Construction of an Evaluation Indicator System for Employees' Well-Being Index from the Humanistic Perspective

Qinghua Jiang, P. L. Zhang, and Wei Yang
Traffic School, Wuhan University of Technology, Wuhan, P.C. China
Email: {jqh007, plzhang, yangwei_917}@126.com

Jack Xunjie Luo
Construct Headquarter, Shanghai International Port Group Company, Shanghai, P.C. China
Email: xluo106@yahoo.com

Abstract—These Employees' well-being is an important indicator of the social development and the working unit, as well as operating mechanisms and employees' satisfaction with living index .And employees' well-being index is an indicating measurement of employees' well-being in quantity. Based on Maslow's hierarchy of needs, this essay makes an in-depth research in exploring a scientifically evaluating method for employees' well-being, and constructs a calculating model for employees' well-being index from the perspective of evaluating indicators forming the core of employees' well-being such as employees' survival, harmony, development and so on.

Index Terms—employee well-being index, indicator system, evaluation model

I. INTRODUCTION

All the development of the country is for purpose of improving and enhancing people's wellbeing, as well as increasing their sense of happiness, which means to make people feel comfortable, safe and secure, and to make them feel confident about the future, which revealed the connotation of people's well-being in contemporary China in a scientific way. Developing the economy is just a kind of medium of improving the sense of happiness of the society. When the economy has reached a certain extent, such factors as social security, personal promotion opportunity, physical health, delighted mood, a happy marriage, a united family and harmonious interpersonal relationship matters no less than the economical factors such as the income and property in effecting the degree of people sense of happiness [1].

On people's psychological level, with the consistent improvement of living conditions, the level of individual demand is increased and shows itself in a trend of diversification. Therefore, the standard of meeting the needs is upgraded relatively. However, as a result of relative scarcity of natural resources, intensifying competition and quickened living tempo in modern times, people's feeling of pressure also increased, allthese influenced people's well-being tremendously.

For the purpose of increasing staff's well-being index, should construct staff's well-being evaluation index system, turn staff's experience of well-being into a series of concept of quantity, which means the index of happiness, know staff's well-being condition in a more intuitive way to make the transition from increasing the staff's income to promoting the comprehensive development come true, in order to maximize staff's well-being.

II. HUMANISTIC OUTLOOK ON WELL-BEING

Outlook on well-being is people's basic view of well-being, which means the evaluation of the overall feeling of the various activities people engage in and the experience of spiritual and material satisfaction they gain in those activities. Maslow the representative personage of humanistic view of happiness, he proposed Hierarchical Theory of Needs in his theories of motivation [2]. He divided people's motivations into two categories: insufficient motive and growth motive. There are different needs in each motivation, and was classified into five levels from low to high. And they are: physiological needs, safety needs, social needs, esteem needs and self-actualization needs. Proposition of this theory will help understand people's motivation structure and behavioral regularities [3]. The essential meaning of each level of needs is as follows.

A. Physiological Needs

It's the most original and basic physical needs to sustain individual existence, such as clothing, food, sleep, marriage, disease treatment, etc. In Maslow's view, when someone is lacked in food, safety, love or values at the same time, the most urgent need would be the food obviously. Meanwhile, he thinks that when physiological

needs acquired relative satisfaction, people would expect to meet the needs of a higher level.

B. Safety Needs

Safety needs are the needs of people to avoid damage and disaster, to seek protection and rely on to sustain individual existence. Such as health and safety, labor protection, stability, social order and public security, etc. One can never get away from safety needs in a lifetime, however, the needs is strongest in one's childhood. Nevertheless, if protected excessively in one's childhood, the sense of security may become his "exclusive" motivation or develop into a compulsivity of seeking the sense of security in his adulthood, and may always want to live in a safe and well-organized society. Maslow named this needs of people as insufficient motive and consider this kind of people too law-abiding and would never create innovations.

C. Social Needs

Social needs are also called love and belonging needs. In Maslow's view, when people's food and safety needs are ensured, they would have a higher level of social needs and expect to gain love and friendship. They make friends with others well, trust each other and have a harmonious interpersonal relationship. And hope to become a member of a particular group, and have a sense of belonging in the society, an individual belongs to a certain group. Apparently, as a result of the differences of individual's physical and mental features, social experiences and personal beliefs, the extent of meeting needs may be different. Once social needs became the most important need of people, harmonies of social interaction would be shape and maintained.

