Study on Outline of Evaluative Index System of Practice Teaching Basing on CIPP Model

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Abstract: *Building on the importance of the practice teaching in vocational education, the paper set up the evaluation index system on the basis of CIPP model. Take the analytic hierarchy process as the tool to design the judging matrix. Through a research on the experts of vocational colleges in Hebei Province, we get the statistical data and index weight, and finalized an evaluation index system.*

Keywords: *Practice Teaching; CIPP Model; Analytic Hierarchy Process; Evaluative Index System*

1. INTRODUCTION

In the 21sth century, the focus of vocational education transferred from the denotation development to connotation improvement, which refers to the improvement of the quality of graduates, products of education, under the background of popularization of higher education.

It is universally acknowledged that one effective way for vocational colleges to improve their graduates' quality is under the guidance of systematic practice teaching, so quality evaluation of practice teaching becomes particularly crucial. The Ministry of Education organized some kinds of evaluation of vocational colleges' cultivation of graduates, but they do not put forward concrete and scientific evaluation system with regard to practice teaching. In addition, native experts pay more attention to the teaching in terms of the research of practice teaching evaluation. As a result, index system lacks hierarchy, reliability, validity, which makes the evaluation confine to the level of description.

So, it is of considerable importance to construct evaluation index system of practice teaching from the point of statistics.

2. ESTABLISHMENT OF INDEX SYSTEM

Practice teaching intends to improve students internal vocational ability and it is supposed to be integral and systematic[1], which determines the evaluation system should contain all teaching factors and parts, be better than such evaluation criteria as targets and products, and evaluate the teaching effect in quantitative analysis. The evaluation model of CIPP meets all of the requirements in a relatively better way.

CIPP was put forward by American expert, Stufflebeam, in 1967, which contains context, evaluation, input evaluation, process evaluation and product evaluation. As an improved evaluation model, CIPP Model is able to evaluate students' inner ability effectively and objectively and it puts emphasis on the comparison of formed evaluation and it makes the evaluation as part of the whole process and becomes a useful tool to improve, enhance practice teaching quality. According to CIPP Model, the purpose of evaluation is not to prove, but to improve [2]. In this way, the dynamic evaluation of practice teaching can be realized.

Basing on CIPP Model, referring to evaluation index system of vocational colleges, consulting economic theory of production factors, considering the theory of systematic factors and

combining the experts' suggestions, the evaluation index system of practice teaching is constructed after semantic adjustment.

Table 1. *Index System of Practice Teaching*

Primary indexes	Secondary indexes
Objectives and orientation	Teaching objectives, teaching concepts, teaching plans
Conditions of practice teaching	Practice base construction, teaching funds, construction of skills appraisal station, compile of training textbooks, training of double teachers, employment of part-time teachers.
Process of practice teaching	Classes of practice teaching, management of training base, management of practice teaching, contents of practice teaching, methods of practice teaching, forms of practice teaching, participation of companies and industries, assessment of practice teaching
Product of practice teaching	Employment rate of students, feedbacks of companies and industries, double certificate acquisition rate

3. CONSTRUCTION OF INDEX SYSTEM MATRIX

The study adopts analytic hierarchy process as a tool to calculate the index weight. First of all, construct five two-two judgment matrix for primary index and secondary index according to index system. The matrix is as the following.

Table 2. *Matrix of Primary Index*

index	1 objectives and orientation	2 conditions of practice teaching	3 process of practice teaching	4 product of practice teaching
1 objectives and orientation	1			
2 conditions of practice teaching		1		
3 process of practice teaching			1	
4 product of practice teaching				1

Table 3. *Objectives and Orientation (Matrix of Secondary Index)*

Index	1 practice teaching objectives	2 practice teaching concepts	3practice teaching plans
1 practice teaching objectives	1		
2 practice teaching concepts		1	
3 practice teaching plans			1

Table 4. *Conditions of Practice Teaching (Matrix of Secondary Index)*

Index	1 practice base construction	2 teaching funds	3 construction of skills appraisal station	4 compile of training textbooks	5 training of double teachers	6 Employment of part time teachers
1 practice base construction	1					

2 teaching funds		1				
3 construction of skills appraisal station			1			
4 compile of training textbooks				1		
5 training of double teachers					1	
6 Employment of part time teachers						1

