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EURASIA Journal of Mathematics Science and Technology Education  
ISSN: 1305-8223 (online) 1305-8215 (print)  
2017 13(8):5893-5903  
DOI: 10.12973/eurasia.2017.01038a



## What Determines Job Satisfaction of Teachers in Universities?

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Received 12 February 2017 • Revised 25 June 2017 • Accepted 2 August 2017

### ABSTRACT

With the expansion of university, how to improve education quality plays an important role. The satisfaction of teachers in university will be of paramount importance. This paper analyzes job satisfaction of teachers in university in Henan province. The results show that professional rank is the most important factor for teachers in university, which suggests it is titles that determine teachers' satisfaction other than creativity. Professional development scheme is secondary factors in job satisfaction. The salary is not decisive for teachers in university in China. The reputation and working circumstance are the last factors teachers consider.

**Keywords:** job satisfaction, teachers, university

### INTRODUCTION

Higher education plays an important role in economy development. With the larger enrollment in China, there will be more and more working pressure and strength on teachers in universities. So, the incentive to teachers will be the first thing we consider. However, it is difficult to apply the incentive measures if we do not know what influences satisfaction of teachers on earth. It is well know that Henan province is the most populous in China. Therefore, the paper will explore these factors take Henan province as an example.

The definition of Job Satisfaction is proposed in Job Satisfaction published in 1935, which was worked by Hoppock who is a psychologist. This book thought job satisfaction was a subjective evaluation of working circumstance. Vroom (1964) thought that job satisfaction was subjective judgment of working roles and tasks for employee, which emphasis the attitude or emotion. Locke (1976) argued that job satisfaction was a positive or passive sentiment when the employee evaluated their work or working status. Xu (1997) defined job satisfaction with 3 levels. The first level emphasized the attitude to working tasks and circumstances. The second level defined job satisfaction as the difference between expected and real salary, and the larger the difference the most satisfied. The last definition is a cognition and estimate reaction to job according to self scheme. Thompson (1997) had a result that the job satisfaction was wholly different even if within the same job conditions for different values, living conditions and education backgrounds.

The most often used measurement of job satisfaction is questionnaires. Most literatures take the form of questionnaires and get some representative indicators and scales. The most extensively used scale is Minnesota Satisfaction Questionnaire invented by Weiss et al. in 1950's, which was classified into long scale and short scale.

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#### **State of the literature**

- Some features of job satisfaction are focus in lots of literatures. The order of influence factors are not explored in universities, especially in Chinese universities.
- This paper uses Mann-Whitney U and Wilcoxon Sing Rank test and KrusKal-Wallis test to analyze the significant differences in sexuality, age, professional titles and academic degrees. Besides, this paper explores the factors effecting job satisfaction of teachers.

#### **Contribution of this paper to the literature**

- The factors effecting the job satisfaction of teachers in Chinese universities are empirically tested with entropy approach and grey related analysis. Among these factors, it is organization system, other than salary that plays an important role in job satisfaction for teachers.
- This paper analyzes whether these factors have significant differences in sexuality, age, professional titles and academic degrees. For salary, basic wage and family placement play an important role for teachers. Future training system effects career development most. The three subsidiary indicators almost play the same role in reputation. As for working circumstance and organization system, academic atmosphere and professional appraisal system have the greatest impact on job satisfaction for teachers.

The long scale measures the job satisfaction from different dimensions, which includes many secondary scales involving 120 questions regarding value, salary, co-worker relation, social responsibility, working strength, match between work and competence, psychological demand, career promotion, personnel administration and occupational planning and so on. We can see there are so many questions that interviewees have not enough patience. Many scholars often use the short scale since it involves several questions regarding autonomy, promotion, self-fulfillment, managerial style and co-worker relations. Gregson (1992) further improved the scale through increasing secondary questions. Wen (2015) designed a job satisfaction scale for teachers in Chinese university, and found scientific research, salary, personnel relations and managerial style were important.