D. Esteem Needs

Esteem needs is a higher level of needs than social needs, which includes two aspects, self-esteem and being esteemed. Self-esteem means to respect oneself, such as independence, freedom, self-confidence, achievements, etc. Being esteemed means being respected by others, such as personal reputation, social status, social recognition, acquirement of job title, salary boost, etc. It's the needs of personal honor and disgrace, and it will become strong and lead to motivation force only after the three previous levels of needs are met. In the process of satisfying these needs, people's self-confidence and self-concert will be enhanced, otherwise, inferiority complex will emerge.

E. Self-Actualization Needs

When the previous needs are met, in order to pursue for the realization of self-value, dream and belief, and to give full play to all individual ability, people would do things which are meaningful and valuable in his view. This kind of needs is so called self-actualization needs as well as freedom-creating needs.

Maslow's humanistic outlook on well-being claims that the satisfaction of each needs is positive for people's experience of well-being, otherwise, he is unhappy.

III. PRINCIPLES OF CONSTRUCTING STAFF'S WELL-BEING EVALUATION INDEX SYSTEM

A specific and quantized index system is needed in evaluating staff's well-being. When selecting and confirming the well-being evaluation index system, the following principles should be followed [4]:

A. People-Oriented Principle with the Combination of Subjectivity and Objectivity

The construction of staff's well-being evaluation index system should firstly adhere to the people-oriented guiding ideology and manifest the purpose of improving people's life and solidifying people's hearts, meanwhile, reflect the real situation of staff's material and spiritual life as much as possible. Secondly, we should combine the subjective and objective indexes in constructing the system. Among these two indexes, the objective one reflects the material needs of improving living quality and sense of happiness of staffs of different levels and units comprehensively. Meanwhile, the subjective index reflects the staff's satisfaction degree of the current life, as well as their deeper demands in spiritual level.

B. Principle of Comprehensiveness and Non-Repeatability

Among staff's well-being evaluation index system, indexes which reflects the research object should be neither repeated nor missed. Repetition may lead to ambiguousity of each index's independent meaning, and increase the workload of calculation at the same time. Incomprehensiveness will lead to .Therefore, the design of the index system have to be comprehensive and non-repeatable.

C. Principle of Determinacy and Operability

The index of evaluating staff's well-being should be specific and clear, the concept of it should be distinct. The uncertainty of the meaning of evaluation index will not only bring difficulty to the evaluation, but also decrease the reliability of the result. Therefore, content of the selected index should be clear and specific to facilitate the evaluation. Content of the evaluation index should confirm to the policy and reality of the trade in order to be operable.

D. Principle of Quantifiability and Availability

Both subjective index and objective index should be quantified. The form of scale is often used in quantifying index of staff's well-being evaluation index system. Availability of the index should also be taken into consideration, as well as the share and use of statistical system data, the cost and efficiency of data collection.

IV. CONSTRUCTION OF EVALUATION INDEX SYSTEM

The happiness index is the quantification of the sense of happiness, which mainly means the evaluation that people make for the degree of satisfaction of their living conditions based on their value standard and subjective preference. The staff happiness index is the menstruation and quantification analysis of the sense of happiness of

the staff, which is the comprehensive index system measuring the harmonious development between the co-ordinary development of such factors as economy, politics, culture and environment inside company and the mental and physical state of the staff [5].

