Personnel Selection Method Based on Personnel-Job Matching

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Abstract

The existing personnel selection decisions in practice are based on the evaluation of job seeker's human capital, and it may be difficult to make personnel-job matching and make each party satisfy. Therefore, this paper puts forward a new personnel selection method by consideration of bilateral matching. Starting from the employment thoughts of "satisfy", the satisfaction evaluation indicator system of each party are constructed. The multi-objective optimization model is given according to the job seekers satisfaction and jobs satisfaction. By the method of fuzzy multi-objective optimization model, based on the thought of "disadvantage" is as shorter as better, the selection results are obtained. The effectiveness and feasibility of the proposed method is illustrated by an example.

Keywords: Personnel selection, Matching, Fuzzy multi-objective optimization model

1. Introduction

With the development of society, human capital is becoming more and more important. Personnel selection is the beginning part of the whole human resources management, how to select the fit personnel is a hot top in the field of business management. Personnel-job matching has the important influence on improving company performance and gaining competitive advantage (Golec, A. & Kahya, E., 2007). In fact, most of the companies select personnel from the single perspective of the organization, they ignore the needs of personnel, it is very dangerous, because it may cause a series of bad results, such as dissatisfaction, leaving, and so on. Based on the above questions of unilateral thought, this paper puts forward a new angle of view, in the selection process, we take consideration of both the satisfaction of personnel and job, and in order to reduce the risk of employment, we make the lowest point of competency and need as much as possible as objective function, so we can get the double win results.

2. Satisfaction Indication System Construction

2.1 Job Seeker Satisfaction Indication System

According to the references and field research, and combine with the experts' opinions, competency model of job satisfaction is shown in Figure 1.

2.2 Job Satisfaction Indication System

According to the references and field research, and combine with the experts' opinions, the needs job seekers with their work are shown in Figure 2.

3. Selection Method Based on Personnel-Job Bilateral Matching

3.1 Personnel-Job Bilateral Matching Problem Description

Assuming that job seekers is $X = \{X_1, X_2,\ldots,X_n\}$, where X_i expresses the i-th job seeker; The set of jobs is $Y = \{Y_1,Y_2,\ldots Y_m\}$,where Y_j represents the j-th job. Evaluation index set of matching satisfaction given by jobs to job seekers is $B= (B_1,B_2,\ldots,B_f)$, where B_h says the h-th index (h=1,2…f); the weight vector of evaluation index corresponding to the B is $w = (w_1, w_2, \ldots w_f)$, where w_h represents the index weight of B_h, $0\leq w_h\leq 1$, $\sum_{h=1}^{f} w_h = 1$; multi-criteria linguistic assessment information of matching satisfaction degree given by jobs to job seekers is

recorded by $\overline{A}_h = \left[\overline{a}_{hij}\right]_{n\times m}$, $\overline{a}_{hij}$ is expressed as Y_j given for X_i on index B_h's matching satisfaction language evaluation value. Assuming that evaluation index set of matching satisfaction given by job seekers to jobs is D = $(D_1,D_2,\ldots D_k)$,where D_q says the q-th index (q=1,2,…k); the weight vector of evaluation index corresponding to the D is $v=(v_1,v_2,\ldots v_k)$, where v_q represents the index weight of D_q, $0\le V_q\le 1, \sum_{q=1}^{k} v_q = 1$; multi-criteria linguistic assessment information of matching satisfaction degree given by job seekers to jobs is recorded by $\overline{B}_q = \left[\overline{b}_{qij}\right]_{n\times m}$,where $\overline{b}_{qij}$ is expressed as X_i given for Y_j on index D_q's matching satisfaction language evaluation value. We can get w and v through the simple average method criterion. Assuming that seekers or jobs select an element from predefined language evaluation set S as his preference evaluation, that is to say, provide $\overline{a}_{hij}$ and $\overline{b}_{qij}$. S is constituted by the ordered collection of an odd number of elements, $S=\{S_1,S_2,\ldots S_T\}$, S_i is the i-th language phrase, i={0,1,…T}, According to the actual situation, Language phrase set consists of five or seven granularity language phrase by predefined.

