~79 years old; male, 73.5%), total isolation rate was 7.4%. Most patients were male (73.5%) and adults (99.5% were older than 18 years old; 37.6% from 46-64 years old age group) (Table 1). The diagnosis delay time is defined as the time from the first diagnosis to the definite diagnosis of NTM patients. Median of diagnosis delayed time of 181 NTM patients was 84 days (28-1144 days), and it has no significant correlation with gender and age (Table 1).

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**Author:** Hui Jing, Shandong Chest Hospital; Yan Wang, Shandong Chest Hospital; Hui Jia, Shandong Chest Hospital; Junling Wang, Shandong Chest Hospital; Yunfeng Deng, Shandong Chest Hospital.

Diagnosis delay time of rural residents was obviously higher than urban residents (135 days, 73 days,  $p < 0.01$ ). The delay time of first diagnosis of patient diagnosed at the secondary or tertiary hospital was obviously shorter than that of first diagnosis at township health center or community outpatient service (time was 82/70 days and 120 days respectively,  $P < 0.05$ ).

All aids antibody test in 181 patients with NTM infection was negative, the symptoms were similar with tuberculosis, which were mainly cough, fever and night sweat; On imaging aspect, most NTM pulmonary diseases were bilateral lesion, lesions were mainly invasive lesions, part of which including node and cavity, it can hardly be differentiated with tuberculosis simply according to symptoms and imaging manifestation; Other comorbidities include diabetes (14/181, 7.7%), cardiovascular disease (25/181, 13.8%), chronic obstructive pulmonary disease (COPD) (19/181, 10.5%), bronchus dilation (34/181, 18.8%) (Table 2).

Mycobacterium intracellulare infection accounted for (89/181, 49.2%) NTM infection, the following were Mycobacterium abscessus (51/181, 28.2%), Mycobacterium kansasii (18/181, 9.9%), Mycobacterium gordonae (11/181, 6.1%), mycobacterium fortuitum (9/181, 5.0%), Mycobacterium chelonae (2/181, 1.1%), and mycobacterium nasi (1/181, 0.6%) respectively. In the present study, a patient who was 79 years old had severe COPD, bronchus dilation and pulmonary infection, continuous six times of acid-fast bacillus smear were all positive. By two times of cultivation and bacteria strain identification, it was determined as a pulmonary infection caused by mycobacterium mallei, and

there is no report that this pathogenic bacteria cause pulmonary infection of humankind [6].

### 3. Discussion

The data of the present study shows that diagnosis of pulmonary NTM disease was obviously delayed, this was due to the limited chance for rural residents to obtain relatively high level of medical care and laboratory service (third grade and second grade). In China, about 71.3% of active tuberculosis patients lived in rural area with shorted resource, where mycobacterial culture and bacteria strain identification test still did not conduct routine test on each tuberculosis or NTM suspicious cases [7]. In the preliminary studies in Shandong province, due to the natural drug resistance of NTM to antituberculosis drugs, bacteria strain identification test was not conducted, NTM disease was often misdiagnosed as multi drug resistance tuberculosis, accounting for 30.7% of multi drug resistance tuberculosis, about 4% of untreated tuberculosis cases were caused by NTM infection [8]. In 2010, China National tuberculosis surveillance item reported that the NTM isolation rate was 22.9% in 363 patients with mycobacteria cultivation positive [9].

The present study is a surveillance study based on hospital, has limited the sample size is limited, and aims to investigate diagnosis delay caused by medical system. However, there are some other factors, such as concurrent disease of patients and environmental risk, etc. [10], which also cause the delay in diagnosis, and need to be investigated in future study.

**Table.1 Demographic Features of 91 NTM Patients**

Patient features	(%) (N. = 91)	Diagnosis delay median (Days)	p
Sex			
Male	133 (73.5)	86	
Female	48(26.5)	77	0.86
Age			
1-17	1 (0.5)	101	
18-25	38 (21.0)	66	
26-45	47(25.9)	81	
46-65	68 (37.6)	91	
>65	27(15.0)	99	0.71
Residence			
City	121 (66.8)	73	
Rural area	60 (33.2)	135	<0.01
Primary diagnosis medical institute			
Level III hospital	92 (50.9)	70	
Level II hospital	41(22.6)	82	
Township hospitals and community clinics	48 (26.5)	120	<0.05

**Table.2 Clinical Characteristics of Patients Infected with Different NTM Strains**

	Mycobacterium intracellulare	Mycobacterium abscessus	Mycobacterium kansasii	Mycobacterium gordonae	Mycobacterium fortuitum	Mycobacterium chelonae	Mycobacteria mallei	Total
(%)	89(49.2)	51 (28.2)	18 (9.9)	11 (6.1)	9 (5.0)	2 (1.1)	1 (0.6)	181(100.0)
<b>Symptom</b>								
Thoracodynia	20 (22.5)	29 (56.9)	2 (11.1)	1 (9.1)	4 (40.0)	2 (100.0)	0 (0.0)	58 (32.0)
Cough	73 (82.0)	36 (70.6)	16 (88.9)	9 (81.8)	9 (80.0)	0 (0.0)	1 (100.0)	144 (79.6)
Hemoptysis	19 (21.3)	11 (21.6)	10 (55.5)	3 (27.3)	2 (20.0)	0 (0.0)	0 (0.0)	45 (24.9)
Fever/perspiration	40 (44.9)	33 (53.7)	1 (5.6)	3(27.3)	1 (20.0)	0 (0.0)	1 (100.0)	79 (43.6)
<b>Complicating disease</b>								
Diabetes	8 (9.0)	2 (3.9))	1 (5.5)	2 (18.2)	1 (11.1)	0 (0.0)	0 (0.0)	14(7.7)
Heart disease	13 (14.6)	0 (0.0)	5 (27.8)	3 (27.3)	4 (44.4)	0 (0.0)	0 (0.0)	25 (13.8)
Chronic obstructive pulmonary disease (COPD)	15(16.9))	3 (5.9)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	1 (100.0)	19 (10.5)
Bronchiectasis	22 (24.7)	9 (17.6)	0 (0.0)	0 (0.0)	1 (11.1)	1 (50.0)	1 (100.0)	34(18.8)
<b>Chest X ray photograph</b>								
Location of lesion								
Both sides	75 (84.3)	38 (74.5)	16 (88.9)	6 (54.5)	6 (66.7)	2(100.0)	1 (100.0)	144 (79.6)
Only left side	4 (4.5)	3 (5.9)	1 (5.6)	3(27.3)	1 (11.1)	0 (0.0)	0 (0.0)	12(6.6)
Only right side	10(11.2)	10 (19.6)	1(5.6)	2 (18.2)	2 (22.2)	0 (0.0)	0 (0.0)	25 (13.8)
Lesion type								
Infiltration	73 (82.0)	43 (84.3)	14 (77.8)	9(81.8)	9 (100)	0 (0.0)	1 (100.0)	149 (82.3)
Cavity	57 (64.0)	15(29.4)	16 (88.9)	4 (36.4)	5 (55.6)	2 (100.0)	1 (100.0)	100 (55.2)
Nodule	59(66.3)	35 (68.6)	18 (100)	7 (63.6)	8 (88.9)	2 (100.0)	0 (0.0)	129 (71.3)
	0(0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	0(0.0)

## References

- [1] Shojaei H, Heidarieh P, Hashemi A, Feizabadi MM: aei Naser A; Species identification of neglected nontuberculous mycobacteria in a developing country. *Jpn J Infect Dis* 2011, 64:265–271.
- [2] Griffith DE: Nontuberculous mycobacterial lung disease. *Curr Opin Infect Dis* 2010, 23:185–190.
- [3] Wang HX, Yue J, Han M, Yang JH, Gao RL, Jing LJ, Yang SS, Zhao YL: Nontuberculous mycobacteria: susceptibility pattern and prevalence rate in Shanghai from 2005 to 2008. *Chin Med J* 2010, 123:184–187.
- [4] Jing H, Wang H, Wang Y, Deng Y, Li X, Liu Z, Graviss EA, Ma X: Prevalence of Nontuberculous Mycobacteria Infection, China, 2004–2009. *Emerg Infect Dis* 2012, 18:527–528.
- [5] Griffith D, Aksamit T, Brown-Elliott B, Catanzaro A, Daley C, Gordin F, Holland SM, Horsburgh R, Huitt G, Iademarco MF, Iseman M, Olivier K, Ruoss S, Von Reyn CF, Wallace RJ Jr, Winthrop K: An Official ATS/IDSA Statement: Diagnosis, Treatment, and Prevention of Nontuberculous Mycobacterial Diseases. *Am J Respir Crit Care Med* 2007, 175:367–416.
- [6] Kent PT, Kubica GP: *Public Health Mycobacteriology: a Guide for the Level III Laboratory*. Atlanta, GA: U.S. Department of Health and Human Services/ Public Health Service/Centers for Disease Control; 1985.
- [7] Han XY, Pham AS, Tarrand JJ, Sood PK, Luthra R: Rapid and accurate identification of mycobacteria by sequencing hypervariable regions of the 16S ribosomal RNA gene. *Am J Clin Pathol*. 2002, 118:796–801.
- [8] Wong TC, Chan WF, Tsang WL, Yeung SH, Ip FK: *Mycobacterium farcinogenes* infection after total hip arthroplasty. *J Arthroplasty* 2005, 20:684–687.
- [9] Chinese Center for Disease Control and Prevention: *The Fifth National Tuberculosis Surveillance of China*. Beijing, China: Military Medical Science Press; 2011.
- [10] Adjemian J, Olivier KN, Prevots DR: Nontuberculous Mycobacteria among Cystic Fibrosis Patients in the United States: Screening Practices and Environmental Risk. *Am J Respir Crit Care Med* 2014 [Epub ahead of print].