TABLE I.   CONTENTS OF EACH INDICATION

	Evaluation indication	Evaluation contents
Survival index	Economic income	Reflect the degree of staff's satisfaction of the wages and the total income
	Medical insurances	Reflect the degree of staff's satisfaction of the medical security system of the company.
	Holiday system	Reflect the degree of staff's satisfaction of the regulation of furlough, such as interval at work, vacation, home leave, legal holiday.
	Facilities prosperities	Reflect the degree of staff's satisfaction of the welfare service and facilities in the company
	Family life	Reflect the degree of staff's satisfaction of their house condition, marriage and living condition.
	Physical and mental health（R11）	Reflect the degree of staff's satisfaction of their conditions of physical health and mental health
	Working environment（R11）	Reflect the degree of staff's satisfaction of the working environment, workload, work time, job category, safety control and the developing speed of the company
Harmony index	Production facility(R12)	Reflect the degree of staff's satisfaction of the construction of productive facilities
	Office equipment(R13)	Reflect the degree of staff's satisfaction of working environment, for example, whether the office equipment and supplies are sufficient and whether it's convenient for work at office
	Traffic condition(R14)	Reflect the degree of staff's satisfaction of everyday's traffic conditions out and home, for example whether there's long time's traffic jam
	Events organization	Reflect the degree of staff's satisfaction of the activities that the company organizes for the staff, such as the sports and literary and art activities.
	Income gap（R15）	Reflect the degree of staff's (especially the front-line staff) acceptance level of the income differential between the management echelon and ordinary workers.
	Democratic management（R16）	Reflect the degree of staff's satisfaction of their rights, such as their rights to know, to participate in, to express and supervise, as well as the equality and channels of expressing their appeals.
	Interpersonal communication（R17）	Reflect the degree of staff's satisfaction of their condition of being respected and trusted, the condition of being helped when in trouble and colleague relations and cadre-mass relations
	Industrial culture（R18）	Reflect the degree of staff's satisfaction of the spirit and ethos of the company, the relation between the company and the nature and society.
Develop index	Quality enhancement	Reflect the degree of the company's satisfaction of the improvement of the quality of the staff, for example, whether it is satisfied with the upgrading of the staff's education and their investment in professional training.
	Promotion space	Reflect the degree of staff's satisfaction of expectance of the development and the opportunity and channel of promotion.
	Value realization	Reflect the degree of staff's satisfaction of their expectance of the future, the confidence of releasing their goal and the acceptance between each other.

By using the concrete happiness index system to know and analyze the sense of happiness of staff and to provide the basis of improving their sense of happiness, the win-win situation can be achieved in the end.

Based on the principle of the establishment of index and referring to the relevant study results of happiness index home and abroad, the sense of happiness of staff can be generalized to the measure and analysis of emotional experience of living, harmony and development according to Maslow's hierarchy of needs. During the research, a survey has been made based on the preparatory plan, then by analyzing the results of survey, it can be deduced that the main factors affecting the sense of happiness of staff are the objective factors such income, health, education and the subjective factors such as the degree of satisfaction of life and the richness of the spiritual life. By further analysis and induction, 18 second level primary evaluation indications are put forward to reflect the first level indications. They are income, medical insurance, furlough regulation, welfare facilities, domestic life, mental and physical health, quality improvement, activity organization, promotion opportunity, value realization, work environment,

production facilities in front line, office equipment and facilities, traffic condition to work, income gap, democratic administration, interpersonal relationship, enterprise culture.For details, see Table I.

By the application of combining Delphi method with fuzzy analysis hierarchy process and the analysis of the degree of membership of the elementary selected indications, the degree of membership of the eighteen evaluation indication can be got, see Table II.

TABLE II.   THE DEGREE OF MEMBERSHIP OF THE INDICATIONS

Evaluation index	Membership grade	Evaluation index	Membership grade
income	1	traffic	0.062
Medical treatment	0.809	Leisure activities	0.643
Holiday system	0.578	Income gap	0.275
Welfare facilities	0.789	Democratic management	0.544
Family life	0.575	Interpersonal communication	0.433
Physical and psychological health	0.521	Industrial culture	0.522
Working environment	0.421	Quality promotion	0.682
Production facility	0.252	promotion	0.673
Office equipment	0.121	Value evaluation	0.701

Deleting those evaluation indexes whose membership value are lower than 0.4, we can get 14 evaluation indexes which composes of the two-grade index concerning the evaluation of the worker's happiness. In this way, we can build a worker's happiness evaluation system as follows Table III.

TABLE III.   INDEX SYSTEM OF WORKER'S HAPPINESS

Index level 1	Index level 2	Examine indication
Survival index	Economic income	Wage level, the total revenue, boon and welfare
	Medical insurance	Medical insurance, frequency and quality of physical examination, serious diseases insurance
	Holiday system	Interval in work, furlough, vacation, home leave, legal holiday
	Welfare facilities	Canteen, dormitory of staff, activation centre
	Family life	House condition, marriage, and living condition
	Physical and mental health	Physical health and mental health
	Working environment	Working environment, workload, work time and job category
Harmonious index	Democratic management	Information disclosure, democratic rights, sense of democratic administration, channels of expressing appeal
	Interpersonal communication	Colleague relation, situation of being helped, degree of being trusted, cadre-mass relations
	Industrial culture	the ethos, mental outlook, relation between company and nature and society
	Events organization	Body-building, athletic competition, literary and art activities
Development index	Quality enhancement	Educational investment、condition of environment, study atmosphere