Table 5. *Process of practice teaching (Matrix of Secondary Index)*

Index	1 practice teaching Classes	2 training base management	3practice teaching manage-ment	4 practice teaching contents	5 practice teaching methods	6 practice teaching forms	7 companies and industries participation	8practice teaching assessment
1 practice teaching Classes	1							
2 training base management		1						
3 practice teaching management			1					
4 practice teaching contents				1				
5 practice teaching methods					1			
6 practice teaching forms teaching						1		
7 companies and industries participation							1	
8 practice teaching assessment								1

Table 6. *Product of practice teaching (Matrix of Secondary Index)*

Index	1 Employment rate of students	2 Feedbacks of companies and industries	3 Double certificate acquisition rate
1 Employment rate of students			
2 Feedbacks of companies and industries			
3 Double certificate acquisition rate			

This research invite twelve experts in practice teaching coming from such higher vocational colleges as Baoding Electric Power Vocational and Technical College, Baoding Vocational and Technical College, Tangshan Industrial Vocational Technical College, Qinhuangdao Vocational and Technical College to fill in the judgment matrix according to judgment proof scale in analytic hierarchy of table 4[4].

Table 7. *Importance scale definition scale（Judgment proof scale）*

Importance scale（assignment）	definition
1/1	The two indexes are equally important.
3/1	Between the two indexes, the former is a little more important than the latter.
5/1	Between the two indexes, the former is obviously more important than the latter.
7/1	Between the two indexes, the former is absolutely more important than the latter.
9/1	Between the two indexes, the former is extremely more important than the latter.
2/1，4/1，6/1，8/1	The median of the above judgment.
reciprocal（1/3，1/5，1/7，1/9…）	If the importance ratio of the former and the latter is V12，the importance ratio of the latter and the former will be V21=1/V12。

After analyzing the mode of various judgment values, the following weight judgment matrix is formed.

A Primary index matrix	B objectives and orientation	C conditions of practice teaching
$A = \begin{bmatrix} 1 & \frac{1}{5} & \frac{1}{6} & \frac{1}{3} \\ 5 & 1 & \frac{1}{3} & 2 \\ 6 & 3 & 1 & 3 \\ 3 & \frac{1}{2} & \frac{1}{3} & 1 \end{bmatrix}$	$B = \begin{bmatrix} 1 & 2 & 3 \\ \frac{1}{2} & 1 & 2 \\ \frac{1}{3} & \frac{1}{2} & 1 \end{bmatrix}$	$C = \begin{bmatrix} 1 & \frac{1}{3} & 3 & 4 & \frac{1}{3} & 4 \\ 3 & 1 & 5 & 5 & \frac{1}{2} & 4 \\ \frac{1}{3} & \frac{1}{5} & 1 & 2 & \frac{1}{3} & \frac{1}{2} \\ \frac{1}{4} & \frac{1}{5} & \frac{1}{2} & 1 & \frac{1}{5} & 2 \\ 3 & 2 & 3 & 5 & 1 & 4 \\ \frac{1}{4} & \frac{1}{4} & 2 & \frac{1}{2} & \frac{1}{4} & 1 \end{bmatrix}$
D Process of practice teaching		E product of practice teaching

$$D = \begin{bmatrix} 1 & 3 & \frac{1}{3} & \frac{1}{5} & \frac{1}{4} & \frac{1}{3} & 1 & \frac{1}{2} \\ \frac{1}{3} & 1 & \frac{1}{2} & \frac{1}{4} & \frac{1}{4} & \frac{1}{3} & \frac{1}{3} & \frac{1}{3} \\ 3 & 2 & 1 & \frac{1}{3} & \frac{1}{5} & \frac{1}{5} & 3 & \frac{1}{3} \\ 5 & 4 & 3 & 1 & \frac{1}{2} & 2 & 5 & 5 \\ 4 & 4 & 5 & 2 & 1 & 3 & 3 & 3 \\ 3 & 3 & 5 & \frac{1}{2} & \frac{1}{3} & 1 & 3 & 3 \\ 1 & 3 & \frac{1}{3} & \frac{1}{5} & \frac{1}{3} & \frac{1}{3} & 1 & \frac{1}{2} \\ 2 & 3 & 3 & \frac{1}{5} & \frac{1}{3} & \frac{1}{3} & 2 & 1 \end{bmatrix} \qquad E = \begin{bmatrix} 1 & 3 & 5 \\ \frac{1}{3} & 1 & 3 \\ \frac{1}{5} & \frac{1}{3} & 1 \end{bmatrix}$$