Scotter (1996) analyzed the effect of working circumstance, working difficulty, personnel competence on employee satisfaction. Luckner and Hanks (2003) designed six dimensions scale involving leadership, compensation, workflow, communication, rewards and punishments and self-development. Seashore and Taber (1975) argued there were other factors effecting job satisfaction such as population statistic, personnel competence, value, political and economical circumstance, organization and career. Einar Skaalvik and Sidsel Skaalvik (2011) thought some indicators, i.e. working pressure, relationship, leadership, rules, would indirectly push teachers to quit through emotional identification or exhaustion in elementary and high schools, with 2,569 questionnaires. Hackman and Oldman (1976) thought there were five factors effecting job satisfaction, which were professional technology, job content, contribution, autonomy and return. Li and Fan (2014) empirically analyzed the job satisfaction of female teachers in higher universities in China, and thought some factors, i.e. salary, working circumstances and self-development, were important.

Athanasios (2001) argued that age was the important factor effecting job satisfaction in higher education organizations, and the teachers who was junior and short of experiences would be dissatisfaction to their jobs. Demirtas (2010) showed that the job satisfaction of teachers in elementary school was better. It was very different among different age groups. It was highest between the ages of 36 and 40, while lowest when the teacher is 41 years old and above. Hikmet and Fatma (2013) didn't find apparent differences among lecturers in universities in Turkey. Wang (2009) argued the job satisfaction was U-shape according to ages, and the job satisfaction among the over-50 set teachers was higher than that of others. Other scholars analyzed the job satisfaction from education background and sexuality and so on. (Zhao et al., 2011; Yang et al., 2006; Wei et al., 2014; Cai, J. & Li, D., 2017).

So many literatures analyze the job satisfaction from definition, measurement scale, influence factors and differences in demography variables. However, few literatures focus on the satisfaction of teachers in university in China. As far as Henan province is concerned, it has enormous population and undergraduates in higher universities. Therefore, it is important to study the job satisfaction of teachers in order to promote the education quality. Besides, this paper will rank these factors with analytic hierarchy process.

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## EMPIRICAL RESEARCH

### Variables

This paper classifies the job satisfaction of teachers in Chinese higher universities into influence factors involving salary, working circumstance, organization, career development and reputation, and demographic variables including sexuality, age, academic degree and professional titles.

This paper defines *salary* as material return which is based on the titles and performances. It comprises basic wage, performances and allowances in Henan province. We set the subsidiary indicators involving basic wage, performance-related pay, family placement and paid holiday. *Working circumstances* is defined as academic atmosphere, teaching and research environment, working strength and human relations. This paper defines *organization system* as appointment financial, professional titles evaluation and performance appraisal system. *Career development* is defined as professional promotion, career prospects and future training system. *Reputation* is defined as professional honor, quality of students and accepted academic value.

### Hypothesizes

This paper will explore whether the job satisfaction of teachers in Henan universities is apparently different in demographic variables involving sexuality, age, professional titles and degree.

- Hypothesis 1:** There is apparent difference of satisfaction to teachers' salary in Henan universities in demographic variables.
- Hypothesis 2:** There is apparent difference of satisfaction to teachers' career development in Henan universities in demographic variables.
- Hypothesis 3:** There is apparent difference of satisfaction to teachers' reputation in Henan universities in demographic variables.
- Hypothesis 4:** There is apparent difference of satisfaction to working circumstance in Henan universities in demographic variables.
- Hypothesis 5:** There is apparent difference of satisfaction to organization system in Henan universities in demographic variables.
- Hypothesis 6:** There is apparent difference among five factors of job satisfaction.

Subsequently this paper unfolds the above hypothesis according to demographic variables as follows.

- Hypothesis 1a:** There is apparent difference of satisfaction to teachers' salary in Henan universities in sexuality.
- Hypothesis 1b:** There is apparent difference of satisfaction to teachers' salary in Henan universities in age.
- Hypothesis 1c:** There is apparent difference of satisfaction to teachers' salary in Henan universities in professional titles.
- Hypothesis 1d:** There is apparent difference of satisfaction to teachers' salary in Henan universities in academic degree.
- Hypothesis 2a:** There is apparent difference of satisfaction to teachers' career development in Henan universities in sexuality.
- Hypothesis 2b:** There is apparent difference of satisfaction to teachers' career development in Henan universities in age.
- Hypothesis 2c:** There is apparent difference of satisfaction to teachers' career development in Henan universities in professional titles.

**Hypothesis 2d:** There is apparent difference of satisfaction to teachers' career development in Henan universities in academic degree.

**Hypothesis 3a:** There is apparent difference of satisfaction to teachers' reputation in Henan universities in sexuality.