In summary, the problem to be solved in this paper is job seekers and jobs on linguistic assessment information of multiple Indicator satisfaction ($\overline{A}_h$ and $\overline{B}_q$) and the weight vector of evaluation index (w and v), through some sort of decision analysis methods, let job seekers and jobs match reasonably, trying to make both the needs or requirements achieve satisfactory results.

3.2 Fuzzy Multi-Objective Decision Method

In order to deal with linguistic assessment information, take language phrase into triangular fuzzy number (Li, R.J., 1999). It's recorded in formula (1).

$$\tilde{A} = (\mathrm{d}^{\mathrm{l}},\mathrm{d}^{s},\mathrm{d}^{\mathrm{r}}) = \left[\max\left\{(\mathrm{i}-1)/\mathrm{T},0\right\},\ \mathrm{i}/\mathrm{T},\ \min\left\{(\mathrm{i}+1)/\mathrm{T},1\right\}\right], \mathrm{i} = (0,1,2,\ldots\mathrm{T}) \tag{1}$$

Transform evaluation matrix $\overline{A}_h = \left[\overline{a}_{hij}\right]_{n\times m}$ and $\overline{B}_q = \left[\overline{b}_{qij}\right]_{n\times m}$ into the form of triangular fuzzy numbers $\tilde{A}_h = \left[\tilde{a}_{hij}\right]_{n\times m}$, $\tilde{B}_q = \left[\tilde{b}_{qij}\right]_{n\times m}$, fuzzy comprehensive evaluation value of matching satisfaction degree given by jobs to job seekers is recorded as $\tilde{\alpha}_{ij} = (\alpha_{ij}^{l},\alpha_{ij}^{s},\alpha_{ij}^{r})$, and fuzzy comprehensive evaluation value of matching satisfaction degree given by job seekers to jobs is recorded as $\tilde{\beta}_{ij} = \left(\beta_{ij}^{l},\beta_{ij}^{s},\beta_{ij}^{r}\right)$. The calculation formula of $\tilde{\alpha}_{ij}$and $\tilde{\beta}_{ij}$ are respectively expressed in formula (2).

$$\begin{aligned}
\tilde{\alpha}_{ij} &= (\alpha_{ij}^{l},\alpha_{ij}^{s},\alpha_{ij}^{r}) = \left[\sum_{h=1}^{f} w_h\alpha_{hij}^{l}, \sum_{h=1}^{f} w_h\alpha_{hij}^{s}, \sum_{h=1}^{f} w_h\alpha_{hij}^{r}\right], \mathrm{i} = 1,2,\ldots \mathrm{n};\ \mathrm{j} = 1,2,\ldots \mathrm{m} \\
\tilde{\beta}_{ij} &= (\beta_{ij}^{l},\beta_{ij}^{s},\beta_{ij}^{r}) = \left[\sum_{q=1}^{k} v_q b_{qij}^{l}, \sum_{q=1}^{k} v_q b_{qij}^{s}, \sum_{q=1}^{k} v_q b_{qij}^{r}\right], \mathrm{i} = 1,2,\ldots \mathrm{n};\ \mathrm{j} = 1,2,\ldots \mathrm{m}
\end{aligned} \tag{2}$$

Assuming that x_{ij} means the matching of X_i and Y_j. According to Xi Chen & Zhiping Fan (2009), the fuzzy multi-objective optimization model is shown in formula (3).

$$\begin{aligned}
&Max\ z_1 = \sum_{i=1}^{n}\sum_{j=1}^{m} \tilde{\alpha}_{ij} x_{ij} \\
&Max\ z_2 = \sum_{i=1}^{n}\sum_{j=1}^{m} \tilde{\beta}_{ij} x_{ij} \\
&\mathrm{s.t.} \\
&\sum_{j=1}^{m} x_{ij} \le 1 \qquad i = 1,2,\ldots n \\
&\sum_{i=1}^{n} x_{ij} \le q_j \qquad j = 1,2,\ldots m \\
&x_{ij} = 0\ or\ 1
\end{aligned} \tag{3}$$

For the above formula (3), there are two objective functions, which are expressed respectively as: make jobs to job seekers satisfaction maximum and make job seekers to jobs satisfaction maximum as much as possible; there are three constraint conditions, which are expressed respectively as: X_i is assigned to one post at most; Y_j can recruit q_j employees at most; $x_{ij}=0$ says Xi and Yj don't match, $x_{ij}=1$ says Xi and Yj is matching.

