

# THE STUDY OF EVALUATION METHOD OF TEACHING QUALITY ABOUT SPORT OF GENERAL UNIVERSITY

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## ABSTRACT

In this paper, we make use of the method of Fuzzy multifactorial evaluation to carry on evaluation for teaching quality of sport lesson. The result of research is shown it conforms to an objective reality by analysing. The method is an actual value for teaching management.

keyword: Fuzzy Math Evaluation of Teaching Quality

## 1. PROFACE

The evaluation of teaching quality for teacher is a forceful measure to realizing teaching management sciencely and democratically. In the past there is some problems, such as experience management is main and it distinguishes diference teaching value sciencely objectively and accurately. In order to raising quality of teach we establish principle of evaluation for teaching quality. We make use of science management to replaced to experience management. In this paper, we make use of the method of fuzzy multifactorial evaluation to carry on investigation of estimate method of teaching quality based on the result of research for the estimate method of teaching quality recently.

## 2. The form of fuzzy math

Based on standard of teaching estimate of general university and estimate table of Tianjin textele engenering we selecte five indexes sush as three essential skills of teaching( $U_1$ ), teaching manner( $U_2$ ), teaching effect( $U_3$ ), breeding men of ability( $U_4$ ), total estimate of lesson( $U_5$ ). they are evaluation indexes of teaching quality. It forms factor set  $U = (u_1, u_2, u_3, u_4, u_5)$ .

Based on special experience and materials distribution of number of weighted into whole for all the factor, such as  $U_1$  is respectively  $a_1=0.25, a_2=0.15, a_3=0.2, a_4=0.16, a_5=0.24$ . This is shown in vector  $A = (a_1, a_2, \dots, a_5)$ . It is fuzzy set on  $U$ .

Now the results of evaluate are divided into four

classes, such as the best( $V_1$ ), better( $V_2$ ), good( $V_3$ ), bad( $V_4$ ). It forms evaluate set  $V = (v_1, v_2, v_3, v_4)$ .

The linchpin upon which problem depends is to establish fuzzy relation matrix  $R$  between factor set  $V$  for the every object of evaluation

$$R = \begin{matrix} & \begin{matrix} V_1 & V_2 & V_3 & V_4 \end{matrix} \\ \begin{matrix} r_{11} & r_{12} & r_{13} & r_{14} \\ r_{21} & r_{22} & r_{23} & r_{24} \\ \dots & \dots & \dots & \dots \\ r_{51} & r_{52} & r_{53} & r_{54} \end{matrix} \end{matrix}$$

One of them,  $r_{ij}$  shows the factor  $u_i$  which is some appraisable object is evaluated to get degree of comment  $V_j$ . This is evaluation of a single factor. So  $R$  is called appraisable matrix of a single factor.

If  $R$  have been got, according to the method of Fuzzy linear substitution matrix operates on add and multiplication, we may calculate multifactorial evaluation vector  $B = (b_1, b_2, b_3, b_4)$ , it is Fuzzy set on  $V$ .

$$B = A \circ R$$

$$= (a_1, a_2, \dots, a_5) \begin{matrix} \begin{matrix} r_{11} & r_{12} & r_{13} & r_{14} \\ r_{21} & r_{22} & r_{23} & r_{24} \\ \dots & \dots & \dots & \dots \\ r_{51} & r_{52} & r_{53} & r_{54} \end{matrix} \\ \\ = (b_1, b_2, b_3, b_4) \end{matrix}$$

If  $b_{j_0} = \max_{1 \leq j \leq 4} b_j$ , then the appraisal object is evaluated to get a comment  $V_{j_0}$ . this is the final result which we have got— multifactorial comment.

Now we introduce membership function and make up relation matrix  $R$  for the model above.

### 3. Application

In order to make them simple, we make use of frequency method. We make up the three evaluate groups. they are composed of patient, teacher and specialist respectively. In the patient group there are 40 patients. In the teacher group there are 10 teachers. In the special group there are 5 specialist. they evaluate the teaching state of every teacher for every factor  $U_i$ .