**Hypothesis 3b:** There is apparent difference of satisfaction to teachers' reputation in Henan universities in age.

**Hypothesis 3c:** There is apparent difference of satisfaction to teachers' reputation in Henan universities in professional titles.

**Hypothesis 3d:** There is apparent difference of satisfaction to teachers' reputation in Henan universities in academic degree.

**Hypothesis 4a:** There is apparent difference of satisfaction to working circumstance in Henan universities in sexuality.

**Hypothesis 4b:** There is apparent difference of satisfaction to working circumstance in Henan universities in age.

**Hypothesis 4c:** There is apparent difference of satisfaction to working circumstance in Henan universities in professional titles.

**Hypothesis 4d:** There is apparent difference of satisfaction to working circumstance in Henan universities in academic degree.

**Hypothesis 5a:** There is apparent difference of satisfaction to organization system in Henan universities in sexuality.

**Hypothesis 5b:** There is apparent difference of satisfaction to organization system in Henan universities in age.

**Hypothesis 5c:** There is apparent difference of satisfaction to organization system in Henan universities in professional titles.

**Hypothesis 5d:** There is apparent difference of satisfaction to organization system in Henan universities in academic degree.

### Samples

The questionnaires are sent out on November 23th 2016, and taken back on February 25th 2017. The number of effective questionnaires is 142, and return rate is 89.8%. The questionnaire we designed has three parts. The first part is prime situation involving interviewee' sex, age, professional titles and academic degree in order to classify the sample, showed in **Table 1**. The second part is questions about job satisfaction of teachers. The indicators are listed as **Table 2**. The last part includes questions about present status of job satisfaction for teachers in higher universities in Henan province showed in **Table 3**.

**Table 1** shows male and female are almost equal in interviewees, and the rate of teachers under 45 years old is up to 73% confirming to present status. As for titles and degree, the rate of lecturers and associate professors is 78.1% and that of masters and doctors is 83.8%.

From **Table 3**, it is obvious that teachers in higher universities are most satisfied with paid holiday and career honor, while are not satisfied with future training system, future development and accepted academic value.

Subsequently, this paper tests the reliability and validity of questionnaire which is significant at 0.00 level.

**Table 1.** Descriptive statistics of interviewees

|                     |                     | Frequency | Rate  |
|---------------------|---------------------|-----------|-------|
| Number of samples   |                     | 142       | 100%  |
| Sexuality           | Male                | 75        | 52.8% |
|                     | Female              | 67        | 47.2% |
| Age                 | Under 25 years old  | 10        | 7%    |
|                     | 25-35 years old     | 54        | 38%   |
|                     | 36-45 years old     | 50        | 35%   |
|                     | Over 46 years old   | 28        | 20%   |
| Professional titles | Assistant           | 10        | 7%    |
|                     | Lecturer            | 70        | 49.3% |
|                     | Associate professor | 41        | 28.8% |
|                     | Professor           | 21        | 15%   |
| Academic degree     | Bachelor            | 23        | 16.2% |
|                     | Master              | 70        | 49.2% |
|                     | Doctor              | 49        | 34.6% |

**Table 2.** The variables and indicators of job satisfaction

| Variables             | Indicators                        |
|-----------------------|-----------------------------------|
| Salary                | Basic wage                        |
|                       | Performance wage                  |
|                       | Family placement                  |
|                       | Paid holiday                      |
| Career development    | Career promotion                  |
|                       | Career prospects                  |
|                       | Future training system            |
| Reputation            | Career honor                      |
|                       | Quality of students               |
|                       | Accepted academic value           |
| Working circumstances | Academic atmosphere               |
|                       | Teaching and research environment |
|                       | Working strength                  |
|                       | Human relations                   |
| Organization system   | Appointment                       |
|                       | Financial                         |
|                       | Professional titles evaluation    |
|                       | Performance appraisal system      |

\*The answers of questions are divided into 5 grades in accordance with Likert scale.

## EMPIRICAL RESULTS

This paper will empirically test the above hypothesizes with non-parametric tests. It uses Mann-Whitney U and Wilcoxon Sing Rank test in analyzing the effect of sexuality to job satisfaction, and KrusKal-Wallis test in analyzing the effect of other demographic indicators.

**Table 4** shows that the effect of sexuality to salary satisfaction is not significant, which suggests hypothesis 1a is rejected. As for ages, interviewees within different groups have apparent difference in salary satisfaction except paid holiday. Interviewees with professor title have more satisfaction to salary satisfaction. As far as academic degree is concerned, interviewees with doctor are satisfied with basic wage and family placement. Therefore, hypothesizes 1b-1d are accepted.