Here the method given in Zimmermann, H.J (1978) & Lai, Y. & Hwang, C. (1992), in order to solve the above optimization model and considering the objective function with fuzzy number case, transform the model (3) into the optimization model which includes the form of definition digital. It's shown in formula (4).

$$z_1^l = \sum_{i=1}^{n}\sum_{j=1}^{m}\alpha_{ij}^l x_{ij}, z_1^s = \sum_{i=1}^{n}\sum_{j=1}^{m}\alpha_{ij}^s x_{ij}, z_1^r = \sum_{i=1}^{n}\sum_{j=1}^{m}\alpha_{ij}^r x_{ij};$$
$$z_2^l = \sum_{i=1}^{n}\sum_{j=1}^{m}\beta_{ij}^l x_{ij}, z_2^s = \sum_{i=1}^{n}\sum_{j=1}^{m}\beta_{ij}^s x_{ij}, z_2^r = \sum_{i=1}^{n}\sum_{j=1}^{m}\beta_{ij}^r x_{ij}; \quad (4)$$

In line with the human-oriented idea, this paper takes consideration of risk, tries to make the risk lowest by maximizing $z_1^l, z_2^l, z_1^s - z_1^l, z_1^r - z_1^l, z_2^s - z_2^l, z_2^r - z_2^l$, transform triangular fuzzy number of objective function into clear number, so fuzzy multi-objective optimization model (3) can be transformed into following linear multi-objective programming model. It's shown in formula (5).

$$\begin{aligned}
&Max\, z_1' = z_1^l \\
&Max\, z_1'' = (z_1^s - z_1^l) = \sum_{i=1}^{n}\sum_{j=1}^{m}(\alpha_{ij}^s - \alpha_{ij}^l)x_{ij} \\
&Max\, z_1''' = (z_1^r - z_1^l) = \sum_{i=1}^{n}\sum_{j=1}^{m}(\alpha_{ij}^r - \alpha_{ij}^l)x_{ij} \\
&Max\, z_2' = z_2^l \\
&Max\, z_2'' = (z_2^s - z_2^l) = \sum_{i=1}^{n}\sum_{j=1}^{m}(\beta_{ij}^s - \beta_{ij}^l)x_{ij} \\
&Max\, z_2''' = (z_2^r - z_2^l) = \sum_{i=1}^{n}\sum_{j=1}^{m}(\beta_{ij}^r - \beta_{ij}^l)x_{ij} \\
&s.t. \\
&\sum_{j=1}^{m} x_{ij} \le 1 \qquad i = 1, 2, \ldots n \\
&\sum_{i=1}^{n} x_{ij} \le q_j \qquad j = 1, 2, \ldots m \\
&x_{ij} = 0 \text{ or } 1 \qquad i = 1, 2, \ldots n;\ j = 1, 2, \ldots m
\end{aligned} \quad (5)$$

Respectively set and obtain positive ideal solution and negative ideal solution of each of the above objective function, it's shown in formula (6).

$$\begin{aligned}
&z_1'^{+} = Max z_1^l, z_1'^{-} = Min z_1^l \\
&z_1''^{+} = Max(z_1^s - z_1^l), z_1''^{-} = Min(z_1^s - z_1^l) \\
&z_1'''^{+} = Max(z_1^r - z_1^l), z_1'''^{-} = Min(z_1^r - z_1^l) \\
&z_2'^{+} = Max z_2^l, z_2'^{-} = Min z_2^l \\
&z_2''^{+} = Max(z_2^s - z_2^l), z_2''^{-} = Min(z_2^s - z_2^l) \\
&z_2'''^{+} = Max(z_2^r - z_2^l), z_2'''^{-} = Min(z_2^r - z_2^l)
\end{aligned} \quad (6)$$