# Guiding the Education and Teaching Reform of Clinical Pharmacy Education Based on the Outcome-Based Education

Changqing Yang<sup>a</sup> & Yufen Zheng<sup>a</sup> & Na Li<sup>b</sup> & Dongzhou Kang<sup>b</sup> \*

(a. School of Basic Medicine and Clinical Pharmacy, China Pharmaceutical University, Nanjing, Jiangsu 211198, P.R China; b. School of Pharmacy, Yanbian University, Jilin, Yanji 133002, P.R China)

**Abstract:** Outcome based education (OBE) is an advanced, scientific and practical philosophy and it has become the mainstream philosophy of pharmaceutical education reform in America, Japan and other countries. Our paper introduces the concept of OBE, the implementation steps of OBE and the difference between OBE and traditional education, and analyzes the present situation of clinical pharmacy education in China based on the philosophy of OBE. The paper also puts forward the implementation strategy of the training mode with clinical pharmacy talents based on OBE concept. We believe that philosophy of OBE not only has a profound influence on the training mode reform of pharmaceutical talents in the world, but also will guide the teaching reform of clinical pharmacy education in China.

**Key words:** outcome based education, clinical pharmacy education, educational reform

## Introduction

Outcome Based Education is a kind of educational idea which is oriented by students' learning outcomes. It holds that the goal of teaching design and implementation is to achieve learning results through the educational process.<sup>[1]</sup> At present, OBE has become the mainstream concept of pharmaceutical education reform in the United States, Japan and other countries. It has been reflected in the pharmaceutical professional certification standards and pharmaceutical teaching reform.<sup>[2,3]</sup> However, OBE concept has not yet been applied to pharmaceutical education reform in China. This paper mainly introduces the main points of OBE concept, and based on OBE concept, analyses the current situation of clinical pharmacy education in China, and puts forward some measures for the reform of clinical pharmacy education teaching in China.

## 1. Outline of Outcome Based education [4,5]

### 1.1 The Idea of Outcome Based Education

OBE refers to the goal of instructional design and implementation, which is the final learning achievement of students through the educational process. Learning outcomes refer to the ultimate learning outcomes of students, which is the maximum ability that students can achieve after a certain stage of learning. OBE upholds the idea that all students are

successful learners, guides every student to become successful learners and achieve peak results; can measure what students have learned and can do, rather than what students know (the characteristics of traditional education); Students are required to expand their ability to grasp content from solving fixed-answer questions to solving open-ended problems, and pay more attention to higher-level abilities such as creative thinking, ability to analyze and synthesize information, planning and organizing abilities. OBE emphasizes the following four issues:

- (1) What are the learning outcomes we want our students to achieve?
- (2) Why should we let students achieve such learning results?
- (3) How can we effectively help students achieve these learning outcomes?
- (4) How do we know that students have achieved these results?

### 1.2 Implementation Steps of Outcome Based Education

The teaching design and Implementation Based on OBE concept follow the principle of reverse design, that is, take the ultimate goal (final learning results or peak results) as the starting point, and reverse course design and teaching activities. Reverse design begins with demand, which determines the training objectives, then determines the

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**Author:** First author: Changqing Yang (1967-), male, professor, doctoral supervisor. Research Direction: Clinical Pharmacy Education Research. E-mail: ycq0315@yahoo.com.

\*Correspondent Author: Dongzhou Kang, Email: kangdz@ybu.edu.cn

graduation requirements, and then determines the curriculum system by the graduation requirements. OBE is a reverse design and positive implementation. At this time, "demand" is both the starting point and the end point, which guarantees the consistency of educational objectives and results to the greatest extent enhances the adaptability of professional education, and the educational results can "meet" the external needs of the country, society, industry, employers and so on. The teaching design and implementation of traditional education follow the principle of forward design. As the forward design is curriculum-oriented, from the beginning of the curriculum system, to the graduation requirements, to the training objectives, to the needs, the educational results are generally difficult to "meet" the external needs of the country, society and industry, employers and other units can only "adapt". In addition, the construction of traditional educational curriculum system is subject-oriented. It follows the principle of specialty setting according to the division of disciplines. The educational model tends to solve the definite, linear and static closed problems. The knowledge structure emphasizes the systematicness and completeness of the disciplinary knowledge system, and neglects the specialty demand to a certain extent.

The implementation of OBE follows the following five steps:

(1) Determine learning outcomes. The final learning achievement (peak achievement) is both the end point and the starting point of OBE. Learning outcomes should be clearly expressed and directly or indirectly evaluated, so they are often translated into performance indicators. The requirements and expectations of educational stakeholders, including the government, schools and employers, as well as students, teachers and students' parents, should be fully taken into account in determining learning outcomes.

(2) Constructing curriculum system. Learning achievement represents a kind of ability structure, which is mainly realized through the teaching of courses. Therefore, the ability structure has a clear mapping relationship with the curriculum structure. Each ability in the ability structure should be supported by a clear curriculum, that is, each course in the curriculum system should make a definite contribution to the realization of the ability structure. The

mapping relationship between curriculum system and ability structure requires students to have the expected ability structure (learning results) after completing the curriculum system study.

(3) Determining teaching strategies. OBE emphasizes what students have learned rather than what teachers have taught, especially the output of the teaching process rather than its input, the research-based teaching mode rather than the inculcation-based teaching mode, and the individualized teaching mode rather than the "carriage" teaching mode. Individualized teaching requires teachers to accurately grasp each student's learning trajectory and timely grasp each person's goals, foundation and process. According to different requirements, different teaching programs are formulated to provide different learning opportunities.

(4) Self-reference evaluation. OBE's teaching evaluation focuses on learning outcomes rather than on teaching content, learning time and learning style. Using multiple and hierarchical evaluation criteria, the evaluation emphasizes the connotation of achieving learning outcomes and individual learning progress, and does not emphasize the comparison between students. According to the degree that each student can meet the educational requirements, different grades from unskilled to excellent are given for targeted evaluation. By clearly grasping the students' learning state, it can provide reference for schools and teachers to improve teaching.

(5) To reach the peak step by step. The learning process of students is divided into different stages, and the learning objectives of each stage are determined. These learning objectives are from primary to advanced, and ultimately achieve the peak results. This means that students with different learning abilities will achieve the same goal in different ways and at different times.

### 1.3 Differences between Outcome Based Education and traditional education

OBE and traditional education have substantial differences in learning orientation, success opportunities, graduation criteria, achievement performance, teaching strategies, teaching models, teaching centers, evaluation concepts, evaluation methods and reference standards (Table 1).

**Table 1. Comparison of Outcome Based Education with traditional education**

Item	Outcome Based Education	traditional education
traditional education	Results-oriented, students' learning objectives, curriculum, textbook selection, teaching process, teaching evaluation and graduation criteria are all results-oriented.	Process-oriented, emphasizing those students learn according to the prescribed procedures, schedule, time and schedule.



success opportunities	To expand the chances of success and ensure the success of all students, schools should provide appropriate learning opportunities for each student.	Limiting the chances of success and learning is limited by prescribing procedures and timetables, thus limiting their chances of development and success.
graduation criteria	With performance as the criterion for graduation, students must prove what they can do when they graduate.	With credit as the graduation standard, students can graduate with the required credits.
achievement performance	The final results show the peak performance of students, and the stage results are only used as reference for the next stage of learning.	According to the cumulative average results of stage learning, students' ultimate achievement performance is measured, and the poor performance of a certain stage will affect the ultimate achievement.
teaching strategies	Emphasis should be placed on integration and collaborative teaching. Teachers should cooperate for a long time and strengthen communication and cooperation. Strengthen cooperative learning, encourage teamwork, and form a learning community.	Emphasis is placed on the division of subjects, learning alone, teachers have clear teaching boundaries, and students rarely communicate and cooperate. Strengthen competitive learning and encourage competition.
teaching models	The competency-oriented teaching mode emphasizes what students can learn and do, pays attention to output and ability, and encourages critical thinking, reasoning, comment, feedback and action.	Knowledge-oriented teaching mode emphasizes what teachers should do. Emphasis on input and knowledge acquisition and collation.
teaching centers	Student-centered, teachers combine specific situations and apply teamwork and collaboration to assist students in learning.	Teacher-centered, students learn what teachers teach, students learn according to the way teachers require.
evaluation concepts	Emphasize inclusive success, create various opportunities for success, and gradually guide students to achieve peak results.	Emphasis is placed on selection and grading, and students with poor degree are getting worse and worse because of lack of corresponding learning opportunities.
evaluation methods	Assessment corresponds to learning outcomes, ability-oriented and multi-evaluation.	Assessment corresponds to prescribed procedures, knowledge-oriented, and commonly used classroom tests.
reference standards	Self-standard refers to the comparison of students' highest performance standards and their connotations.	According to the common standard, evaluation can be used for comparison among students.

## 2. Analysis of the Current Situation of Clinical Pharmacy Education in China Based on OBE Concept

Since the Ministry of Education first approved the establishment of clinical pharmacy specialty in China Pharmaceutical University in 2006, the Ministry of Education has approved 45 universities to establish five-year clinical pharmacy specialty (B.S. clinical pharmacy). In 2014, China Pharmaceutical University took the lead in organizing clinical pharmacy experts to draft *the National Standard for Teaching Quality of Clinical Pharmacy* and *the Standard for Practical Teaching Base of Clinical Pharmacy Specialty* as the director of the Teaching Steering Committee of Pharmaceutical Specialty of the Ministry of Education. *The*

*National Standard for Pharmaceutical Teaching Quality (Clinical Pharmacy)* was formally promulgated by the Ministry of Education in March 2018 (referred to as *the National Standard for Clinical Pharmacy*), which indicates that clinical pharmacy education in China has entered a normal track. However, compared with Pharm. D education in developed countries such as the United States, there are still some gaps in the educational concept, curriculum, theoretical and practical teaching methods, and evaluation system of clinical pharmacy education in China, which leads to the inability of five-year clinical pharmacy students to work as clinical pharmacists after graduation. Based on the concept of OBE, the present situation of clinical pharmacy education in China is analyzed as follows:

### ***2.1 The traditional educational concept of our country cannot meet the training goal of clinical pharmacy talents***

According to the national standard of clinical pharmacy specialty, the training goal of clinical pharmacy specialty in China is to cultivate professional personnel with basic knowledge, theory and skills of clinical pharmacy, innovative thinking, and ability to engage in pharmaceutical care service with rational drug use as the core. The World Health Organization (WHO) and the International Federation of Pharmaceutical Sciences (FIP) have defined the goal of pharmaceutical education personnel training as "Eight-Stars Pharmacist", [7,8] including: Care Giver, Communicator and Manager, Decision maker, Leader, Teacher, Life-long learner and Researcher.