**Table 3.** Descriptive statistics of job satisfaction of teachers

| Indicators                        | Number | Minimum | Maximum | Mean |
|-----------------------------------|--------|---------|---------|------|
| Basic wage                        | 142    | 2       | 5       | 3.37 |
| Performance wage                  | 142    | 1       | 5       | 3.26 |
| Family placement                  | 142    | 1       | 5       | 3.04 |
| Paid holiday                      | 142    | 2       | 5       | 4.23 |
| Career promotion                  | 142    | 1       | 5       | 2.99 |
| Future development                | 142    | 1       | 5       | 2.67 |
| Future training system            | 142    | 1       | 5       | 2.53 |
| Career honor                      | 142    | 2       | 5       | 4.06 |
| Quality of students               | 142    | 2       | 5       | 3.17 |
| Accepted academic value           | 142    | 1       | 4       | 2.68 |
| Academic atmosphere               | 142    | 2       | 4       | 3.20 |
| Teaching and research environment | 142    | 2       | 5       | 3.47 |
| Working strength                  | 142    | 2       | 5       | 3.14 |
| Human relations                   | 142    | 2       | 5       | 3.57 |
| Appointment system                | 142    | 2       | 5       | 3.50 |
| Financial system                  | 142    | 1       | 5       | 2.92 |
| Professional titles evaluation    | 142    | 1       | 4       | 2.81 |
| Performance appraisal system      | 142    | 1       | 4       | 2.92 |

**Table 4.** Demographic variables and salary satisfaction

|                     |             | Number      | Basic wage | Performance wage | Family placement | Paid holiday |
|---------------------|-------------|-------------|------------|------------------|------------------|--------------|
| Sexuality           | Male        | 75          | 2492.00    | 2466.00          | 2158.00          | 2386.00      |
|                     | Female      | 67          |            |                  |                  |              |
|                     |             | Significant |            | 0.929            | 0.842            | 0.134        |
| Age                 | Under 25 ys | 10          | 8.056      | 8.913            | 16.599           | 0.572        |
|                     | 25-35 ys    | 54          |            |                  |                  |              |
|                     | 36-45 ys    | 50          |            |                  |                  |              |
|                     | Over 45 ys  | 28          |            |                  |                  |              |
|                     |             | Significant |            | 0.045            | 0.030            | 0.001        |
| Professional titles | Assistant   | 10          | 16.132     | 14.301           | 41.246           | 8.099        |
|                     | Lecturer    | 70          |            |                  |                  |              |
|                     | Associate   | 41          |            |                  |                  |              |
|                     | Professor   | 21          |            |                  |                  |              |
|                     |             | Significant |            | 0.001            | 0.003            | 0.000        |
| Academic degree     | Bachelor    | 23          | 6.305      | 3.818            | 22.245           | 1.094        |
|                     | Master      | 70          |            |                  |                  |              |
|                     | Doctor      | 49          |            |                  |                  |              |
|                     |             | Significant |            | 0.043            | 0.148            | 0.000        |

**Table 5** describes the satisfaction of male teachers is apparently different from that of female teachers in future development and future training system. Teachers within different age groups have significant difference in career promotion and future development. Interviewees with different titles are not the same satisfied with career promotion, future development and future training system. Teachers with different academic degree are exactly the same. All in all, hypothesizes 2a-2d are accepted.

**Table 5.** Demographic variables and career development

|                     |             | Number | Career promotion | Future development | Future training system |
|---------------------|-------------|--------|------------------|--------------------|------------------------|
| Sexuality           | Male        | 75     | 3525.00          | 1919.00            | 1735.00                |
|                     | Female      | 67     |                  |                    |                        |
|                     | Significant |        | 0.425            | 0.011              | 0.001                  |
| Age                 | Under 25 ys | 10     | 19.754           | 9.585              | 3.499                  |
|                     | 25-35 ys    | 54     |                  |                    |                        |
|                     | 36-45 ys    | 50     |                  |                    |                        |
|                     | Over 45 ys  | 28     |                  |                    |                        |
|                     | Significant |        | 0.00             | 0.022              | 0.321                  |
| Professional titles | Assistant   | 10     | 31.484           | 18.931             | 9.956                  |
|                     | Lecturer    | 70     |                  |                    |                        |
|                     | Associate   | 41     |                  |                    |                        |
|                     | Professor   | 21     |                  |                    |                        |
|                     | Significant |        | 0.00             | 0.00               | 0.019                  |
| Academic degree     | Bachelor    | 23     | 26.011           | 33.335             | 13.589                 |
|                     | Master      | 70     |                  |                    |                        |
|                     | Doctor      | 49     |                  |                    |                        |
|                     | Significant |        | 0.00             | 0.00               | 0.001                  |