Notes: A is the primary index matrix ; B , C , D , E are the secondary index matrixes。

4. CALCULATION OF INDEX WEIGHT

4.1 Calculation of judgment matrix of primary index

The judgment matrix of primary index is , $A = \begin{bmatrix} 1 & \frac{1}{5} & \frac{1}{6} & \frac{1}{3} \\ 5 & 1 & \frac{1}{3} & 2 \\ 6 & 3 & 1 & 3 \\ 3 & \frac{1}{2} & \frac{1}{3} & 1 \end{bmatrix}$ 。

4.1.1 Normalize each column of data in the matrix。

$$\overline{a_{ij}} = \frac{a_{ij}}{\sum\limits_{k=1}^{n} a_{kj}} \ , (\ i,j=1,2,\cdots,4\ )。$$

$$\overline{a_{11}} = \frac{1}{\sum\limits_{k=1}^{3} a_{k1}} = \frac{1}{1+5+6+3} = \frac{1}{15}; \quad \overline{a_{21}} = \frac{5}{\sum\limits_{k=1}^{3} a_{k1}} = \frac{5}{1+5+6+3} = \frac{1}{3} ;$$

$$\overline{a_{31}} = \frac{6}{1+5+6+3} = \frac{2}{5} ; \cdots \overline{a_{41}} = \frac{1}{5} ; \cdots$$

Get the standard matrix $A^{/}$.

$$A^{/} = \begin{bmatrix} \frac{1}{15} & \frac{2}{47} & \frac{1}{11} & \frac{1}{19} \\ \frac{1}{3} & \frac{10}{47} & \frac{2}{11} & \frac{6}{19} \\ \frac{2}{5} & \frac{30}{47} & \frac{6}{11} & \frac{9}{19} \\ \frac{1}{3} & \frac{5}{47} & \frac{2}{11} & \frac{3}{19} \end{bmatrix}$$

4.1.2 Add the standard matrix in row , and get $\overline{W}_i$.

$$\overline{W}_i = \sum_{j=1}^{n} \overline{a}_{ij} \ , \ (\ i=1,2,\cdots,4\ )。$$

$$\overline{W}_1 = \frac{1}{15} + \frac{2}{47} + \frac{1}{11} + \frac{1}{19} = \frac{23}{91}; \ \ \overline{W}_2 = \frac{24}{23}; \ \ \overline{W}_3 = \frac{179}{87}; \ \ \overline{W}_4 = \frac{42}{65}。$$

（3）Make the vector $\overline{W}$ $=[\dfrac{23}{91} \ , \ \dfrac{24}{23}, \dfrac{179}{87}, \dfrac{42}{65}]^{\mathrm{T}}$ standardize（4 decimal places）。

$$W = \frac{\overline{W}_i}{\displaystyle\sum_{j=1}^{n}\overline{W}_j} \ , \ (\ j=1,2,\cdots,4\ )。\ \ W_1 = \frac{\dfrac{23}{91}}{\dfrac{23}{91}+\dfrac{24}{23}+\dfrac{179}{87}+\dfrac{42}{65}} = 0.0632;$$

$$W_2 = 0.2609; W_3 = 0.5144; \qquad W_4 = 0.1615。$$

Get the feature vector $W = [0.0632 \ , \ 0.2609, 0.5144, 0.1615]^{\mathrm{T}}$ 。

4.1.3 Feed the feature vector W into A , and get λ_{max}.

$$AW = \begin{bmatrix} 1 & \dfrac{1}{5} & \dfrac{1}{6} & \dfrac{1}{3} \\ 5 & 1 & \dfrac{1}{3} & 2 \\ 6 & 3 & 1 & 3 \\ 3 & \dfrac{1}{2} & \dfrac{1}{3} & 1 \end{bmatrix} \begin{bmatrix} 0.0632 \\ 0.2609 \\ 0.5144 \\ 0.1615 \end{bmatrix}$$

$$(AW)_1 = 1\times0.0632 + \frac{1}{5}\times0.2609 + \frac{1}{6}\times0.5144 + \frac{1}{3}\times0.1615 = 0.2549;$$

$$(AW)_2 = 1.0714; \ (AW)_3 = 2.1609; \ (AW)_4 = 0.6530。$$

$$\lambda_{max} = \sum_{i=1}^{n} \frac{(AW)_i}{nW_i} = \frac{0.2549}{4\times0.0632} + \frac{1.0714}{4\times0.2609} + \frac{2.1609}{4\times0.5144} + \frac{0.6530}{4\times0.1615} = 4.0961$$