At present, the teaching design of clinical pharmacy in China mainly implements the forward design principal. That is, from the beginning of the curriculum system, then to the graduation requirements, then to the training objectives, and then to the needs. Knowledge structure emphasizes the systematicness and completeness of discipline knowledge system, ignores the professional needs to a certain extent, and is difficult to meet the social needs of "Eight-Stars Pharmacist".

OBE is a reverse design and forward implementation. At this time, "demand" is both the starting point and the end point, thus guaranteeing the consistency of educational objectives and learning outcomes to the greatest extent. "Eight-Stars Pharmacist" is not only the goal of clinical pharmacy education, but also the overall description of professional and professional achievements (i.e. learning achievements) that clinical pharmacy students can achieve about five years after graduation. It is the external needs of the country, society, industry, employing units and so on. It fully conforms to the concept and principles of OBE. Therefore, clinical pharmacy education in China needs to change from traditional education to OBE. "Eight-Stars Pharmacist" is "the learning achievement that we (clinical pharmacy education) want students to achieve".

### ***2.2 Discipline-oriented traditional education curriculum system cannot make students achieve training objectives***

The curriculum system is particularly important to achieve the goal of talent cultivation, which is the core to achieve the goal of talent cultivation. The curriculum of clinical pharmacy in China is mainly based on the characteristics of other specialties. It is divided into public courses (basic courses), professional basic courses, professional courses and practical teaching. However, the design and arrangement of the curriculum and its proportion have not been well solved. [9] The proportion of chemistry courses is high, clinical medicine and medicine courses are

few, the content of courses lacks systematicness and coherence, and the interpenetration and cohesion between basic courses, professional basic courses and professional courses are insufficient. In addition, in the practical teaching link, there is a lack of concepts of from cognition (practice) to deep practice (internship), social needs and employment orientation.

Based on the OBE curriculum design, there is a clear relationship between the ability structure and the curriculum structure. Students can have the expected ability structure (learning results) after completing the learning of the curriculum system, so as to ensure that students can clearly know what they need to learn, how to effectively achieve their goals and whether their goals are achieved. Therefore, the establishment of OBE concept can avoid the above shortcomings of the traditional curriculum system of clinical pharmacy, and has important practical significance for the transformation of the construction of the curriculum system of clinical pharmacy personnel training in China.

### ***2.3 The traditional teaching evaluation mechanism cannot make every student achieve the expected success***

The traditional teaching mode of clinical pharmacy is teacher-centered. Teachers become the authority of knowledge by what they teach, what they learn, how they teach and how they learn. Most students only memorize the key content of each course passively according to the prescribed procedure, schedule, and time. In the evaluation of students' learning outcomes, the traditional clinical pharmacy education emphasizes comparative evaluation, that is, the examination and evaluation methods based on examination papers distinguish students from excellent, good, medium and poor grades, and accumulate the results of each study and represent the final results with the average results. A student's unsuccessful study will affect his or her final achievement; as long as he or she obtains the required credits, he or she can get his or her diploma. Then I would like to ask, "If the students majoring in clinical pharmacy get their diploma, they have reached the goal of training clinical pharmacy talents?" A diploma is equivalent to success? Graduation certificate is not equal to "success". If the graduates of clinical pharmacy specialty trained by us fail to meet the ability requirements of "Eight-Stars Pharmacist" within five years after graduation, then our clinical pharmacy education is equal to failure!

OBE focuses on the peak results that students ultimately achieve. One unsuccessful learning result only serves as the basis for improving teaching, not the final results. The evaluation of learning achievement based on OBE concept is achievement evaluation rather than comparative evaluation. Its focus is on students' learning effect and performance. It emphasizes whether they have reached the self-reference

standard. Its evaluation results are often expressed as "conformity/non-conformity", "achievement/non-achievement", "pass/fail", etc. It is for all students, not for individual excellent students. The OBE concept advocates flexible curriculum planning and teaching time, flexible use of problem-oriented learning (PBL), case-based learning, online learning, field research, group discussion, flipping classroom and other teaching methods, so as to meet the diverse learning needs and ability needs of students, can reduce the "polarization" of learning outcomes among students, can improve the quality of personnel training, so that every student can achieve success in learning. Therefore, OBE concept is the correct direction of clinical pharmacy education reform.

### **3. Implementing Strategy of Clinical Pharmacy Talents Training Model Based on OBE Concept**

#### ***3.1 Clinical pharmacy education should be changed from "What did the teacher teach?" to "What did the students learn?" (Learning outcomes)***

Based on the concept of OBE, the national standard of clinical pharmacy in China needs to be further revised and perfected, so that students' learning style can be changed from passive learning to active learning, and the ability of graduates can meet the needs of society.

#### ***3.2 Course setting based on OBE concept should be constructed***

The curriculum system of clinical pharmacy is divided into five modules: public compulsory courses, basic courses (basic compulsory courses, professional compulsory courses), professional compulsory courses, designated elective courses (restricted courses), and free elective courses (public elective courses, professional elective courses). This modular curriculum system runs the concept of quality education and innovative education through all teaching links, is conducive to the coordinated development of students' knowledge, ability and quality, and is the inevitable course to achieve the goal of clinical pharmacy talents training. However, at present, the proportion of chemistry courses in the curriculum is still on the high side, while clinical medicine and medical integration courses are on the low side. The curriculum content lacks systematicness and coherence, and the interpenetration and cohesion among basic courses, professional basic courses and professional courses are insufficient. It is necessary to create a new curriculum which integrates basic courses, professional basic courses and professional courses to improve students' understanding of the application of the curriculum system in clinical pharmacy.

#### ***3.3 Reform of practical teaching system based on OBE concept***

- a. Teaching measures to improve competency;
- b. Strengthen the close cooperation between schools and hospitals, and improve the training mode of clinical pharmacy talents;
- c. Establish and implement phased clinical skills training activities from lower grade to higher grade, from pre-probation (cognition) clinical probation (familiarity) clinical practice (mastery);
- d. Teaching conditions and environment allowed. Schools can try Core Competencies for Interprofessional Collaborative Practice (10) to cultivate students' teamwork ability and communication ability between teams

### **4. Establishment of learning methods and evaluation mechanism of learning outcomes in line with OBE concept**

Pharmaceutical colleges should first break through the fixed class and teaching mode, and promote the transformation of teachers' roles from traditional knowledge imparters to guiders, helpers and promoters of students' learning, so as to realize the transformation of teaching structure from "teaching-centered" to "learning-centered" to a certain extent. Through the integration of various practical teaching methods, students can create a personalized learning environment, so that they have the opportunity to choose their own learning methods and achieve the desired learning results. For example, PBL teaching and Flipped classroom teaching should be introduced into the cultivation of autonomous learning ability.

In the evaluation of students' learning outcomes, a feasible and credible evaluation mechanism should be established. That is to say, based on OBE concept, Bloom's Learning Objectives Classification <sup>[11]</sup> and "Pharmacist's Pharmaceutical Care Competence Evaluation Criteria (Trial)" <sup>[12]</sup>, a learning achievement evaluation criteria and evaluation mechanism for students majoring in clinical pharmacy in China should be constructed.

### **Conclusion**

Clinical pharmacy education in our country needs to change from "process-oriented" to "outcome-based", from "knowing" to "what can be done after graduation", from "knowledge information transmission" to "application of knowledge information", and from "educator-centered" to "learner-centered".

With its advanced, scientific and practical concept, OBE has become the mainstream concept of pharmaceutical education reform in the United States, Japan and other countries. It can meet the four changes. It is believed that OBE will not only have a far-reaching impact on the reform of pharmaceutical personnel training mode in the world, but

also guide the reform of clinical pharmacy education and teaching in China.

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## References

- [1] Li Zhiyi. Promoting the teaching reform of engineering education to meet the requirements of certification.[J]. Teaching in China University, 2014 (6): 9-16.
- [2] Accreditation Council for Pharmacy Education, Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree, STANDARDS 2016, [https://www.acpe-accredit.org/pdf/Standards 2016 FINAL.pdf](https://www.acpe-accredit.org/pdf/Standards%202016%20FINAL.pdf)
- [3] Introduction of the advanced workshop for pharmaceutical educators, the learning outcome of pharmacological education for six years based on the learning based education.2014.3, <http://www.pharm.or.jp/kyoiku/index.html>
- [4] Li Zhiyi. Guiding the teaching reform of higher engineering education with the idea of result-oriented education [J]. Research on Higher Engineering education, 2014 (2): 29-34.
- [5] Li Zhiyi. Result-oriented instructional design [J]. Teaching in China University, 2015 (3): 32-39.
- [6] Edited by the Higher Education Steering Committee of the Ministry of Education. National Standards for Teaching Quality of Undergraduate Majors in Universities.(Part 2). Higher Education Press [M]. March 2018. 708-715.
- [7] World Health Organization. The role of the pharmacist in the health care system. Vancouver, Canada, 1997.
- [8] Wiedenmayer K, Summers RS, Mackie CA, et al. Developing pharmacy practice: a focus on patient care. WHO-FIP, Hague, Netherlands, 2006.
- [9] Chen Xin. Developing China's Higher Pharmaceutical Education by Learning from Foreign Experiences [J]. China Pharmaceutical, 2009 (11): 31-33.
- [10] Kiuchi Y. Systematic and stepwise interprofessional education in Showa University. Yakugaku Zasshi, 2017, 137 (7): 853-857.
- [11] Yang Changqing, Chen Xijing, Zhu Junrong, Ge Weihong, Zhu Yubing, Yu Feng, Ding Xuansheng, Guo Qinglong. Construction of practical teaching system for undergraduates majoring in clinical pharmacy. Pharmaceutical education, 2018, 34 (6): 27-30.
- [12] Chinese Pharmacists Association. Pharmacists' Competence Evaluation Criteria for Pharmaceutical Care (Trial). Chinese Journal of Rational Drug Use Exploration, 2017, 14 (9): 1-2.