	Promotion space	Promotion opportunity, promotion approach, impartial environment
	Value realization	confidence in achieving goals, acceptance of each other

V.   COMPUTING MODEL

A.   Determination of Index Weight

In the process of determining the index weight, analytic hierarchy process is adopted. The first thing to do is to choose the system of evaluation index and then compare the importance of all evaluation index from scale 1-9 in pairs. After regularizing and normalizing the matrix, the consistency of judgment matrix should be tested to conclude the relative weight of each index at all scales. Frequently-used 1-9 evaluated scale of pair-comparison, as shown in Table IV.

TABLE IV.   EVALUATION SCALE

Item	Utmost	Great	importance	Weak	Similar
score	9	7	5	3	1

2, 4, 6, 8 lie in the between of the above scores, so do their indication of the index's importance. Supposing that activity I has a score relative to activity J, then the score of activity J is the reciprocal of that of I. The initial contrastive matrix '$R_{n \times n}$' the expert has given use the 1-9 phase scale as the digital number of R_{ij} in the matrix. As the follow formula shows

$$R = \begin{pmatrix} 1 & a_{12} & \cdots & a_{1n} \\ a_{21} & 1 & \cdots & a_{2n} \\ \vdots & \vdots & \vdots & \\ a_{n1} & a_{n2} & \cdots & 1 \end{pmatrix}$$

In the formula： $a_{ij} = \dfrac{1}{a_{ji}} \cdots a_{ij} > 0$

The formula of calculation of the weight of indications in each layer, in other words, the calculation of root mean square of all the elements in every line in the judgment matrix is as follow：

$$C_{ij} = \sqrt[n]{\prod_{j=1}^{n} \alpha_{ij}} \, (i = 1, 2, \ldots n) \tag{1}$$

TABLE V.   INDEX WEIGHT OF WORKER'S WELL-BEING

Objective	1ST class Index	Weight	2nd Class Index	Weight
Well-being Index	Survival Index	0.5	Economic Income	0.3
			Health Care	0.2
			Vacation System	0.1
			Welfare Facilities	0.1
			Family Life	0.1
			Physical and Mental Health	0.2
			Work Environment	0.3
	Harmony Index	0.3	Democratic management	0.2
			Event Organization	0.1
			Interpersonal Communication	0.3
			Industrial Culture	0.2

	Development Index	0.2	Quality Enhancement	0.2
			Promotion Space	0.3
			Value Realization	0.4

Normally, comparative matrix is not uniform matrix. On account of this, to determine the permissible range of the inconsistency of the matrix, consistency indicator RI is introduced. It can be calculated that RI=0, which meets the inconsistency test then to calculate the final weight, shown as Table V.

B. Assessment Models of Worker's Well-being

The assessment models of worker's well-being are basically synthetic index model and weighted average method. This section chiefly introduces the synthetic index model,that is using the average score of all the surveying data of each index as the standard value of each index [6]. In the case of different classification, this method can be applied to compare the advantages and disadvantages and put in order as well. Comparing base is optional according to the research purpose [7]. To present comparing result in a more intuitive way, hundred mark is employed as the comparing base. Therefore, class index is a relative index.

Concrete Calculating Model is as follows:

$$A_{ij} = \frac{\sum_{q=1}^{n} a_{ijq}}{n} \quad B_i = \sum_{j=1}^{m} A_{ij} \quad M_i = \frac{b_i}{B_i} \quad M = \sum_{i=1}^{l} M_i \times W_i \quad (2)$$

$$\begin{cases} i = (1,2,\cdots l) \\ j = (1,2,\cdots m) \\ q = (1,2,\cdots n) \end{cases}$$

Of which:

a_{ij} is the score of the examined indication of number j of the indication of number i of the person of number q;

A_{ij} is the average score of the examined indication of number j of the indication of number i;

B_i is the average score of the indication of number i;

b_i is the average score of the indication of number i under a certain condition of classification;

M_i is the happiness index of the indication of number i under a certain condition of classification;

W_i is the weight of the indication of number i;

M is the happiness index of a certain condition of classification;

l is the number of the indication of evaluation of the evaluation system;

m is the amount of inquiry question focused on a certain indication;

n is the total number of people that take part in the questionnaire survey

VI. APPLICATION OF THE ASSESSMENT MODEL

To assess worker's well-being in a relatively accurate way, synthetic index method should be used in a combination with the weighted average method. This section mainly explores how to apply synthetic index assessing model.