According to the positive and negative ideal solution of each objective function, we can calculate the corresponding membership function $\mu(z_1'), \mu(z_1''), \mu(z_1''')$ and $\mu(z_2'), \mu(z_2''), \mu(z_2''')$, its computation formula respectively are recorded in formula (7).

$$
\begin{aligned}
\mu(z_1') &= \begin{cases} 1, & z_1' \succ z_1'^{+} \\ \dfrac{z_1' - z_1'^{-}}{z_1'^{+} - z_1'^{-}}, & z_1'^{-} \le z_1' \le z_1'^{+} \\ 0 & z_1' \prec z_1'^{-} \end{cases} \\
\mu(z_1'') &= \begin{cases} 1, & z_1'' \succ z_1''^{+} \\ \dfrac{z_1'' - z_1''^{-}}{z_1''^{+} - z_1''^{-}}, & z_1''^{-} \le z_1'' \le z_1''^{+} \\ 0 & z_1'' \prec z_1''^{-} \end{cases} \\
\mu(z_1''') &= \begin{cases} 1, & z_1''' \succ z_1'''^{+} \\ \dfrac{z_1''' - z_1'''^{-}}{z_1'''^{+} - z_1'''^{-}}, & z_1'''^{-} \le z_1''' \le z_1'''^{+} \\ 0 & z_1''' \prec z_1'''^{-} \end{cases} \\
\mu(z_2') &= \begin{cases} 1, & z_2' \succ z_2'^{+} \\ \dfrac{z_2' - z_2'^{-}}{z_2'^{+} - z_2'^{-}}, & z_2'^{-} \le z_2' \le z_2'^{+} \\ 0 & z_2' \prec z_2'^{-} \end{cases} \\
\mu(z_2'') &= \begin{cases} 1, & z_2'' \succ z_2''^{+} \\ \dfrac{z_2'' - z_2''^{-}}{z_2''^{+} - z_2''^{-}}, & z_2''^{-} \le z_2'' \le z_2''^{+} \\ 0 & z_2'' \prec z_2''^{-} \end{cases} \\
\mu(z_2''') &= \begin{cases} 1, & z_2''' \succ z_2'''^{+} \\ \dfrac{z_2''' - z_2'''^{-}}{z_2'''^{+} - z_2'''^{-}}, & z_2'''^{-} \le z_2''' \le z_2'''^{+} \\ 0 & z_2''' \prec z_2'''^{-} \end{cases}
\end{aligned} \tag{7}
$$

According to the calculated membership function, through Zimmermann, H.J (1978), transform formula (5) which expresses multi-objective programming model into the following single-objective linear programming model. It's shown in formula (8).

$$
\begin{aligned}
&\mathrm{Max}\ \lambda \\
&s.t. \\
&\lambda \le \mu(z_1') \\
&\lambda \le \mu(z_1'') \\
&\lambda \le \mu(z_1''') \\
&\lambda \le \mu(z_2') \\
&\lambda \le \mu(z_2'') \\
&\lambda \le \mu(z_2''') \\
&\sum_{j=1}^{m} x_{ij} \le 1 \qquad i = 1, 2, \ldots n \\
&\sum_{i=1}^{n} x_{ij} \le q_j \qquad j = 1, 2, \ldots m \\
&x_{ij} = 0 \ or \ 1 \qquad i = 1, 2, \ldots n;\ j = 1, 2, \ldots m \\
&0 \le \lambda \le 1
\end{aligned} \tag{8}
$$

In order to solve the above single-objective linear programming model, we can use Lingo software, or programming way.