4.1.4 Check consistency of the matrix

Consistent index is $CI = \dfrac{\lambda_{max}-n}{n-1} = \dfrac{4.0961-4}{4-1} = 0.0320$;

As the matrix is 4 order matrix , $RI = 0.96^{[4]}$;

Calculate the ratio of random consistency $CR = \dfrac{CI}{RI} = \dfrac{0.0320}{0.96} = 0.0334 < 0.10$; so the feature vector is valid; the various weights of the primary index is as the following.

index	objectives and orientation	conditions of practice teaching	Process of practice teaching	product of practice teaching
weight	0.0632	0.2609	0.5144	0.1615

4.2 Calculation of Judgment Matrix of Secondary Index

4.2.1 Objectives and orientation

Judgment matrix	Standard matrix	Calculate feature vector	calculate λ_{max}
$B = \begin{bmatrix} 1 & 2 & 3 \\ \frac{1}{2} & 1 & 2 \\ \frac{1}{3} & \frac{1}{2} & 1 \end{bmatrix}$	$B' = \begin{bmatrix} \frac{6}{11} & \frac{4}{7} & \frac{1}{2} \\ \frac{3}{11} & \frac{2}{7} & \frac{1}{3} \\ \frac{2}{11} & \frac{1}{7} & \frac{1}{6} \end{bmatrix}$	$\overline{W}_1 = 0.5390$ $\overline{W}_2 = 0.2973$ $\overline{W}_3 = 0.1638$	$\lambda_{max} = BW = 3.0092$
calculate CI	calculate CR		
$CI = \dfrac{\lambda_{max} - n}{n-1} = \dfrac{3.0092 - 3}{3-1} = 0.00463$	3 order matrix , $RI = 0.58[4]$; $CR = \dfrac{CI}{RI} = \dfrac{0.0046}{0.58} = 0.0079$		

Ratio of random consistency $CR = 0.0079 < 0.10$; so the feature vector is valid ; the various weights

of the primary index is as the following.

index	teaching objectives	Teaching concepts	Teaching plams
weight	0.5390	0.2973	0.1638

4.2.2 Conditions of practice teaching

Judgment matrix	Standard matrix
$C = \begin{bmatrix} 1 & \frac{1}{3} & 3 & 4 & \frac{1}{3} & 4 \\ 3 & 1 & 5 & 5 & \frac{1}{2} & 4 \\ \frac{1}{3} & \frac{1}{5} & 1 & 2 & \frac{1}{3} & \frac{1}{2} \\ \frac{1}{4} & \frac{1}{5} & \frac{1}{2} & 1 & \frac{1}{5} & 2 \\ 3 & 2 & 3 & 5 & 1 & 4 \\ \frac{1}{4} & \frac{1}{4} & 2 & \frac{1}{2} & \frac{1}{4} & 1 \end{bmatrix}$	$C' = \begin{bmatrix} \frac{6}{47} & \frac{20}{239} & \frac{6}{29} & \frac{8}{35} & \frac{20}{157} & \frac{8}{31} \\ \frac{18}{47} & \frac{60}{239} & \frac{10}{29} & \frac{2}{7} & \frac{30}{157} & \frac{8}{31} \\ \frac{2}{47} & \frac{12}{239} & \frac{2}{29} & \frac{4}{35} & \frac{20}{157} & \frac{1}{31} \\ \frac{3}{94} & \frac{12}{239} & \frac{1}{29} & \frac{2}{35} & \frac{12}{157} & \frac{4}{31} \\ \frac{18}{47} & \frac{120}{239} & \frac{6}{29} & \frac{2}{35} & \frac{60}{157} & \frac{8}{31} \\ \frac{3}{94} & \frac{15}{239} & \frac{4}{29} & \frac{1}{35} & \frac{15}{157} & \frac{2}{31} \end{bmatrix}$
Calculate feature vector	calculate λ_{max}	calculate CI	calculate CR
$\overline{W}_1 = \dfrac{32}{31}$, $\overline{W}_2 = \dfrac{1712}{999}$, $\overline{W}_3 = \dfrac{237}{544}$, $\overline{W}_4 = \dfrac{135}{356}$, $\overline{W}_5 = \dfrac{676}{335}$, $\overline{W}_6 = \dfrac{361}{857}$	$\lambda_{max} = BW$ $= 6.5200$	$CI = \dfrac{6.5200 - 6}{6-1}$ $= 0.1040$	$CR = \dfrac{0.1040}{1.24}$ $= 0.0839$
Note : 6 order matrix , $RI = 1.24$(Wang, 2002).			