**Table 6.** Demographic variables and reputation

|                     |             | Number | Career honor | Quality of students | Accepted academic value |
|---------------------|-------------|--------|--------------|---------------------|-------------------------|
| Sexuality           | Male        | 75     | 2499.50      | 2398.00             | 1611.50                 |
|                     | Female      | 67     |              |                     |                         |
|                     | Significant |        | 0.954        | 0.584               | 0.613                   |
| Age                 | Under 25 ys | 10     | 14.804       | 22.204              | 17.727                  |
|                     | 25-35 ys    | 54     |              |                     |                         |
|                     | 36-45 ys    | 50     |              |                     |                         |
|                     | Over 45 ys  | 28     |              |                     |                         |
|                     | Significant |        | 0.002        | 0.000               | 0.001                   |
| Professional titles | Assistant   | 10     | 21.035       | 9.385               | 22.427                  |
|                     | Lecturer    | 70     |              |                     |                         |
|                     | Associate   | 41     |              |                     |                         |
|                     | Professor   | 21     |              |                     |                         |
|                     | Significant |        | 0.000        | 0.025               | 0.000                   |
| Academic degree     | Bachelor    | 23     | 14.498       | 0.011               | 32.931                  |
|                     | Master      | 70     |              |                     |                         |
|                     | Doctor      | 49     |              |                     |                         |
|                     | Significant |        | 0.001        | 0.994               | 0.000                   |

It is obvious that hypothesis 3a is rejected for non-significant in **Table 6**. Interviewees within different age groups are not satisfied with career reputation, quality of students and accepted academic value. Teachers with professor title are more satisfied with the career. As for academic degree, interviewees with different degree have not the same satisfactions in career reputation and accepted academic value. In a word, hypothesizes 3b-3d are accepted.

**Table 7.** Demographic variables and working circumstance

|                     |             | Number | Academic atmosphere | Teaching and research environment | Working strength | Human relations |
|---------------------|-------------|--------|---------------------|-----------------------------------|------------------|-----------------|
| Sexuality           | Male        | 75     | 2282.00             | 1935.00                           | 2503.50          | 2202.50         |
|                     | Female      | 67     |                     |                                   |                  |                 |
|                     | Significant |        | 0.300               | 0.108                             | 0.965            | 0.182           |
| Age                 | Under 25 ys | 10     | 10.174              | 0.103                             | 0.421            | 12.715          |
|                     | 25-35 ys    | 54     |                     |                                   |                  |                 |
|                     | 36-45 ys    | 50     |                     |                                   |                  |                 |
|                     | Over 45 ys  | 28     |                     |                                   |                  |                 |
|                     | Significant |        | 0.017               | 0.211                             | 0.936            | 0.005           |
| Professional titles | Assistant   | 10     | 2.646               | 15.814                            | 8.642            | 4.162           |
|                     | Lecturer    | 70     |                     |                                   |                  |                 |
|                     | Associate   | 41     |                     |                                   |                  |                 |
|                     | Professor   | 21     |                     |                                   |                  |                 |
|                     | Significant |        | 0.450               | 0.372                             | 0.053            | 0.244           |
| Academic degree     | Bachelor    | 23     | 17.732              | 5.334                             | 5.567            | 1.099           |
|                     | Master      | 70     |                     |                                   |                  |                 |
|                     | Doctor      | 49     |                     |                                   |                  |                 |
|                     | Significant |        | 0.010               | 0.069                             | 0.062            | 0.577           |