4. Numerical Example

An iron and steel enterprise in China intends to select knowledge workers in four positions (Y_1, Y_2, Y_3, Y_4), after qualifying examination, eight job seekers (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8) come to apply for the job. According to fuzzy multi-objective decision method above, use seven granularity language evaluation set as shown in table 1 in order to make the job seekers and jobs achieve satisfactory at the same time. Through the statistical analysis, using the simple average criterion, draw the corresponding weight vector: w= (w_1, w_2, w_3, w_4, w_5) = [0.200, 0.200, 0.200, 0.200, 0.200]. At the same time, through the statistical analysis, draw the corresponding weight vector using the simple average criterion: v= (v1, v_2, v_3, v_4, v_5) = [0.200, 0.200, 0.200, 0.200, 0.200].

Table 2 shows multi-criteria linguistic assessment information of matching satisfaction degree given by jobs to job

seekers, the information for job seekers is given through comparative analysis of actual level and reference post competency required level in the index. That is: relative to the job in the index requirements concerned, the job seekers' competent degree. Table 3 shows multi-criteria linguistic assessment information of matching satisfaction degree given by job seekers to jobs, this information reflects the satisfaction degree of job seekers on the job indicators. Table 2 and table 3 shows that multi-index matching satisfaction evaluation information is the form of linguistic assessment information. Assuming that every job invite to consider the number is $q_j = 3$ (j = 1, 2, 3, 4). Based on the given method, first, transform the multi-index linguistic assessment information given by employees and positions into the form of triangular fuzzy numbers, then use formula (2) for multiple Indicator information assembled computing, respectively get: fuzzy comprehensive evaluation value of matching satisfaction degree given by jobs to job seekers and fuzzy comprehensive evaluation value of matching satisfaction degree given by job seekers to jobs. Respectively as shown in Table 4 and Table 5.

According to the formula (3), establish a fuzzy multi-objective optimization model about jobs and job seekers matching, then in accordance with the method given, transform it into single objective linear programming model.

We can use Lingo optimization package to solve the optimization model here, by calculating, we get six positive and negative ideal solution of objective function as shown in table 6.

Thus obtain the optimal solution of the optimization model:

$x_{11}=0;x_{12}=0;x_{13}=0;x_{14}=1;x_{21}=0;x_{22}=0;x_{23}=1;x_{24}=0;x_{31}=0;x_{32}=1;x_{33}=0;x_{34}=0;x_{41}=0;x_{42}=0;x_{43}=1;x_{44}=0;$

$x_{51}=0;x_{52}=1;x_{53}=0;x_{54}=0;x_{61}=1;x_{62}=0;x_{63}=0;x_{64}=0;x_{71}=0;x_{72}=0;x_{73}=0;x_{74}=1;x_{81}=1;x_{82}=0;x_{83}=0;x_{84}=0.$

According to the optimal solution of the above-obtained, knowledge workers and job matching results is: Y1 matches with X6, X8; Y2 match with X3, X5; Y3 matches with X2,X4; Y4 matches with X1,X7.

5. Conclusions and Innovations

This paper puts forward a new personnel selection method according to the satisfaction of both job seekers and organizations which can obtain more effective personnel; it can be used as decision making reference. It has the following innovation points:

Firstly, it is different from the only recruiting parts with decision making power, the decision making methods takes consideration of job seeker' needs, it is human-oriented, under the guide of this, the selection result will be more sustainable.

Secondly, for the consideration of risk, this paper makes the risk lowest from the following two perspectives: on the one hand, from the perspective of recruiting organization, by the application of this method, it can get the least disadvantage about competency personnel on the whole. On the other hand, from the perspective of job seeks, by the application of this method, it can get the least dissatisfaction about the job from an overall point of view.

Last but not the least, this paper constructs a new optimization model for personnel selection, the way for changing the fuzzy to the precise number about the goal function is new, it can be seen as an innovation try, which can be used as reference for other fuzzy optimization methods.