Ratio of random consistency is $CR = 0.0839 < 0.10$;the feature vector is valid ;the various weights

of the matrix is as the following：

index	Practice base construction	teaching funds	construction of skills appraisal station	compile of training textbooks	training of double teachers	employment of part-time teachers
weight	0.1720	0.2856	0.0726	0.0632	0.3362	0.0702

4.2.3 Process of practice teaching

Judgment matrix	Standard matrix
$D=$ $\begin{bmatrix} 1 & 3 & \frac{1}{3} & \frac{1}{5} & \frac{1}{4} & \frac{1}{3} & 1 & \frac{1}{2} \\ \frac{1}{3} & 1 & \frac{1}{2} & \frac{1}{4} & \frac{1}{4} & \frac{1}{3} & \frac{1}{3} & \frac{1}{3} \\ 3 & 2 & 1 & \frac{1}{3} & \frac{1}{5} & \frac{1}{5} & 3 & \frac{1}{3} \\ 5 & 4 & 3 & 1 & \frac{1}{2} & 2 & 5 & 5 \\ 4 & 4 & 5 & 2 & 1 & 3 & 3 & 3 \\ 3 & 3 & 5 & \frac{1}{2} & \frac{1}{3} & 1 & 3 & 3 \\ 1 & 3 & \frac{1}{3} & \frac{1}{5} & \frac{1}{3} & \frac{1}{3} & 1 & \frac{1}{2} \\ 2 & 3 & 3 & \frac{1}{5} & \frac{1}{3} & \frac{1}{3} & 2 & 1 \end{bmatrix}$	$D'=$ $\begin{bmatrix} \frac{3}{58} & \frac{3}{23} & \frac{2}{109} & \frac{12}{281} & \frac{5}{64} & \frac{5}{113} & \frac{3}{55} & \frac{3}{82} \\ \frac{1}{58} & \frac{1}{23} & \frac{3}{109} & \frac{15}{281} & \frac{5}{64} & \frac{5}{113} & \frac{1}{55} & \frac{1}{41} \\ \frac{9}{58} & \frac{2}{23} & \frac{6}{109} & \frac{20}{281} & \frac{1}{64} & \frac{3}{113} & \frac{9}{55} & \frac{1}{41} \\ \frac{15}{58} & \frac{4}{23} & \frac{18}{109} & \frac{60}{281} & \frac{5}{16} & \frac{30}{113} & \frac{3}{55} & \frac{15}{41} \\ \frac{6}{58} & \frac{4}{23} & \frac{30}{109} & \frac{120}{281} & \frac{5}{32} & \frac{45}{113} & \frac{9}{11} & \frac{3}{41} \\ \frac{9}{29} & \frac{3}{23} & \frac{30}{109} & \frac{30}{281} & \frac{5}{16} & \frac{15}{113} & \frac{9}{55} & \frac{9}{41} \\ \frac{3}{58} & \frac{3}{23} & \frac{2}{109} & \frac{12}{281} & \frac{5}{48} & \frac{5}{113} & \frac{3}{55} & \frac{3}{41} \\ \frac{3}{58} & \frac{3}{23} & \frac{18}{109} & \frac{12}{281} & \frac{5}{48} & \frac{5}{113} & \frac{6}{55} & \frac{3}{82} \\ & & & & & & & \frac{41}{} \end{bmatrix}$

Calculate feature vector	calculate λ_{max}	calculate CI	calculate CR
$\overline{W_1}=\frac{153}{335}$, $\overline{W_2}=\frac{42}{137}$, $\overline{W_3}=\frac{395}{612}$, $\overline{W_4}=\frac{335}{179}$, $\overline{W_5}=\frac{2079}{955}$, $\overline{W_6}=\frac{1231}{956}$, $\overline{W_7}=\frac{14}{29}$, $\overline{W_8}=\frac{431}{558}$ 。	$\lambda_{max}=DW$ $=8.8641$	$CI=\frac{8.8641-8}{8-1}$ $=0.1234$	$CR=\frac{0.1234}{1.41}$ $=0.0875$

Note：8 order matrix , RI =1.41(Wang,2002).