A. Application Examples of Synthetic Index Method

This survey of worker's well-being conducts spot checks of 12 fairway units in a certain part of Wuhan City.

It selects at least 60% workers from these spots including front line workers, technical personnel, and management layer. Participated male/female ratio is 4:1l; proportions of each age groups are: 20-30s (20%), 30-40s (30%), 40-50s (30%), over 50s(20%) [8].

Participants of this survey consist of 2462 workers, among which 149's questionnaires are incomplete. Hence the actual data is from 2313 valid questionnaires.

B. Actual Meaning of the Result

We can see from the analysis of Table VI:

(1) The general well-being indexes of different age groups have significant differences. The well-being index of staff aged 20-30 is the highest while the index is lower among 30-40, 40-50 and over 50.

(2) In respects such as economic income, medical security, physical and mental health, quality promotion as well as working environment, the well-being indexes of different age groups also have significant differences. The well-being index of staff aged 20-30 and over 50 is the higher while the index is lower among 30-40, 40-50.

(3) In respects such as facilities prosperity, activity organization, promotion space, value realization, democratic management, interpersonal communication and industrial culture, The well-being index of staff aged 20-30 is the highest, while the index is lower among 30-40, 40-50 and over 50. Meanwhile, in the aspect of family life, there's no obvious difference among staff from different age groups.

TABLE VI. RESULT OF WORKER'S WELL-BEING OF EACH AGE GROUP

Index	20-30s	30-40s	40-50s	Over 50s
Economic Income	104.12	99.59	97.76	104.12
Health Care	106.31	99.00	97.12	106.31
Vacation System	104.04	99.37	97.43	104.04
Welfare Facilities	107.83	99.57	96.57	107.83
Family Life	98.08	100.99	99.83	98.08
Physical and Mental	105.16	98.41	98.41	105.16
Quality Enhancement	104.33	99.93	97.37	104.33
Event Organization	105.73	100.41	96.49	100.19
Development Space	107.03	99.28	96.90	99.59
Value Realization	104.81	98.97	98.36	99.57
Work Environment	103.79	98.38	98.72	101.44
Democratic Management	108.06	99.20	96.84	98.37
Interpersonal Communicati	105.91	99.14	98.29	97.70
Industrial Culture	104.51	99.04	98.71	98.87

(4) In general, sense of happiness of staff of the two age groups of 20-30 and over 50 is relatively higher; the 30-40 take the second place, while the 40-50 groups is the

lowest. This indicates that under this kind of classification condition, a single staff's feeling about the index is lower than the average feeling of all the staff. The lower the mark is, the lower their sense of happiness is, which needs to be improved. Meanwhile, through analyzing the exact figures of each index under this classification condition, the need of improving in some aspects can be determined.

In general, constructing staff's well-being index evaluation model is for the purpose of quantizing the subjective experience of staff's well-being, and to calculate the index with model to measure staff's well-being degree. However, we should treat the index in a scientific way, and to be clear that well-being is the target but not the method. To a large extent, well-being is the result of compare, and it's also the subjective experience of an individual. The index of happiness is the statistic result and quantification of the degree of this experience. It reflects the experiences of some generalities rather than the particularity. Therefore, we should pay more attention on the process rather than the current situation when concerning about the well-being index.

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Qinghua Jiang was born in Sichuan China in Oct 1965, vice-professor, Ph.D. candidate in Traffic School, Wuhan University of Technology (WHUT), Wuhan, P.C. China, the study major is the transportation management and planning. In past years, he already published a little of researching papers, the interesting and research field have covered on Transportation Management, Human Resource Management, Process Control and so on.

P. L. Zhang, he is Professor in Traffic School of Wuhan University of Technology, his researching fields have covered water way transportations, the inland transportation management, logistics management, maritime and shipping management and so on.

Wei Yang, he is a Ph.D. candidate in Traffic School of WHUT. His interesting researching areas are the logistics management, the mathematic modeling, the optimization for logistics processes, and so on.

Jack Xunjie Luo, was born in Hubei China in Aug 1967, director of construct headquarter of Shanghai International Port Group (SIPG), Shanghai China. He was working for top 500 global companies over 12 years in maritime industry, his research areas are port and terminal management, operation research, optimization of logistics system, and so on.