Study on Evaluation System of College Faculty Vocational Capability

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Abstract. In colleges, the contents of faculty vocational capability evaluation cover numerous aspects, such as competency, organization ability, management ability and teaching ability. Faculty vocational capability best reflects education value. This paper discusses teaching ability of college teachers. Teaching ability system construction is the core of college teaching personnel system. Scoring relevant indexes of comprehensive assessment and constructing the model contributes to teachers' understanding and cognition of teaching ability, improving teaching ability and further boosting teaching quality.

Introduction

Teaching ability evaluation system construction for college teachers should be a problem most colleges should pay attention to. Seeing from current situation, Chinese colleges lack comprehensiveness and uniformity of teachers' teaching ability evaluation system, and the special researches on teaching ability are few. This paper considers it is required to construct a model according to iceberg theory, scientifically and overall evaluate and score the most important faculty vocational capability from teaching ability structure. Besides, this paper gives reform suggestions.

Teaching ability of college teachers

Teaching ability

Teaching ability is the most important vocational ability of college teachers. But, different explanations for the concept of teaching ability may exist in different fields. From the perspective of utilization level of education mode, college teachers should own teaching ability at three levels: firstly, teaching research ability. Teaching research ability is that teachers own certain practical application ability. The research of teaching method maybe conducted in allusion to teaching contents and relevant disciplinary knowledge. Teaching research ability is also a kind of innovation ability. Secondly, teaching organization ability. Teaching organization ability represents the control ability in teachers' teaching ability. Teachers' teaching organization ability is reflected in that whether teachers can organize students to smoothly boost teaching course according to the set teaching policy. Finally, teaching design ability. Teaching design ability means teachers can design teaching arrangement for teaching contents and deploy classroom situation prior to teaching activity. At present, China is in the key stage of praising highly quality-oriented education and new curriculum reform, so teachers should boost personal comprehensive quality, learn and create teaching design scheme, and break traditional classroom behavior – paying much attention to theory and neglecting practical teaching.

Teaching ability evaluation index system

Evaluation index system mainly aims at evaluation objects and correlates various element features of evaluation objects to form organic whole with internal structure so as to evaluate and analyze evaluation objects. For teachers' teaching ability, the key of evaluation index system is that whether teachers to be evaluated can reach the set teaching objective through teaching activities. Therefore, evaluation index system is a kind of objective value judgment of teachers' teaching quality. But in fact, teaching objective is abstract and indistinct, so it is required to decompose the objective, list sub-objective at each layer and total objective and transform the system with hierarchical structure during teaching ability index evaluation. Evaluation index system should be operable and behavioral.

In other words, it should be able to clearly reflect specific evaluation items of teachers' teaching ability. Meanwhile, it should be a provision of a level in education objective attribute. Thus, teaching ability evaluation index system is a quite complex, systematic and rigorous research and judgment process. It needs reliable theoretical foundation and should own correct evaluation method[1].

Problems in teaching ability evaluation index system of college teachers

Teaching ability indexes of college teachers can be analyzed through quantification. It makes performance of different teachers own diverse features. So we can say that evaluation results have variation nature and individual nature. This also makes evaluation own certain reference value. Although China has gained great progress in terms of college organization and teachers' teaching ability in recent years, some defects still exist in system operation process.

Poor future planning of evaluation index system

Many colleges are restricted to current teaching ability evaluation, and cannot see long-term evaluation planning. This not merely goes against promotion of teachers' teaching ability, but also goes against future reform prospect of college education. College teaching ability evaluation not only evaluates previous work, but should focus on future autonomous development and teaching ability continuity. Thus, evaluation index system should own foresight. To promote future planning of evaluation index system, colleges should own long-term education planning and faculty transformation plan, organically combine education and teachers' ability, let evaluation indexes own realistic inheritance, summarize and transit in proper period and perfect sustainable development of college education.