First of all we line list  $V$  about frequency that evaluate results of every factor  $U_i$  drop into each class for each teacher in total members of each

evaluate group. Let  $q_{ij}$  be frequency, then divide  $n$  into  $q_{ij}$  and you get  $r_{ij}$ . the  $n$  is numbers of evaluate member.

$r_{ij} = q_{ij}/n$  ( $n$  is numbers of total evaluate member)

Then the matrix  $R$  is got. For example, about teacher  $X_1$  we get the  $R_{11}$  which is the evaluate matrix of patient, the  $R_{12}$  which is the evaluate matrix of person of same profession and the  $R_{13}$  which is the evaluate matrix of specialist.

$$R_{11} = \begin{bmatrix} .81 & .10 & .05 & .05 \\ .05 & .40 & .25 & .30 \\ .45 & .30 & .20 & .05 \\ .05 & .65 & .25 & .05 \\ .65 & .25 & .05 & .05 \end{bmatrix}$$

$$R_{12} = \begin{bmatrix} .60 & .20 & .20 & 0 \\ .10 & .50 & .20 & .20 \\ .55 & .35 & .10 & 0 \\ .05 & .60 & .20 & .15 \\ .70 & .20 & .10 & 0 \end{bmatrix}$$

$$R_{13} = \begin{bmatrix} .50 & .30 & .20 & 0 \\ .20 & .40 & .20 & .20 \\ .45 & .35 & .10 & .10 \\ .10 & .50 & .20 & .20 \\ .60 & .20 & .10 & .10 \end{bmatrix}$$

We get the table 3 similarly.

table 3

group	number of weight	first class evaluation( $B_i = A \circ R_i$ )
$U_{11}$		$B_1 = A \circ R_1 = (.412, .309, .142, .088)$
$U_{12}$	$A = (.25, .15, .20, .16, .24)$	$B_2 = A \circ R_2 = (.451, .329, .156, .059)$
$U_{13}$		$B_3 = A \circ R_3 = (.405, .333, .156, .106)$

Note:  $U_{11}$ =patient group  $U_{12}$ =teacher group  $U_{13}$ =special group

We take

$$S = \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix} \quad 3 \times 4$$

the  $S$  is matrix of evaluation of single factor. Let's the number of weight  $A = (0.4, 0.3, 0.3)$ . then

$$B = A \circ R$$

$$B = (0.4, 0.3, 0.3) \begin{bmatrix} .412, .309, .142, .088 \\ .451, .329, .156, .059 \\ .405, .333, .156, .106 \end{bmatrix}$$

$$B = (0.421, 0.322, 0.150, 0.085)$$

Therefore  $X_1$  get comment "better".

Basde on above method we get the evaluate results of the other teachers, such as (1) 6 teachers are the best of all, (2) 5 teachers are better, (3) 4 teacher are good,

(4) the best is without, they are 15 teachers.

We compare the results of the evaluate of each grade, that is each value of B. The biggest is the best in the best of all. The smallest is the worst in the bad.

The teachers have been arranged by us in order  $X_9, X_2, X_{13}, X_{15}, X_3, X_1, X_4, X_7, X_8, X_{10}, X_{14}, X_5, X_{11}, X_{12}, X_6$ . The evaluate result conforms essentially objective reality by analysing.

#### 4. conclusion

It is possible method that we make use of method of fuzzy evaluation to carry on multifactoral evaluation for teaching quality of sport lesson of the teacher based on standard of teaching estimate of general university. The result conforms to an objective reality by analysing.

Basde on the result of evaluate of every teacher we compare the results of evaluate of each teacher in order to differentiating good or bad of teaching quality between the teachers each other. It is advantageous for improveing the teaching work and raising the teaching quality. The method is an actual value for teaching management.

#### 5. Reference

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