Ratio of random consistency is CR =0.0875<0.10；the feature vector is valid；the various weights of the matrix is as the following：

index	Classes of practice teaching	management of training base	management of practice teaching	contents of practice teaching	methods of practice teaching	forms of practice teaching	participation of companies and industries	assessment of practice teaching
weight	0.0571	0.0383	0.0807	0.2339	0.2721	0.1610	0.0603	0.0966

4.2.4 Product of practice teaching

Judgment matrix	Standard matrix	Calculate feature vector	calculate λ_{max}
$E=\begin{bmatrix} 1 & 3 & 5 \\ \frac{1}{3} & 1 & 3 \\ \frac{1}{5} & \frac{1}{3} & 1 \end{bmatrix}$	$E'=\begin{bmatrix} \frac{15}{23} & \frac{9}{13} & \frac{5}{9} \\ \frac{5}{23} & \frac{3}{13} & \frac{1}{3} \\ \frac{3}{23} & \frac{1}{13} & \frac{1}{9} \end{bmatrix}$	$\overline{W_1}=\frac{19}{10}$, $\overline{W_2}=\frac{25}{32}$, $\overline{W_3}=\frac{7}{22}$	$\lambda_{max}=EW$ $=3.0387$

CI	calculate CR
$CI = \dfrac{3.0387 - 3}{3 - 1} = 0.0194$	3 order matrix, $RI = 0.58$[4]; $CR = \dfrac{0.0194}{0.58} = 0.0334$

Ratio of random consistency is $CR = 0.0334 < 0.10$; the feature vector is valid; the various weights of the matrix is as the following:

index	Employment rate of students	feedbacks of companies and industries	double certificate acquisition rate
weight	0.6333	0.2605	0.1062

5. CONSTRUCTION OF OUTLINE OF INDEX SYSTEM

According to the above calculation process, the construction of outline of index system is as the following.

Primary index	Secondary index
Objectives and orientation（0.0632）	Teaching objectives（0.5390, teaching concepts（0.2973） teaching plans（0.1638）
Conditions of practice teaching（0.2609）	Practice base construction,（0.1720） teaching funds（0.2856） construction of skills appraisal station（0.0726） compile of training textbooks（0.0632） training of double teachers（0.3362） employment of part-time teachers（0.0702）
Process of practice teaching（0.5144）	Classes of practice teaching（0.0571）management of training base（0.0383） management of practice teaching（0.0807） contents of practice teaching（0.2339） methods of practice teaching（0.2721）forms of practice teaching（0.1610）, participation of companies and industries（0.0603）assessment of practice teaching（0.0966）
Product of practice teaching（0.1615）	Employment rate of students（0.6333） feedbacks of companies and industries（0.2605） double certificate acquisition rate（0.1062）

According to the above statistics, process and conditions of practice teaching should be the main body of the evaluation system. Product of practice teaching and objectives and orientation take the second place. This conveys that evaluation of practice teaching put emphasis on training process and there are rigid requirements with regard to conditions of practice teaching. As to objectives and orientation, teaching objectives are the key factors. In other words, whether the teaching objectives are clear or not decides the accuracy of the teaching orientation. Vocational colleges pay most attention to training of double teachers, teaching concepts and construction of skills appraisal station in terms of conditions of practice teaching, which reveals the requirements of teaching conditions in evaluation system. In the teaching process, methods, contents, forms and assessment of practice teaching account for 70%, which shows evaluation of practice teaching pays more attention to the improvement of connotative quality of teaching. In product of practice teaching, the proportion of employment rate of students is the first, which expresses clearly employment orientation of the evaluation of practice teaching.

6. CONCLUSION

This research is on the base of outline of evaluative index system of practice teaching, and the weights of various indexes reflect regional characteristics and tendency of vocational education. It is useful for the vocational colleges to construct scientific and reasonable evaluation system of practice teaching. In the real practice, different college can adjust it according to this index system and actual conditions.

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