Incomplete teacher performance evaluation mechanism

For colleges, teachers' teaching ability assessment is annual essential content. Traditional performance evaluation mechanism seems to constrain and urge teachers' behavior. But in fact it is till limited to classroom teaching skills and neglects assessment of key basic quality of teachers, such as teachers' abilities to connect theory and practice, control classroom effect and talent training, innovate for teaching content and transform teaching content. Actually, these are teachers' explicit abilities and cannot be investigated in traditional performance evaluation. Thus, strictly speaking, colleges' teacher performance assessment has strong subjectivity and lacks objective judgment standard. This may easily result in distortion of evaluation results and makes the evaluation lose the due significance.

Lack of scientific rationality in evaluation index system

Generally, teachers' teaching ability evaluation system for colleges follows four words "morality, ability, diligence and performance", and they are decomposed into specific secondary indexes of corresponding teaching contents. But few colleges can specify the connotation of each secondary index, which also results in rough evaluation criteria. Meanwhile, many meaningless qualitative indexes derive, and quantitative indexes are serious short. Such rigid secondary index classification event influences college course construction, combination of learning with working and laboratory practice, and covers up education characteristics of some colleges. If many secondary indexes in teaching ability evaluation index system cannot be quantified, colleges and teachers cannot know students' interest and problems. Thus, it cannot reflect teachers' real teaching ability, and greatly weakens timeliness and operability of teaching ability assessment[2].

Comprehensive model construction of faculty vocational ability evaluation index based on iceberg theory

Iceberg theory

Iceberg theory is applied to construct hierarchical structure model for teachers' personal quality and teaching ability, and then analysis, scoring and evaluation are conduced. Hence, all can see teachers' overall teaching ability like seeing iceberg structure. The iceberg only shows the image at the surface layer, i.e. teachers' teaching behavior. We need to deeply dig the connotation at deeper

layer with the help of teachers' teaching behavior, and gain theoretical foundation to establish teachers' teaching ability evaluation system.[3]

Hierarchical structure of teacher's teaching ability evaluation indexes

For college teachers, explicit indexes which are most easily measured are basic teaching skills and teaching research ability. There are also explicit qualities at the upper part of the iceberg. Key hidden qualities at the lower part of the iceberg are decided by teachers' fundamental quality and teachers' personal planning. Hence, teaching ability evaluation index can derive out second-level and third-level and even deeper-level indexes. For regular college teachers, teaching ability evaluation index system is shown in Table 1.

Table 1. Analysis of teaching ability evaluation index system based on iceberg theory

First-level index	Second-level index	Third-level index
Basic teaching skills (0.40)	Classroom teaching ability (0.26)	Teaching task (0.12)
		Resource utilization (0.06)
		Explanation (0.09)
		Content (0.07)
		Teaching method (0.034)
		Teaching effect (0.061)
	After-class teaching ability (0.19)	Number of excellent papers (0.018)
		Number of topics guided by teachers (0.022)
		Number of academic activities organized by teachers (0.041)
		Total number of graduation papers guided by teachers (0.084)
Teaching research ability (0.29)	Teaching infrastructure ability (0.19)	Specialty construction (0.037)
		Curricula construction (0.026)
		Laboratory construction (0.024)
		Discipline team construction (0.070)
	Curriculum reform and innovation ability (0.15)	Curriculum reform paper (0.021)
		Curriculum reform topic (0.064)
		Award of curriculum reform (0.030)
Basic teaching quality (0.30)	Teaching qualification (0.22)	Final educational background (0.019)
		Teaching years (0.097)
		Job title (0.050)
		Advanced studies (0.024)
	Teaching attitude (0.13)	Appearance (0.009)
		Preparation before class (0.039)
		Team spirit (0.010)
		Teaching discipline (0.019)
		Professional ethics (0.016)
Teaching planning and summary (0.21)	Teaching plan (0.14)	Teaching content agreement (0.011)
		Teaching activity time allocation (0.016)
		Teaching objective setting (0.042)
		Personal periodic positioning (0.028)
	Teaching summary (0.12)	Education content evaluation (0.010)
		Teaching practice allocation (0.016)
		Teaching method summary (0.028)
		Analysis of student assessment feedback (0.042)

Table 1 shows analysis of teaching ability evaluation index system based on iceberg theory. It applies index weight of analytical hierarchy process in detail. For each index, the final score of this index can be gained though weight x score of teaching ability evaluation.