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Table 1. Linguistic terms with 7 granularity and corresponding triangular fuzzy numbers

language phrases	corresponding triangular fuzzy numbers
S_0=AP(extremely poor/extremely low/ extremely dissatisfied)	(0,0,0.167)
S_1=VP(very poor / very low / very dissatisfied)	(0,0.167,0.333)
S_2=P(poor / low / dissatisfied)	(0.167,0.333,0.5)
S3=M(medium/ medium / general)	(0.333,0.5,0.667)
S4=G(good/ high / satisfied)	(0.5,0.667,0.833)
S5=VG(very good /very high/very satisfied)	(0.667,0.833,1)
S6=AG(extremely good / extremely high / extremely satisfied)	(0.833,1,1)

Table 2. Multi-criteria linguistic assessment information of matching satisfaction degree given by jobs to job seekers ($\overline{A}_h = \left[\overline{a}_{hij}\right]_{n\times m}$)

B_1	B_2	B_3	B_4	B_5
Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4
VP VP VP VP	M M M P	VP VP VP VP	P P VP P	P P G P
M M M M	M P P M	M M M M	VG VG VG VG	P M M M
M M P G	G G P G	VG VG P G	M AG AG VG	M VG AG P
P P VP P	VG VG VG VG	G G G P	M VP M P	P P G P
VG VG VG VG	AG AG AG AG	G G G G	M VG AP G	G G G P
M M M M	M M VG M	P M M M	M VP M G	AG AG M VP
G M G M	P M G VG	M P G G	G G M M	G VG M P
M P G G	VG G P P	G M M P	M VG G P	M G G M

Table 3. Multi-criteria linguistic assessment information of matching satisfaction degree given by job seekers to jobs ($\overline{B}_q = \left[\overline{b}_{qij}\right]_{n\times m}$)

X_i	D_1	D_2	D_3	D_4	D_5
	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4	Y_1 Y_2 Y_3 Y_4
X_1	P M VG G	G G VP P	G G P AG	G M M G	M G M G
X_2	VP M G M	G G P P	VG G AG VG	AG AG G P	M P G G
X_3	VP P G P	VP G P G	VG G AG G	G P VP P	M M M G
X_4	P M VG M	G VG VP P	G G P VG	VG VG VG AG	G M G P
X_5	P M M P	G P P VP	VG VG G P	AG AG G P	P G G M
X_6	VP P VG M	G G VP P	VG G P VG	M M P P	G G G P
X_7	M P G G	M G M M	G VG M G	G VG M G	M M P M
X_8	G P G G	G M G P	VG G P G	AG G G M	M M M M

Table 4. Fuzzy comprehensive evaluation value of matching satisfaction degree given by jobs to job seekers $\tilde{\alpha}_{ij} = (\alpha_{ij}^{l}, \alpha_{ij}^{s}, \alpha_{ij}^{r})$

X_i	Y_1	Y_2	Y_3	Y_4
X_1	(0.134,0.300,0.467)	(0.134,0.300,0.467)	(0.167,0.334,0.500)	(0.100,0.267,0.433)
X_2	(0.367,0.533,0.700)	(0.367,0.533,0.700)	(0.367,0.533,0.700)	(0.400,0.567,0.734)
X_3	(0.433,0.600,0.767)	(0.600,0.767,0.900)	(0.434,0.600,0.700)	(0.467,0.634,0.800)
X_4	(0.367,0.533,0.700)	(0.300,0.467,0.633)	(0.400,0.567,0.733)	(0.267,0.433,0.600)
X_5	(0.567,0.733,0.867)	(0.633,0.800,0.933)	(0.500,0.633,0.767)	(0.533,0.700,0.833)
X_6	(0.400,0.567,0.700)	(0.367,0.534,0.667)	(0.400,0.567,0.734)	(0.300,0.467,0.633)
X_7	(0.400,0.567 ,0.733)	(0.400,0.567,0.733)	(0.433,0.600,0.767)	(0.400,0.567,0.733)
X_8	(0.433,0.600,0.767)	(0.433,0.600,0.767)	(0.400,0.567,0.733)	(0.267,0.433,0.600)