# Effect of Comprehensive Caring Nursing on the Nursing Quality of Pediatric Ward: Psychological Status of Family Members and Satisfaction of Nursing

Chunlan Wang<sup>a</sup> & Chunli Sheng<sup>b</sup>

(a. Department of Paediatrics, Tengzhou Central People's Hospital, Shandong, P.R. 277599, China; b. Department of ICU, Tengzhou Central People's Hospital, Shandong, P.R. 277599, China)

**Abstract:** *Objective:* To explore the effect of comprehensive caring nursing on the nursing quality of pediatric ward, psychological status of family members and satisfaction of nursing. *Methods:* A total of 3800 children in the pediatric ward of our hospital from July 2016 to July 2018 were selected as study subjects. The patients were divided 1900 cases into the control group and the care group based on the even or odd of case number, respectively. The control group was given routine nursing care, while the care group was given comprehensive nursing care. The nursing quality, family psychological status, nursing satisfaction and incidence of doctor-patient disputes were then compared between the two groups. *Results:* The scores of each item and the total score of the nursing quality scale in the care group were higher than those in the control group ( $P>0.05$ ). The scores of SAS and SDS of the family members in the care group were lower than those in the control group ( $P>0.05$ ). The nursing satisfaction of the care group was higher than that of the control group, and the incidence of doctor-patient disputes was lower than that of the control group ( $P>0.05$ ). *Conclusion:* Comprehensive caring nursing can significantly improve the quality of pediatric ward nursing, promote the recovery of children, relieve the families of children with anxiety, so as to improve nursing satisfaction and reduce the risk of doctor-patient disputes, which is worthy of clinical application.

**Key words:** the nursing of pediatric ward, comprehensive caring nursing, psychological status, nursing satisfaction

## Introduction

The people admitted to pediatric ward are young children with immature psychological, behavioral and linguistic development. Compared with adult patients, children often change their condition more quickly and lack specific symptoms. Therefore, the risk of accidents in pediatric wards is high, which brings certain difficulties to the work of nursing staff. Moreover, because of the heavy workload of pediatric nursing and high incidence of nursing errors, it will lead to children's family members to worry, anxiety and other adverse psychology, and even disputes with hospitals, which is not conducive to the development of normal medical and nursing services<sup>[1]</sup>. The routine nursing taken in the past is mainly based on medication guidance, disease monitoring and prevention of complications, but lacks humanistic care for the family members of the children, which may easily lead to disputes over the behavior of the nursing staff. Comprehensive caring nursing is based on the special psychological and physiological symptoms of

children, taking into account the psychological pressure of the families of children with humanistic caring nursing services to meet the psychological needs of children and their families<sup>[2]</sup>. Based on the above discussion, this study discussed the effect of comprehensive caring nursing on the quality of care in pediatric wards, the psychological state of the families of the children and the nursing satisfaction. A group study was conducted on 3800 children admitted to the pediatric wards of our hospital from July 2016 to July 2018. See below for the details.

## 1. Materials and methods

### 1.1 Subjects and Criteria

A total of 3800 children in the pediatric ward of our hospital from July 2016 to July 2018 were selected as study subjects. The patients were divided 1900 cases into the control group and the care group based on the even or odd of case number, respectively. The control group included 1174 males and 726 females, aged 3-11 years, with median age (6.03 1.87 years), and the symptoms consisted of 89 heart

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**Author:** Chunlan Wang, Department of Paediatrics, Tengzhou Central People's Hospital. Corresponding author of the article, Chunli Sheng, Department of ICU, Tengzhou Central People's Hospital.

diseases, 494 blood system diseases, 576 digestive diseases, and 741 respiratory diseases. There were 1168 males and 732 females in the care group, aged from 3 to 10 years, with a median age of (6.10 + 1.59) years and the symptoms included 92 heart diseases, 496 hematological diseases, 571 digestive diseases and 741 respiratory diseases.

Inclusive criteria: The children were less than 12 years old, with heart failure, multiple organ failure, severe inflammation and infection, and high fever. And children need to be hospitalized for observation. Children expected to survive for less than six months were excluded. Before receiving the nursing care, all the families of the children signed the "Informed Consent Form for Nursing Observation Research" with our hospital, which was approved by the Medical Ethics Committee of the hospital.

### 1.2 Methods

The control group adopted routine nursing, including medication guidance, condition monitoring, prevention of complications, dietary intervention and daily life nursing, while reducing the visiting time of the patients' families, keeping the ward environment quiet and clean, appropriate temperature and humidity, regularly ventilating, doing a good job in disinfection of air and facilities in the ward, and adhering to aseptic operation.

On the basis of the above, the care group added the following comprehensive caring nursing: <sup>[1]</sup> Optimize the ward environment. Considering the child's innocent physical and mental characteristics, we can optimize the ward environment, such as tables, chairs, walls, windows, cabinets and so on. In order to decorate it more colorful and childlike, we can transform the overall tone into children's favorite blue, pink, posted popular cartoon posters on the wall and changed the bedding with pink. <sup>[2]</sup> Care for children. After the child enters the ward, the nursing staff needs to be comforted. For the younger child, nursing staff can gently hold them into arms and comfort in a gentle language; for the older children, nursing staff can chat with them more, such as their feelings and the topic of interest to improve the child's sense of security and trust in nurses. Children can also be provided with small toys and comic books to transfer their attention and fear in an unfamiliar environment to the things of their interest. If the child needs to undergo a puncture operation, apply lidocaine ointment to relieve pain before the operation. If endotracheal intubation is required, appropriate intravenous sedative and analgesic measures should be taken, or oral sugar water, hug and touch, pacifier should be given to alleviate the pain <sup>[3]</sup>. In addition, the privacy of the children should be fully respected during the nursing operation, and the screen should be used to shield the children from external adverse stimulation during the special operation. <sup>[3]</sup> Care for the families of the children. The

nursing staff actively explained the necessity and role of various nursing operations, such as comfort nursing and painless nursing, to the families of the children in detail, and timely and actively reported the children's condition to them. Different ways of care were adopted to meet the needs of the families of children with different psychological characteristics. Details are as follows: (1) Concerned and doubtful type: For the families of children with this type, the nursing staff should take the initiative to introduce the ward environment, medical measures and nursing measures when the children are admitted. The nursing staff should understand the progress of the children's condition in detail, make clear the living habits and interests of the children, call the children affectionately, have close contact with them and do more physical and mental care, so that the family can feel the sincere attitude of the nursing staff to care for the children, and alleviate their concerns and doubts. (2) Depression and anxiety type: Nursing staff regularly go deep into the ward to visit and communicate with the family members so that the family members can express their inner thoughts and doubts. Nurses take the initiative to inform the children's progress and medication, so that family members can have a clear idea of the children's condition, calmly face the children's condition, while encouraging family members to actively cooperate with various nursing operations. (3) Anxiety type: This kind of family members are often impatient and prone to anger and complaint. It is also the family members who are most likely to have nurse-patient disputes. In the nursing work, it is necessary to grasp the psychological characteristics of such family members, show understanding and tolerance for their special situation, communicate with family members in a patient, careful, sincere and kind attitude, introduce more advanced medical equipment and technology in the hospital, introduce successful cases for propaganda and education, and stabilize the family members' emotions. (4) Contradictory type: The key to solving the contradictions among family members is to solve the contradictions among family members first, so that family members can understand the truth of family and everything, avoid blaming each other. At the same time, it can avoid the increase of psychological pressure caused by emotional conflicts among family members and reduce the fear of children. <sup>[4]</sup> Improve family visitation system. For children with severe diseases, flexible visitation machines can be adopted on the premise of condition permission and compliance with relevant infection regulations on hospital. The frequency of family visits should be increased in an appropriate amount, and the time of each visit should be extended reasonably. If possible, video visits, telephone visits and other ways of visiting can be arranged in the ward, so as to reduce the anxiety of family members who cannot

visit children for a long time. During the visit, the responsible nurse was responsible for confronting and informed the family members of the treatment and rehabilitation process in detail. For the family members who stay in the hospital, a neat and comfortable family reception room can be added. Information inquiry terminals, water dispensers, storage cabinets and seats are placed indoors in order to provide convenience for family members to rest, access items and inquire about treatment information of children.

### 1.3 Observation methods

After one week of continuous intervention, the nursing quality, family psychological status, nursing satisfaction and the incidence of doctor-patient disputes were compared between the two groups. (1) Nursing quality was assessed by a self-made questionnaire. The contents of the scale included structure quality (items, instruments, equipment, environment and operation norms, a total of 40 points), process quality (basic nursing, isolation protection, nursing safety and ward management, a total of 40 points) and child care compliance (whether conform to, crying frequency, a total of 20 points). (2) The psychological state of the family members was assessed by Zung anxiety (SAS) and depression (SDS) scales, including 20 items in four

dimensions: psychological emotion, physical disorder, psychomotor disorder and psychological disorder. The scale was modified with a score of 5 points, with 50 points as the critical value, 50-59 points as mild anxiety/depression, 60-69 points as moderate anxiety/depression, and 70 points or above as severe anxiety/depression. (3) Nursing satisfaction was assessed by the questionnaire made by our hospital, including four levels: very satisfied, satisfied, basically satisfied and unsatisfied. Total satisfaction = extraordinary satisfaction rate + satisfaction rate + basic satisfaction rate.

### 1.4 Statistical analysis

Statistical analysis was performed using SPSS 20.0. The normal measurement data was expressed as  $\bar{x} \pm s$ , and the t-value test was performed, while count data was represented by n (%) and statistically analyzed using chi-square test.  $p \leq 0.05$  was considered statistically significant.