**Table 8.** Demographic variables and organization system

|                     |             | Number | Appointment system | Financial system | Professional titles evaluation | Performance appraisal system |
|---------------------|-------------|--------|--------------------|------------------|--------------------------------|------------------------------|
| Sexuality           | Male        | 75     | 2301.50            | 2348.50          | 2237.50                        | 2228.50                      |
|                     | Female      | 67     |                    |                  |                                |                              |
|                     | Significant |        | 0.346              | 0.481            | 0.397                          | 0.216                        |
| Age                 | Under 25 ys | 10     | 4.931              | 7.290            | 17.732                         | 2.329                        |
|                     | 25-35 ys    | 54     |                    |                  |                                |                              |
|                     | 36-45 ys    | 50     |                    |                  |                                |                              |
|                     | Over 45 ys  | 28     |                    |                  |                                |                              |
|                     | Significant |        | 0.177              | 0.063            | 0.070                          | 0.507                        |
| Professional titles | Assistant   | 10     | 9.268              | 29.820           | 5.892                          | 9.187                        |
|                     | Lecturer    | 70     |                    |                  |                                |                              |
|                     | Associate   | 41     |                    |                  |                                |                              |
|                     | Professor   | 21     |                    |                  |                                |                              |
|                     | Significant |        | 0.026              | 0.000            | 0.163                          | 0.027                        |
| Academic degree     | Bachelor    | 23     | 5.529              | 13.440           | 13.825                         | 1.740                        |
|                     | Master      | 70     |                    |                  |                                |                              |
|                     | Doctor      | 49     |                    |                  |                                |                              |
|                     | Significant |        | 0.063              | 0.001            | 0.071                          | 0.419                        |

**Table 7** shows that sexuality plays no role on the satisfaction of working circumstance. Therefore, hypothesis 4a is rejected. Teachers within separate age groups have not the same satisfaction except human relations. So, hypothesis 4b is accepted. There is no significant difference among teachers with diverse titles excluding teaching and training environment, and hypothesis 4c is rejected. Interviewees have not the same sense



**Table 9.** Information entropy and weight of subsidiary indicators

| Variables            | Indicators                        | Information entropy | Weight |
|----------------------|-----------------------------------|---------------------|--------|
| Salary               | Basic wage                        | 0.94                | 36.59% |
|                      | Performance wage                  | 0.968               | 19.53% |
|                      | Family placement                  | 0.95                | 30.48% |
|                      | Paid holiday                      | 0.978               | 13.4%  |
| Career development   | Career promotion                  | 0.956               | 27.85% |
|                      | Future development                | 0.95                | 31.65% |
|                      | Future training system            | 0.936               | 40.5%  |
| Reputation           | Career honor                      | 0.972               | 25%    |
|                      | Quality of students               | 0.956               | 39.28% |
|                      | Accepted academic value           | 0.96                | 35.72% |
|                      | Academic atmosphere               | 0.948               | 28.89% |
| Working circumstance | Teaching and research environment | 0.968               | 17.78% |
|                      | Working strength                  | 0.954               | 25.56% |
|                      | Human relations                   | 0.95                | 27.77% |
| Organization system  | Appointment system                | 0.95                | 28.48% |
|                      | Financial system                  | 0.94                | 34.59% |
|                      | Professional titles evaluation    | 0.968               | 21.53% |
|                      | Performance appraisal system      | 0.978               | 15.4%  |

**Table 10.** Variables Score

|                     | Salary | Career Development | Reputation | Working Circumstance | Organization System | Job Satisfaction |
|---------------------|--------|--------------------|------------|----------------------|---------------------|------------------|
| Assistant           | 2.905  | 2.0304             | 1.6735     | 3.5644               | 3.1231              | 3.6000           |
| Bachelor            | 3.1541 | 2.4836             | 2.0892     | 3.3420               | 3.0044              | 3.4857           |
| Associate Professor | 3.4802 | 2.9136             | 2.3351     | 3.2853               | 2.9774              | 3.8293           |
| Professor           | 4.0656 | 3.3249             | 2.7019     | 3.3011               | 3.7820              | 4.4286           |
| Under 25 ys         | 3.4403 | 2.6532             | 2.0352     | 3.4811               | 3.4384              | 4.0000           |
| 25-35 ys            | 3.1550 | 2.4632             | 1.9745     | 3.3022               | 2.9836              | 3.5000           |
| 36-45 ys            | 3.3523 | 2.7626             | 2.3514     | 3.4784               | 3.0877              | 3.7600           |
| Over 46 ys          | 3.7682 | 3.0629             | 2.5325     | 3.0913               | 3.3269              | 4.0357           |

of academic atmosphere, teaching and training circumstance and human relations. As a result, hypothesis 4d is accepted.