Table 5. Fuzzy comprehensive evaluation value of matching satisfaction degree given by job seekers to jobs $\tilde{\beta}_{ij} = \left(\beta_{ij}^{l}, \beta_{ij}^{s}, \beta_{ij}^{r}\right)$

X_i	Y_1	Y_2	Y_3	Y_4
X_1	(0.400,0.567,0.733)	(0.433,0.600,0.767)	(0.300,0.467,0.633)	(0.500,0.667,0.800)
X_2	(0.467,0.633,0.767)	(0.467,0.633,0.767)	(0.500,0.667,0.800)	(0.367,0.533,0.700)
X_3	(0.300,0.467,0.633)	(0.333, 0.500,0.667)	(0.367,0.533,0.667)	(0.367,0.533,0.700)
X_4	(0.467,0.633,0.800)	(0.500,0.667,0.833)	(0.400,0.567,0.733)	(0.433,0.600,0.733)
X_5	(0.467,0.633,0.767)	(0.500,0.667,0.800)	(0.400,0.567,0.733)	(0.167,0.333,0.500)
X_6	(0.400,0.567,0.733)	(0.400,0.567,0.733)	(0.300,0.467,0.633)	(0.300,0.467,0.633)
X_7	(0.400,0.567, 0.733)	(0.467,0.633,0.800)	(0.333,0.500,0.667)	(0.433,0.600,0.767)
X_8	(0.567,0.733 ,0.867)	(0.367,0.533,0.700)	(0.400,0.567,0.733)	(0.367,0.533,0.700)

Table 6. Six positive and negative ideal solution of objective function

	z_1'	z_1''	z_1'''	z_2'	z_2''	z_2'''
positive ideal solution	3.433	1.336	2.636	3.767	1.336	2.667
negative ideal solution	0	0	0	0	0	0

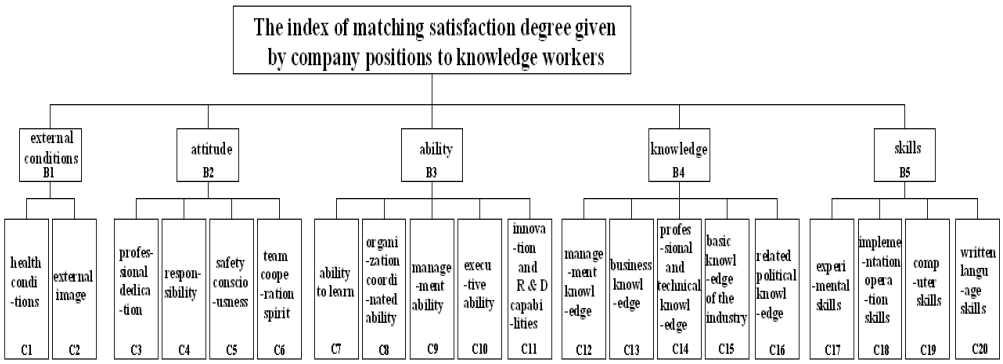

Figure 1. Competency model of job satisfaction

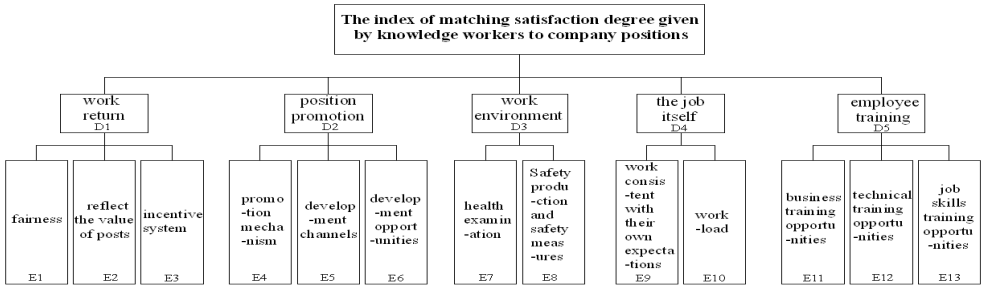

Figure 2. Job seekers satisfaction indicator system