## 2. Results

### 2.1 The quality of nursing

The scores of each item and the total score of the nursing quality scale in the care group were higher than those in the control group ( $p > 0.05$ ). See Table 1.

**Table.1 Comparison of nursing quality scores between the two groups ( $\bar{X} \pm S$ ; n=1900; Unit: Score)**

Group	Structure quality	Process quality	Nursing compliance of children	Total score
Control group	30.47±3.53	29.51±2.49	15.28±3.72	75.26±9.74
Care group	34.36±3.64	35.24±3.76	17.30±2.70	90.60±8.11
<i>t</i>	33.440	55.384	19.156	52.756
<i>P</i>	0.000	0.000	0.000	0.000

### 2.2 The psychological status of family members

The scores of SAS and SDS of the family members in the care group were lower than those in the control group ( $P > 0.05$ ). See Table 2.

**Table.2 Comparison of psychological status scores between the two groups ( $\bar{X} \pm S$ ; n=1900; Unit: Score)**

Group	SAS		SDS	
	Before nursing	After nursing	Before nursing	After nursing
Control group	52.96±3.04	28.61±4.39	53.40±4.06	26.27±4.43
Care group	53.04±2.96	19.04±3.96	53.39±5.21	18.15±4.85
<i>t</i>	0.822	70.557	0.066	53.883
<i>P</i>	0.411	0.000	0.947	0.000

### 2.3 Nursing Satisfaction and Incidence of Doctor-patient Disputes

The nursing satisfaction of the care group was higher than that of the control group, and the incidence of

doctor-patient disputes was lower than that of the control group ( $P>0.05$ ). See Table 3.

**Table.3 Comparison of nursing satisfaction and incidence of doctor-patient disputes between the two groups [n (%); n=1900]**

Group	Very satisfied	satisfied	Basically satisfied	Unsatisfied	Total Satisfaction	Doctor-patient dispute
Control group	427 (22.47)	603 (31.74)	822 (43.26)	48 (2.53)	1852 (97.47)	40 (2.11)
Care group	439 (23.11)	616 (32.42)	832 (43.79)	13 (0.68)	1887 (99.32)	9 (0.47)
$\chi^2$	/	/	/	/	20.410	19.868
$P$	/	/	/	/	0.000	0.000

### 3. Discussion

The quality of nursing care is closely related to the prognosis of hospitalized children, so it is necessary to ensure the physical and mental health of the children as the premise of clinical selection of nursing mode. The quality of traditional pediatric care is not ideal, which is related to the unique physical and mental characteristics of children [4]. Most of the hospitalized children are seriously ill and need to be kept in hospital for observation. Some of them need to be isolated because of their special conditions. Due to their young age, their behavior and thinking ability are not fully mature, and their poor degree of cooperation and compliance cause certain difficulties in nursing operations. In addition, due to the lack of family members to accompany the isolated children, the children will cry. However, because the family members of the children cannot be guarded by the children from time to time, they will bear different levels of psychological pressure. If they are not taken seriously, they will easily lead to disputes due to lack of communication between nurses and patients [5]. Therefore, in the course of pediatric ward care, it is important to pay attention to the quality of children's care, while taking into account the psychological state of the children's families.

The results of this study show that the scores of each item and the total score of the nursing quality scale in the care group were higher than those in the control group ( $P>0.05$ ). The scores of SAS and SDS of the family members in the care group were lower than those in the control group ( $P>0.05$ ). The nursing satisfaction of the care group was higher than that of the control group, and the incidence of doctor-patient disputes was lower than that of the control group ( $P>0.05$ ). The reasons can be summarized as follows: (1) Comprehensive caring nursing is a nursing mode developed on the basis of humanistic care, and its core concept is "All for patients, and

everything take patient as center"[6]. Nursing staff are required to give priority to patients and meet the real needs of patients, thus reflecting the concept of care for humanistic care. On the basis of conventional nursing, this study adopted comprehensive caring nursing, paying attention to improving the ward environment, creating a family-like, warm and quiet environment for the children and their families, which can improve their psychological comfort and reduce strangeness, so as to alleviate the tension, anxiety, worry and other psychological. (2) Liu xia [7] believes that children are a very special group. Compared with normal healthy people, they need more love, comfort and care from others, and the nursing staff should pay more attention to give children a full sense of security and trust. (3) In this study, constant attention was paid to the psychological changes of the children, and humanistic care was given to the children. Attaching importance to pain nursing and comfortable nursing, combined with environmental intervention, can avoid crying and non-compliance behavior caused by excessive external stimulation, which is conducive to improving the quality of ward nursing. Timely feedback of important information such as treatment results, disease progress and rehabilitation status to the family members can effectively reduce the family members' worries, anxiety and doubts. According to a foreign study [8], most PICU in Europe have implemented a visiting system that is open all day. However, at present, the critically ill children admitted to the PICU in China still adopt closed management and restrict visitation, resulting in the family members' inability to accompany them frequently, which is likely to increase their suspicion, worry and anxiety, and may lead to doctor-patient disputes. In response to this situation, this study analyzed the family members of children with different psychological types, adopted targeted family care measures, and innovatively implemented the flexible visitation system to ensure aseptic operation, stable vital signs of children, and



follow the hospital. Under the premise of the prevention of hospital sense, the appropriate increase in the number of visits and the extension of visit time can improve their psychological endurance and reduce negative psychology such as anxiety and depression. For this kind of situation, this study analyzed different psychological types of children's family, adopted targeted family care measures and innovatively implemented the flexible visiting system. Under the premise of ensuring aseptic operation, stable vital signs of the children, and following the regulations of hospitalization prevention, increasing the number of visits and prolonging the visiting time can improve their psychological endurance and reduce anxiety, depression and other negative psychological symptoms. According to the research results of Du Qiuxiang<sup>[9]</sup>, the scores of anxiety and depression in the observation group were reduced to (36.58 ±6.92) points and (34.59±5.82) points respectively, which were lower than the critical value. The results are consistent with this study. (4) The innovation of this study lies in the addition of family reception rooms and the convenience of providing rest, accessing goods and inquiring information for family members, which can solve the common problems in most of the families of children, and thus greatly improve the satisfaction of family members to nursing.

To sum up, comprehensive caring nursing can significantly improve the quality of pediatric ward nursing, promote the recovery of children, relieve the families of children with anxiety, so as to improve nursing satisfaction and reduce the risk of doctor-patient disputes, which is worthy of clinical application.

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## References

- [1] Zhu Ming. Effect of Caring Care on Nursing Quality of Pediatric Intensive Care Unit [J]. *Journal of Qiqihar University of Medicine*, 2017, 38 (16): 1969-1970.
- [2] Zhang Xiurong. Effect of Nursing Conception on Nursing Quality and Satisfaction of Critical Patients in ICU [J]. *Journal of Clinic Nursing's Practicality*, 2017, 2 (9): 167-170.
- [3] Ma Ruifang. Effect of PDCA Nursing Management on the Quality of Pediatric Nursing and Parental Satisfaction [J]. *China Health Industry*, 2018, 15 (6): 42-43.
- [4] Xu Wei. Application of Continuous Humanistic Conception Nursing Model in Child Intensive Care Unit [J]. *Chinese Journal of Rural Medicine and Pharmacy*, 2017, 24 (12): 80-82.
- [5] Xu Hongjian. Effect of Nursing Conception on Nursing Quality and Satisfaction of Critical Patients in ICU [J]. *Journal of Clinic Nursing's Practicality*, 2018, 3 (17): 48-52.
- [6] Tubbs-Cooley H L , Gurses A P .Missed Nursing Care: Understanding and Improving Nursing Care Quality in Pediatrics [J]. *Hospital Pediatrics*, 2017, 7 (7): 424-426.
- [7] Liu Xia. Application of Humanistic Care in Communication between Nurses and Patients in Pediatric Unit [J]. *Guide of China Medicine*, 2018,16 (2): 261-262.
- [8] Baird J , Rehm RS , Hinds PS , et al. Do You Know My Child? Continuity of Nursing Care in the Pediatric Intensive Care Unit [J]. *Nursing Research*, 2016, 65 (2): 142-150.
- [9] Du Qiuxiang. Effect of Continuous Humanistic Care Nursing on Psychological Status of Family Members of PICU Inpatients [J]. *Chinese And Foreign Medical Research*, 2017, 15 (33): 116-117.

# Study on the Difference of Recreational Spatial Vitality in Xi'an City Based on the Weekly Baidu Thermal Map

*Fan Wu & Fengqun Wei*

(College of Geography and Tourism, Shaanxi Normal University, Xi'an, Shaanxi, P.R 710000, China)

**Abstract:** The vitality of recreational space refers to the interaction between people and the recreational space they live in. In terms of space, the higher the concentration of people, the greater the vitality. In terms of time, the longer the population stays, the higher the vitality. Taking Baidu thermal map screenshots of Xi'an City for one week as the basic data, this paper studies the differences of crowd vitality among different types of recreational space in the main urban area of Xi'an City from the micro-dynamic perspective. The following conclusions can be drawn by observing the change trend of the area of the thermal zone: (1) The characteristics, differences and laws of recreational population vitality in urban parks, pedestrian squares, commercial recreational spaces and tourist attractions of Xi'an in winter are explained. (2) Comparing the vitality of the three major recreational spaces in winter, the order from high to low is commercial recreational space, urban park, and pedestrian square and tourist attractions. (3) The main factors affecting the vitality of recreational space are the basic population and traffic in the region. Suggestions are given based on the current situation and problems.

**Key words:** urban recreation space, Baidu thermal map, urban park, commercial recreation, tourist attractions

## Introduction

Recreational space is an important part of urban spatial structure. Recreational space was proposed by western scholars in the 18th century. With the continuous development of society and the diversification of people's life style, the types of recreational space gradually expand to urban parks, large green spaces, and pedestrian blocks and so on. Therefore, the study of recreational space has gradually become an indispensable part of urban planning and construction. At present, the related research of urban recreational space mainly involves geography, sociology, urban planning and other disciplines, with strong interdisciplinary nature. This article mainly carries on the analysis from the geography spatial angle of view. In the information age, large data processing has replaced the traditional sampling survey. Massive available data enable us to make more accurate and scientific decisions, and enrich the data sources of research. In the study of urban recreational space, many scholars have tried and practiced. Lei Yun combined with the case application, expounded the methods and prospects of spatial and temporal analysis of network thematic data in urban park recreation utilization, and verified the feasibility of the technology.