Comprehensive scoring model of teaching ability evaluation index system

If Y is used to represent comprehensive assessment score of teachers' teaching ability, and basic teaching skills and teaching research ability serve as the upper part of the iceberg, the two explicit qualities of teachers can be expressed with Y^1. Teachers' basic quality and teachers' personal ability summary and planning may be concluded to the lower part of the iceberg as hidden quality, called Y^2. Since different colleges, discipline specialty and post level have different requirements for explicit and hidden qualities, the proportion is also diverse. So, weight coefficients A and B should be added, and comply with the condition of A+B=1. Then, the formula may be listed for comprehensive index evaluation of teaching ability:

$$Y = A \times Y^1 + B \times Y^2.$$

If we suppose explicit index weight is 60% in teaching ability evaluation index system, while hidden index weight is 40%, comprehensive score of teaching ability index is[4]:

$$Y = 0.60 \times Y^1 + 0.40 \times Y^2.$$

Characteristics of teaching ability evaluation index system after improvement based on comprehensive scoring model

Enrichment of third-level evaluation index system

After comprehensive scoring model is constructed for teaching ability, third-level indexes of teachers' personal quality and teaching ability based on iceberg theory gradually become rich. Firstly, it enhances rationality and function of third-level indexes. It also improves for first-level indexes. It can plan and summarize again first-level indexes, including basic teaching skills, teaching research ability and basic teaching quality, and can perfectly replace single limitation of teacher assessment from teaching content, attitude, method and effect. Moreover, it contributes to evaluating teachers' teaching ability in detail.

Index weight rationalization

Because teaching ability evaluation index in iceberg theory applies analytical hierarchy process, it has better right of speech and is more rational in terms of rational allocation of weight of each index. From practical perspective, it corrects teacher evaluation system design which stresses scientific research and neglects teaching, but evaluates teachers based on teaching ability. Besides, it does not neglect teachers' capacity for scientific research. Thus, it can be seen from Fig.1 that, weight index of teachers' basic skills is 0.40, while weight index of teaching research is 0.29. The weight proportion is quite close.

Explicit hidden index assessment

The application of iceberg theory not just fully shows two explicit factors (basic teaching skills and teaching research ability) and also introduces two hidden quality factors (basic teaching quality and personal summary and planning). Seeing from weight, the weight proportion of explicit indexes and hidden indexes is 3:2. This indicates weight indexes of hidden factors receive more and more attention from colleges. Especially after new evaluation index system is constructed, teachers' teaching ability evaluation tends to be more rational, subjective and real.

Diversified evaluation subjects

Diversified evaluation subjects reflect comprehensive scoring model. It breaks the rule that only college leaders and students evaluate teachers, but introduces mutual evaluation of teachers and self-evaluation. This greatly improves democracy and fairness of teaching ability evaluation index system construction. In particular, personal periodic positioning and student evaluative feedback system are added, which makes evaluation of teachers' teaching ability is more detailed and comprehensive, urges and encourages teachers to boost teaching ability[5].

Summary

Based on iceberg theory, this paper points out the problems for teaching ability evaluation index system, utilizes comprehensive scoring model to deeply dig teachers' personal quality and multiple important index elements in teaching ability, classifies them, establishes and enhances third-level indexes. These are helpful for objectively evaluating teachers' comprehensive quality. Of course, since teachers' post division is different (e.g. professional courses and foundation courses have different requirements for teaching ability), evaluation indexes proposed in this paper may have differences in evaluation results for the two types of teachers' teaching ability, and the results are not accurate enough. Therefore, this system model can still improve and remains further deep researches.

Acknowledgments

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