It is obvious that male and female teachers have the same sense of organization system in universities. Interviewees within separate age groups have not significant difference in organization system. So, hypothesis 5a and 5b are rejected. However, teachers with different titles have distinct feeling in organization system except financial system. That is almost the same for teachers with different degree except performance appraisal system. Therefore, hypothesis 5c and 5d are accepted.

This paper uses entropy approach to give weights to the subsidiary indicators as showed in **Table 9**. For salary, basic wage and family placement play an important role for teachers. Future training system effects career development most. The three subsidiary indicators almost play the same role in reputation. As for working circumstance and organization system, academic atmosphere and professional appraisal system have the greatest impact on job satisfaction for teachers.

The final score of five variables are listed in **Table 10**.

Subsequently this paper will reorder the five variables with grey related analysis.  $X_i = (X_i(1), X_i(2), \dots, X_i(8)), i = 1, 2, \dots, 5$ ,  $X_1$  is salary incentive,  $X_2$  is career development incentive,  $X_3$  is reputation incentive,  $X_4$  is working circumstance incentive ;  $X_5$  is organization system.  $Y_0 = (3.6, 3.4857, 3.8293, 4.4286, 4, 3.5, 3.76, 4.0357)$ , which is the score of job satisfaction for teachers.

Therefore,  $\Delta_1 = (0, 0.1175, 0.1343, 0.1694, 0.0732, 0.1138, 0.1095, 0.1761)$ ;  $\Delta_2 = (0, 0.2550, 0.3713, 0.4074, 0.1956, 0.2409, 0.3162, 0.3875)$ ;  $\Delta_3 = (0, 0.2802, 0.3316, 0.3844, 0.1050, 0.2076, 0.3606, 0.3923)$ ;  $\Delta_4 = (0, 0.0306, 0.1420, 0.3040, 0.1345, 0.0458, 0.0686, 0.2538)$ ;  $\Delta_5 = (0, 0.0063, 0.1103, 0.0192, 0.0102, 0.0169, 0.0558, 0.0558)$ .

$$\min_i \min_k |X_0(k) - X_i(k)|; \max_i \max_k |X_0(k) - X_i(k)| = 0.4074$$

The grey relation coefficients are as follows.

$$\sigma_1 = |k=1, 2, \dots, 8) = (1, 0.6342, 0.6027, 0.5460, 0.7356, 0.6416, 0.6504, 0.5363)$$

$$\sigma_2 = |k=1, 2, \dots, 8) = (1, 0.4441, 0.3543, 0.3333, 0.5101, 0.4582, 0.3918, 0.3446)$$

$$\sigma_3 = |k=1, 2, \dots, 8) = (1, 0.421, 0.3805, 0.3464, 0.6599, 0.4953, 0.3610, 0.3418)$$

$$\sigma_4 = |k=1, 2, \dots, 8) = (1, 0.8692, 0.5892, 0.4012, 0.6023, 0.8165, 0.7481, 0.4453)$$

$$\sigma_5 = |k=1, 2, \dots, 8) = (1, 0.9702, 0.6486, 0.9139, 0.9525, 0.9234, 0.7850, 0.7851)$$

$$r_i = r_{0i} = \sum_{k=1}^8 \frac{\sigma_i(k)}{8}$$

$$r_1 = 0.6684 \quad r_2 = 0.6839 \quad r_3 = 0.5007 \quad r_4 = 0.4735 \quad r_5 = 0.8723$$

Finally, we reorder the five variables  $r_5 > r_2 > r_1 > r_3 > r_4$ .

## CONCLUSION AND RECOMMENDATION

Among the five factors, organization system plays an important role in job satisfaction for teachers. The reminders are career development, salary, reputation and working circumstance.

As for salary, it is age and profession title other than sexuality and paid holiday that effect salary satisfaction. The older the age is, more satisfied teachers are. That is the same to academic degree. Teachers pay more attention on basic wage and family placement.

Male teachers are more satisfied with training system and career development than female teachers. The higher profession titles and degrees are, more satisfied the teachers are in career development.

As for reputation is concerned, it is age and professional titles other than sexuality that effect reputation for teachers. The older the age is, more satisfaction the teachers are. The same is to professional titles. The teachers have almost the same satisfaction with different sexuality and titles. However, professional titles and degrees make more effect on organization system for teachers.

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