## 1. Research objects and methods

### 1.1 Research subjects

As the capital of Shaanxi Province and the ancient capital of the Thirteenth Dynasty, Xi'an is a famous historical and cultural city with a long history. As a result, compared with other cities, Xi'an has abundant historical sites, and Xi'an is located at the starting point of the Silk Road, which is one of the important cities for cultural tourism. As a metropolitan gateway in Northwest China, the central city of Xi'an has a population of 4.34 million, and is also a gathering place of international trend. Commercial and leisure activities are flourishing. Therefore, Xi'an has many types of recreational space, which is convenient for us to classify and compare. As a well-known tourist destination, Xi'an exhibits unique characteristics of recreational space behavior and spatial phenomena, which are dominated by urban residents' activities in the off-season like winter.

### 2.2 Data Selection

Xi'an has entered the off-season since November every year, and the scenic spots begin to implement the off-season price until March next year. Therefore, the intensity of population activities in winter can better represent the frequency of urban residents' activities in recreational space.

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**Author:** Fan Wu (1993-), female, Handan, Hebei, graduate student, research direction for urban and regional development.

Fengqun Wei (1971-), male, born in Xianyang, Shaanxi Province, Ph.D., associate professor. His main research direction is urban and regional development planning.

From 8:00 a.m. to 22:00 p.m. in a week from Dec. 10 to Dec. 17, Baidu thermodynamic maps with a precision of 200 m were intercepted by Baidu Map application on the mobile phone at an interval of 1 hour. The screenshot ranges from 39 recreational space areas in the table. A total of 4725 thermal maps are intercepted as the basic data of this study.

When choosing recreational space, it should be classified first. At present, there is no unified classification standard in academic circles. Classification basis mainly includes service object, recreational function, activity nature, spatial form, attributes of tourism resources, service scope, geographical location and other criteria for classification.<sup>[1]</sup> This paper mainly investigates the dynamic distribution of urban local residents in recreational space, so it is classified according to the service object. According to Wu Bidu's urban public recreation space classification system<sup>[2]</sup>, the recreation space in the central urban area of Xi'an is classified and sorted out, which mainly caters for urban parks, pedestrian squares, commercial recreation space and tourist attractions. However, because the definition of pedestrian plaza is not clear and includes Pedestrian Street with commercial nature, it is classified as urban park and pedestrian plaza, representing the square near residential area. Therefore, it is divided into three categories with clear attributes: urban parks and pedestrian squares with public leisure attributes of urban residents, commercial recreation space with commercial recreation attributes and tourist attractions with spiritual and cultural leisure attributes. Category analysis is helpful for micro-observation without overlapping regions.

### **1.3 Data Processing and Conversion**

The thermal map of Baidu Map distinguishes the concentration degree of different crowd density by overlapping blocks of different colors, which more vividly and intuitively reflects the concentration degree of the crowd at a certain time. But the official does not give the crowd density of the thermal map, so the thermal map data need to be processed. Firstly, it is divided according to the color of thermogram. Light blue to dark blue represent the low-heat area, that is, the area with the lowest population concentration density. Light blue-green to blue-green represent the sub-heat zone, which is the area where population density gradually increases and crowd activities gradually concentrate. Green to orange red represents the high-fever area, which is the most active area with the highest population density<sup>[3]</sup>. Secondly, with the help of image processing tools and Baidu Map Web Service API coordinate conversion service, vector data is input in Arcgis 10.0, and projection conversion is carried out to calculate the area of each low, sub-and high-heat area. Finally, the data of the thermal zone area in one week are input into Excel, and

the average calculation is carried out. The trend charts of the thermal zone change on working days and days off are obtained and interpreted.

## **2. Analysis of results**

### **2.1 Urban Park and Pedestrian Square**

Urban parks and pedestrian recreation spaces are scattered and few in number, only in low-heat areas. During the working day, there are two peaks: 8:00 to 10:00, 13:00 to 16:00. The main stay time of people in the square is from 10 a.m. to 6 p.m., with little change in the thermal zone. Compared with the working day, the morning peak on the rest day is delayed to 11 o'clock, and the peak of vitality in the afternoon is formed from 17 o'clock to 18 o'clock in the afternoon.

First of all, due to the influence of cold weather in winter, people's recreation time in outdoor parks concentrates on 8:00 to 10:00 and 13:00 to 16:00. In the morning, the crowd will gather quickly, but stay for a short time. In the afternoon, the crowd will disperse into the city park and walking space, but stay for a long time. Secondly, the coverage of low-heat zones in most urban parks only stays at the periphery of the park outline, but does not extend to the interior. Finally, compared with urban parks, pedestrian squares have smaller area, but larger traffic volume. Thermodynamic charts show that pedestrian squares are covered by traversing type.

### **2.2 Commercial Recreation Space**

Business recreation space is the main concentration of people in winter, so it is the most dynamic recreation space. It can be seen from the table that the main activity time of people in commercial recreational space during the working day is concentrated between 9:00 and 22:00, which is more active and lasts longer than other recreational space. The high and sub-heat zones expand slowly from 9 o'clock and form a small peak of high density and high activity from 15 o'clock to 16 o'clock. Compared with the working day, the change of the area of the thermal zone on the rest day is gentler, but the area of each thermal zone is higher than that on the working day, and the occurrence time of the area of the high-heat zone is delayed by one hour.

Focusing on the seven business circles selected by this research institute, we can get the following points. Firstly, the significant corridor effect of metro traffic is confirmed in space. Jingkai Business Circle, Zhonglou Business Circle and Xiaozhai Business Circle are on the node of Metro Line 2. Wu Lu Kou is the node of Line 1 and KE JI LU is the node of Line 3. The thermal trend of these five business circles is the same as that of the whole commercial recreation space. Compared with the lower vitality of Daxing Business Circle and Qujiang Business Circle, Qujiang Business Circle is

even more vigorous and hardly ever appears high heat zone. Corridor itself and its radiation area are collectively called corridor effect field. Corridor effect is gradually attenuated from the center to the periphery, showing a gradient decreasing state. Metro stations and business circles are mostly in a central space, forming a high-heat zone, gathering people, and declining to the periphery. Metro traffic affects the choice of business location, and also brings a large number of mobile people to business circles, increasing regional vitality. Secondly, as the two largest business circles in Xi'an, compared with Xiaozhai business circle, Zhonglou business circle is a multi-center thermal zone, with a large business circle and mature development. It is conducive to absorbing and diverting people by spreading business towards four directions streets of Xi'an. Xiaozhai, on the other hand, is a single-center thermal zone, mainly with Saga International and West Travel International Center as the main commercial points, with a small and concentrated scope.

**2.3 Tourist Scenic Spots**

There is no obvious change rule in the trend map of thermal zone change in tourist attractions. Since November, Xi'an has entered the off-season, tourists have decreased, and the vitality of tourist attractions has weakened. Urban residents rarely go to scenic spots. Thermal maps show that the scattering of tourists leads to the thermal coverage of the scenic area edge, which is mainly affected by the vitality of traffic streets. Among the 11 selected scenic spots, there are 8 Heritage Parks. However, except Xingqing Palace Park and Qinglong Temple Park, low-heat areas pass through and cover between 10 and 20 o'clock, only a small number of low-heat areas cover the edge of the scenic area during the observation period. Secondly, in terms of spatial area, recreational resources such as Daming Palace and Qujiangchi




Site Park occupy a large area, but they are also the areas with the lowest vitality. Recreational space resources are mostly concentrated to reflect the image of the city, such as large venues, large axes, large squares and large greening. This top-down planning guidance contradicts the bottom-up demand for recreational space.

**2.4 Spatial Differentiation of Urban Vitality in Xi'an City**

According to the regional spatial structure of the main urban area of Xi'an, the selected urban parks and pedestrian spaces are distributed in different parks except the Beilin District. However, in terms of the coverage ratio and the length of the thermal area coverage, the concentric circle thermal diffusion takes place mainly in the center of the main urban area. The thermal area coverage ratio of the parks within the city wall is large, and the thermal area coverage time is long. The more it extends to the edge of the central urban area, the less the coverage ratio of the thermal area of the urban parks and pedestrian space is. The shorter the coverage time is. From the picture, we can see that the commercial recreation space is distributed equally. The business circle is mainly a large commercial complex, which attracts crowds and forms a thermal pole in each district. The bell tower, as a mature business circle, is shown as a multi-thermal center structure in the thermodynamic diagram, forming a network of radiation nearby. But most of the other business circles are centered around the metro, which increases traffic pressure. The recreational space of cultural tourism is concentrated in the eastern part of Yanta District, namely Qujiang New Area, but its space thermal power is the lowest in all regions, mainly covered by low-heat areas, while the scope of sub-heat and high-heat areas is very small.

**3. Conclusion and discussion**

**Tab.1 Vitality of recreation space and characteristics**

Types of recreational areas	Spatial thermogram	Population Vitality Characteristics in Recreational Areas
Urban Parks and Pedestrian Squares		Based on the basic human flow near the recreation area, affected by the law of population agglomeration decline centered on traffic routes and commercial recreation area, it is in the marginal area after population decline, and the whole area is a low thermal area.
Commercial recreational space		As an important node of Metro corridor effect, with large shopping malls as the center, there is a decline of multi-center or single-center circle. Crowds are concentrated in large commercial buildings and spread to the surrounding areas.
Tourist attractions		Urban residents do not often go, mainly affected by the vitality of traffic streets, low-heat areas cover the edge of scenic spots.

To sum up, the three major recreational spaces in winter vitality comparison: commercial recreational space > urban parks and pedestrian plaza > tourist attractions. The micro dynamic observation can also confirm Wu Bihu's early classification of recreational space. Urban parks and pedestrian squares are mainly for local residents. However, among both tourists and local residents, it can be observed that commercial recreation space is dominated by local residents, while tourist attractions are dominated by tourists. Among the factors influencing the vitality of urban recreational space, the basic population in the area where the recreational space is located is the basis of the vitality. Secondly, traffic factors, the more accessibility, the more vitality, the positive correlation between them. Through observation, some laws are also obtained: (1) Multicentricity and circle decreasing effect of commercial recreation area, but it is easy to cause traffic congestion, which is not conducive to crowd dredging. (2) The corridor effect of metro traffic and the growth pole of vitality in Metro stations. (3) From the spatial level, the vitality of recreational space decreases with the city center, i.e. the inner wall diffuses outward in a circle layer.

Based on the above analysis, some suggestions are given. Small squares and green spaces can be built in high-energy commercial recreation space to evacuate people and increase people's green perception. At the same time, we should create thematic space for culture and education, increase people's penetration and participation in culture, and deepen national and urban emotions. Mr. Shan Jixiang once commented that because the essence of a city is a humanistic city, the modern life of a city needs cultural heritage, without inheritance, it is impossible to develop. Urban economy can develop by leaps and bounds, but urban cultural resources cannot grow by leaps and bounds<sup>[4]</sup>. Secondly, influenced by

traffic factors, more attention should be paid to the construction and recreation of green space related to roads, such as street trees and shrubs, seats, Street sketches and so on. Strengthen the degree of mixed land use, and "smart growth" emphasizes the need to establish a link between urban growth and quality of life. Balance between new development and improvement of existing communities, and concentrate time, energy and resources on revitalizing urban centers and existing communities.<sup>[5]</sup> At the same time of urban development, attention should also be paid to the construction of recreational space vitality.

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## References

- [1] Lei Yun. Mining the value of big data to help the spatial and temporal study of recreational use of urban parks[J]. *Architecture and Culture*, 2015 (12): 141-143.
- [2] Wu Zhiqiang, ye Zhong Nan. Research on the urban spatial structure based on the Baidu map thermodynamic map -- Taking the central city of Shanghai as an example, [J]. *urban planning*, 2016,40 (04): 33-40.
- [3] Xu Dong, Huang Zhenfang, Lu Long, etc. Study on Spatial Characteristics of Urban Leisure Tourism Based on POI Mining: Taking Nanjing City as an Example [J]. *Geographic and Geographic Information Science*, 2018, 34 (1): 59-70.
- [4] Jacobs, Translated by Jin Hengshan. *Death and Birth in Big Cities of the United States*[M]. Yilin Publishing House, 2006:98-99.
- [5] (English) Ian Bentley et al., Ji Xiaohai, Gao Ying's translation of "Resonant Design of Architectural Environment" [M] Dalian: Dalian University of Technology Publishing House, 2002.

# Preparation and Research of Hydroxylated Modified Sodium Lignosulfonate

Yangxue Zou & Wanming Zhang

(Xi Chang University, Xi Chang, Si chuan, P.R 615000, China)

**Abstract:** With hydrogen peroxide and sodium bisulfite (form of hydrogen peroxide and sodium sulfite oxidation reduction system) to hydroxylation of modified lignin sulfonate, with iron hydroxide as catalyst. Explore the reaction time (t) and reaction temperature (t) of sodium lignosulphonate hydroxylation yield, the effect of sodium lignosulphonate hydroxylation modification is obtained the optimum reaction conditions, and infrared spectrum analysis. Finally it is concluded that the most when  $t = 90$  min,  $t = 60$  °C,  $m(\text{H}_2\text{O}_2) : m(\text{LS}) = 1.2:1$  when is the best reaction condition, through infrared spectrum analysis, prove hydroxylation of modified successfully, improve the uniformity of lignin sulfonate groups, for the development and utilization of lignin sulfonate provides a new direction.

**Key words:** sodium lignosulfonate, hydrogen peroxide, ferric hydroxide, hydroxylation modifying

## Introduction

In today's world, the over-exploitation of non-renewable energy sources such as coal and oil has led to the depletion of fossil energy, which seriously threatens the economic development and social security of human beings. Therefore, actively exploring renewable new energy has become a hot topic in the world [1]. Lignin is the second largest renewable resource after cellulose in nature [2]. It is estimated that the annual output of lignin in the world is huge, but due to the heterogeneity of the structure of sodium lignosulfonate [3], the relative molecular mass of lignosulfonate has not been well utilized so far. Most of the lignin is directly discharged into rivers or burned out after concentration in the form of black liquor of paper making [4], resulting in a large number of harmful gases such as CO and SO<sub>2</sub>. It has caused great environmental pollution and waste of resources. Therefore, in recent years, chemical modification of sodium lignosulfonate has become a major research topic at home and abroad.

Sodium lignosulfonate has no outstanding chemical properties due to its complex molecular structure, various functional groups, lack of hydrophilic groups and poor water solubility, which limits its application in some fields. In this paper, sodium lignosulfonate was used as raw material, ferric hydroxide as catalyst, hydrogen peroxide as oxidant (with sodium bisulfite as redox system), and hydrogen peroxide was decomposed to produce hydroxyl radicals. The hydroxylation modification of sodium lignosulfonate was

carried out to improve the homogeneity of active groups in sodium lignosulfonate, improve water solubility [5,6], and increase the application value of its products.

## 1. Material and Methods

### 1.1 Experimental Materials and Instruments

The main experimental materials are sodium lignosulfonate, ferric chloride, sodium bisulfite, sodium hydroxide, hydrochloric acid and hydrogen peroxide. The instruments are FTIR-650 Fourier Transform Infrared Spectrometer, SHZ-D (III) Circulating Water Vacuum Pump and 101 Electric Heating Blast Oven.

### 1.2 Experimental Principles and Methods

#### 1.2.1 Fourier transform infrared spectroscopy (FTIR)

Infrared spectroscopy can detect the content of specific functional groups and functional groups of substances for identification. FTIR-650 Fourier Transform Infrared Spectrometer (FTIR-650) was used to prepare spectroscopic pure potassium bromide (KBr) tablets to measure the projected infrared spectra. The scanning range was 4000-400 cm<sup>-1</sup>, the scanning times were 32, and the resolution was 4 cm<sup>-1</sup>.

#### 1.2.2 Hydroxylation modification of sodium lignosulfonate

Hydrogen peroxide/sodium bisulfite redox system was prepared from purified sodium lignosulfonate. Hydroxyl radicals were produced by decomposition of H<sub>2</sub>O<sub>2</sub> with self-made Fe(OH)<sub>3</sub> as catalyst. Hydroxyl radicals were introduced into sodium lignosulfonate to increase hydroxyl

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**Author:** Yangxue Zou, Xi Chang University. Wanming Zhang, Xi Chang University.

content, homogeneity of active groups and water solubility.

### 1.2.3 Yield Calculation

$$W = \frac{M_0}{M_1} \times 100\%$$

W is the yield of sodium lignosulfonate hydroxylation, M<sub>0</sub> is the quality of sodium lignosulfonate hydroxylation products, M<sub>1</sub> is the quality of sodium lignosulfonate modified products without hydrogen peroxide, and other experimental conditions are the same as that of sodium lignosulfonate hydroxylation modification products.

### 1.3 Preparation Process

#### 1.3.1 Preparation of Fe(OH)<sub>3</sub> Catalyst

Fifty ml FeCl<sub>3</sub> solution was accurately weighed and added to 200 ml NaOH solution. Uniform stirring produces red-brown flocculant precipitation, which is left at room temperature for 1 hour, filtered by vacuum pump, washed by distilled water to neutral, and then dried to constant weight at 50 C in blast oven to obtain Fe(OH)<sub>3</sub> catalyst for standby.

#### 1.3.2 Acidification Purification of Sodium Lignosulfonate

10 g sodium lignosulfonate was added to 100 ml 30% NaOH solution and stirred evenly in 500 ml beaker until the sodium lignosulfonate was completely dissolved. It was kept at room temperature for 1 hour. The insoluble impurities in sodium lignosulfonate were removed, and 100 ml dilute

hydrochloric acid solution was added to precipitate flocculant substances. The flocs were vacuum filtered, washed and filtered repeatedly with dilute hydrochloric acid, then washed with distilled water to neutral, and dried to constant weight in a blast oven at 45 C for reserve.

#### 1.3.3 Hydroxylation Modification of Sodium Lignosulfonate

Sodium lignosulfonate was separated and purified from 10g lignosulfonate and dissolved in distilled water. It was put into a 500 ml flask connected with a constant pressure drop funnel, a circulating condensation tube and a thermometer. Then adding 0.2g catalyst, 50 ml of H<sub>2</sub>O<sub>2</sub> solution and 2 g NaHSO<sub>4</sub> into the constant pressure dropping funnel, adjusting the piston to make the dropping rate 3 drops/s, adjusting the temperature of the water bath pot to 60 C. When the temperature is stable and the reaction lasts 90 minutes, it is filtered, washed and dried for reserve.

## 2. Results and analysis

### 2.1 Effect of Reaction Time on the Yield of Modified Products

The modification yields were as follows: temperature 60 C, m(H<sub>2</sub>O<sub>2</sub>):m(LS)=1.2, catalyst quality 0.2g, reaction time 45 min, 60 min, 75 min, 90 min, 105 min and 120 min, respectively.

Table. 1 Yield of Modified Products at Different Time

Temperature T/°C	m(H <sub>2</sub> O <sub>2</sub> ) : m(LS)	Fe(OH) <sub>3</sub> quality /g	Reaction Time t/min	Hydroxylation Modification Yield /%
60	1.2	0.2	45	103.5
60	1.2	0.2	60	104.5
60	1.2	0.2	75	109.7
60	1.2	0.2	90	116.2
60	1.2	0.2	105	115.1
60	1.2	0.2	120	115.1

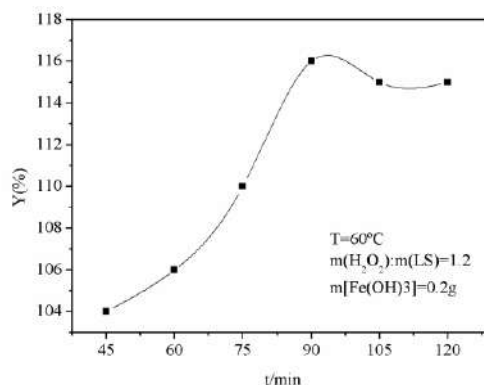


Fig. 1 Effect of reaction time on yield of modified products

Fig. 1 shows the effect of reaction time on the hydroxylation yield of sodium lignosulfonate. At the initial

stage of the reaction, the reaction rate was low. With the reaction proceeding, free radical polymerization is

exothermic reaction. With the increase of temperature, the reaction rate and yield increase rapidly. When the reaction lasted for 90 minutes, the number of hydroxyl radicals decomposed by  $H_2O_2$  did not change, and the yield reached the maximum. As the reaction time exceeds 90 minutes, the activity of free radicals decreases and the yield decreases. Therefore, the optimum reaction time is 90 min, and the

highest hydroxylation yield of sodium lignosulfonate is 116.2%.

### 2.2 Effect of Reaction Temperature on Modified Yield

The reaction time is 90 min,  $m(H_2O_2):m(LS)=1.2$ , the mass of catalyst is 0.2g, and the reaction temperature is 45, 50, 55, 60, 65 and 70 respectively. The modified yields are shown in Table 2.

Table 2 Modified yields at different temperatures

Reaction Time $t/min$	$m(H_2O_2) : m(LS)$	$Fe(OH)_3$ quality /g	Temperature $T/^\circ C$	Hydroxylation Modification Yield /%
90	1.2	0.2	45	101.7
90	1.2	0.2	50	103.8
90	1.2	0.2	55	107.7
90	1.2	0.2	60	114.8
90	1.2	0.2	65	109.1
90	1.2	0.2	70	107.1

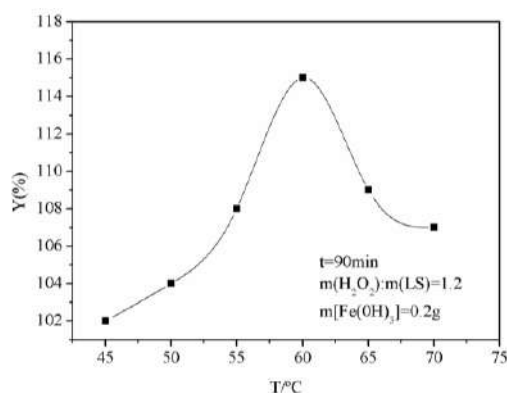


Fig. 2 Effect of reaction temperature on Yield

Figure 2 shows the effect of reaction temperature on the hydroxylation yield of sodium lignosulfonate. The results show that the hydroxylation yield of sodium lignosulfonate increases first and then decreases with the increase of temperature. This is because when the temperature is low, it is difficult to initiate the decomposition of hydrogen peroxide into effective hydroxyl radicals. As the temperature continues to rise, the initiator reaches the decomposition temperature and produces a large number of hydroxyl radicals, which accelerates the reaction rate and increases the yield. When the temperature exceeded 60 C, the yield of modification showed a downward trend. Hydrogen peroxide was decomposed into water and oxygen, the content of free radicals decreased, and sodium lignosulfonate was prone to oxidation and other side reactions. So when the temperature is 60 C, the hydroxylation yield of sodium lignosulfonate is the highest, which is 114.8%.

### 2.3 Infrared Characterization of Sodium Lignosulfonate Modified by Hydroxylation

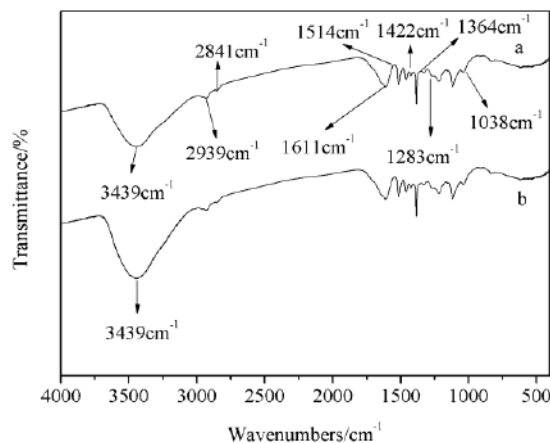


Fig. 3 Infrared spectra of sodium lignosulfonate and hydroxylated modified sodium lignosulfonate



Sodium hydroxylated lignosulfonate was synthesized under the optimum reaction conditions of reaction time  $t=90$  min, reaction temperature  $T=60$  C,  $m(\text{H}_2\text{O}_2): m(\text{LS})=1.2$ ,  $m[\text{Fe}(\text{OH})_3]=0.2\text{g}$ , and characterized by infrared spectroscopy. In Fig. 4, curve A is the infrared spectra of sodium lignosulfonate and curve B is the infrared spectra of sodium lignosulfonate hydroxylated. It can be seen from the A curve that the stretching vibration of associative hydroxyl-OH is at  $3439\text{ cm}^{-1}$ , and the symmetrical and asymmetrical stretching vibration of  $-\text{CH}_2$  and  $-\text{CH}_3$  are at  $2841\text{ cm}^{-1}$  and  $2939\text{ cm}^{-1}$ , respectively. The bending vibration of  $-\text{CH}$  in  $-\text{OCH}_3$  is at  $1364\text{ cm}^{-1}$ , the vibration of benzene ring is at  $1422\text{ cm}^{-1}$  and  $1514\text{ cm}^{-1}$ , and the stretching vibration of  $\text{C}=\text{O}$  is at  $1611\text{ cm}^{-1}$  [7]. The characteristic absorption peaks of sulfonic acid group were  $1038\text{ cm}^{-1}$  and  $1283\text{ cm}^{-1}$ . Comparing and analyzing the curves of a and b, the vibration intensity of associative hydroxyl groups at  $3439\text{ cm}^{-1}$  in B curve increased obviously, and the vibration width widened slightly. Vibration intensity and width of other wavenumbers basically did not change significantly, and carbonyl peak did not change significantly (if carbonyl peak changed slightly, it was because some sodium lignosulfonate was oxidized by reaction), and benzene absorption peak changed slightly. Therefore, the hydroxylation modification of sodium lignosulfonate did not affect the original skeleton and did not produce other side effects. At the same time, the obvious change of the absorption peak of associative hydroxyl at  $3439\text{ cm}^{-1}$  indicates that the hydroxylation modification of sodium lignosulfonate successfully introduces hydroxyl active groups, which can improve the hydrophilicity of sodium lignosulfonate.

### 3. Conclusions

(1) With the reaction proceeding, the yield of sodium lignosulfonate is increasing; when the reaction time reaches 90 minutes, the reaction tends to be dynamic equilibrium, and the yield of lignosulfonate is no longer increasing with the increase of time. Therefore, the optimum reaction time for hydroxylation of sodium lignosulfonate is 90 minutes, and the maximum yield of modification is 116.2%.

(2) Increasing temperature is conducive to the rapid

reaction. With increasing temperature, the hydroxylation yield of sodium lignosulfonate increases and then decreases. With increasing temperature, the hydroxyl radical activity decreases and the hydroxylation yield of sodium lignosulfonate decreases. Therefore, the optimum temperature for hydroxylation modification of sodium lignosulfonate is  $60\text{ C}$ , and the maximum yield of hydroxylation modification is 114.8%.

(3) By comparing and analyzing the infrared spectra of sodium lignosulfonate and modified sodium lignosulfonate, it was found that the structure peak of benzene ring had no obvious change. The stretching vibration peak of associative hydroxyl-OH at  $3439\text{ cm}^{-1}$  became stronger and wider, which indicated that hydroxylation modification made sodium lignosulfonate introduce hydroxyl active group, which proved that the hydroxylation modification of sodium lignosulfonate was successful.

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### References

- [1] Zhang Xiaoli, Zhou Yitong, Gaoyuan, Tension Level. Study on hydroxylation modification of alkali lignin [J]. Modern Chemical Industry, 2011, 31:194-198
- [2] Zheng Dafeng, Qiu Xueqing, Lou Hongming. Progress in structure and chemical modification of lignin [A]. Fine Chemical Industry, 2005, 22(4): 249-152
- [3] Liu Xiaoqiu. Modification and Application of Lignin [D]. Master's Degree Thesis, 2008:1-60
- [4] Li Xianfa, Luo Xuegang. Research progress in the application of lignin in plastics[A]. Plastics, 2004, 33 (4): 58-61
- [5] Mu Huanzhen, Liu Chen, Zheng Tao, Huang Yanchu. Chemical modification of lignin and its application[J]. Journal of Agricultural Environmental Sciences, 2006, 25 (1): 14-18
- [6] Wang Xiaohong, Liu Jing, Li Chun, Huo Hengli, Hao Chen. Grafting modification of Lignosulfonate with acrylamide[J]. Anhui Agricultural Science, 2010, 38 (16): 8680-8686
- [7] MALDHURE A V , EKHE J D, DEENADAYALAN E. Mechanical properties of polypropylene blended with esterified and alkylated lignin [J]. J. Appl. Polym. Sci. 2012, 125 (3): 1701-1712.

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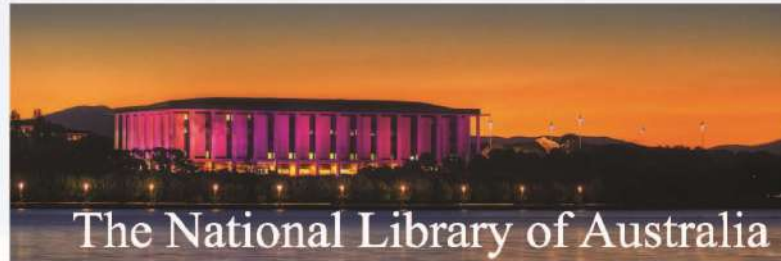
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