

Research on Chinese University Teacher's Competency

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Abstract

26 teachers in university were selected based on their performance criteria and interviewed by using *Behavioral Event-interview* method, half of which were high-performance group and the others were ordinary-performance group. All interviews were transcribed into text content and encoded according to *Dictionary of Competence Encoding*. The conclusions are: (1) the competency model of teacher in university was consisted of the excellent teacher's competency model and the prerequisite teacher's competency model, (2) the excellent teacher's competency model includes twenty characters, (3) the prerequisite teacher's competency model was consisted of twenty characters.

Key words: competency, teacher, behavior event-interview

1. Introduction

Competency characters refer to the individual's potential and deep-level characters which can be distinguished between the superior performers and the ordinary performers at a work (or organization, culture). It can be a motive, personal quality, self-image, attitudes or values, knowledge and cognition of a certain field or behavioral skills – any individual character that can be reliably measured or counted, and can be

significantly distinguished between the superior performers and the ordinary performers. Spencer (1993)^[1] Competency Model refers to the sum of competency characters that are needed in a particular task. It reflects all the important behavior, skills and knowledge that affects the individual success in a certain post and is often used as a workplace tool. It can help to recognize the needed job competence, the advantages and the realm to be improved and further study, professional growth and development, etc. Competency Model of teachers in university refers to the sum of competency characters that teachers in university are needed.

Research on competency can be dated back to Taylor's research on scientific management. The formal research started in 1973 with the publication of *Testing for Competence rather than for Intelligence* by the famous psychologist of Harvard University McClelland^[2]. In his paper he criticized the previous intelligence and aptitude test and pointed out that school performance, intelligence and aptitude tests could not predict profession or life achievements and competency test should replace them. He also put forward the six principles of effective competency testing. In 1982, McClelland and Boyatzis published the book *The competent manager: A model for effective performance*. Since then, competency has been widely used in the corporation human resources management in the developed countries

like USA, England, Canada and Japan, etc. At present, in corporation and organization management, theories and models about competency are more and more. They have gradually developed from the original assistant tool in training to development-oriented activities with definite goal.

In the west countries, study on teacher's competency is initially from competency based teacher education (CBTE) and human based teacher education (HBTE) in 20th century. And it result two kind of different competency model, skill (or knowledge) based and quality (or human) based.^[3] Now Chinese researchers also pay more focus on this issue. They explore it from all kind of aspects, trait, quality, ability, personality and evaluation, and got many results. For example, Li Yingwu found the primary school and high school teachers' competency model have four aspects which are emotional morality, teaching, motivation and regulate, management.^[4] Xu Jianping stated that primary school and high school teachers' competency model includes 11 distinguish and 11 criterion competencies. The distinguish competencies can distinguish the excellent teachers and the criterion competencies are threshold and request conditions for all teachers.^[5]

However, most of the studies have done did not focus on teachers in university and little about teacher's competency behavior itself. The results researchers have got mainly are conceptual qualities which are related to competency but not competency themselves. Teachers in university play an important role in the whole educational system. The high education quality depends on teacher's competency. But what competency model should teacher have? In order to answer this question, we conduct this research. This study is to explore the competency model

of teacher in university by using the classical competency model construct method—behavior and event-interview method, which is expected to enrich theoretical research on competency model in China and provide theoretical basis for the selection, assessment and training of teacher in university.

2 Method

2.1 Participants

According to the performance criteria, 26 teachers were selected from five universities in Shandong province, half of which were high-performance group and the others were ordinary-performance group. The teacher's major include civil engineering, environmental science, architecture, arts, management, Chinese language, physical education, political science, computer science, education. The average age of all formal participants was 37.15 years old, high-performance teachers were 38.62 years old and ordinary-performance teachers were 35.69 years old. The average teaching age of all formal participants was 10.85 years, high-performance teachers were 12.77 years and ordinary-performance teachers were 8.92 years.

2.2 Sampling strategy

13 high-performance teachers and 13 ordinary-performance teachers were selected by Tri-angle assessment method. High-performance teacher must match three conditions. He or she must be evaluated as an excellent teacher based on teaching evaluation criteria, teacher's synthetically evaluation at the end of academic year and student's anonymity evaluation.

2.3 Method

Behavioral Event-Interview Method was adopted.

3 Results

3.1 Competency Frequencies Difference Test

Average competency frequencies as the index, differences in every competency character between the high-performance group and the ordinary-performance group were compared by *t* test. The results see table 1.

Table 1 show that the high-performance group and ordinary-performance group have significant differences in eighteen competency characters and total scores. It was in accord with Spencer's principle of testing validity of competency characters: if the score of high-performer is higher than the ordinary one, the validity of the competency characters model can be confirmed.

Table 1 The results of competency characters *t* test between the high-performance group and the ordinary-performance group

Competency characters [ⓐ]	High-performance group (N=13) [ⓐ]		Ordinary-performance group (N=13) [ⓐ]		t [ⓐ]	df [ⓐ]	P [ⓐ]
	M [ⓐ]	SD [ⓐ]	M [ⓐ]	SD [ⓐ]			
Achievement motivation(ACH) [ⓐ]	2.7692 [ⓐ]	1.48064 [ⓐ]	1.2308 [ⓐ]	1.64083 [ⓐ]	2.510 [ⓐ]	24 [ⓐ]	0.019* [ⓐ]
Innovation (INV) [ⓐ]	2.6923 [ⓐ]	1.65250 [ⓐ]	0.8462 [ⓐ]	1.40512 [ⓐ]	3.069 [ⓐ]	24 [ⓐ]	0.005** [ⓐ]
Analysis and judgment (ANJ) [ⓐ]	3.5385 [ⓐ]	3.01705 [ⓐ]	1.5385 [ⓐ]	1.45002 [ⓐ]	2.154 [ⓐ]	24 [ⓐ]	0.041* [ⓐ]
Conceptual thinking (CT) [ⓐ]	1.4615 [ⓐ]	1.12660 [ⓐ]	0.3846 [ⓐ]	0.96077 [ⓐ]	2.622 [ⓐ]	24 [ⓐ]	0.015* [ⓐ]
Detail observe (DTO) [ⓐ]	2.9231 [ⓐ]	1.38212 [ⓐ]	1.2308 [ⓐ]	1.30089 [ⓐ]	3.215 [ⓐ]	24 [ⓐ]	0.004** [ⓐ]
Motivation (MTV) [ⓐ]	3.6923 [ⓐ]	2.49615 [ⓐ]	1.6923 [ⓐ]	1.31559 [ⓐ]	2.556 [ⓐ]	24 [ⓐ]	0.017* [ⓐ]
Professional dedication (PFD) [ⓐ]	3.9231 [ⓐ]	1.70595 [ⓐ]	2.3077 [ⓐ]	1.93152 [ⓐ]	2.260 [ⓐ]	24 [ⓐ]	0.033* [ⓐ]
Introspection(INT) [ⓐ]	3.3846 [ⓐ]	2.46774 [ⓐ]	1.4615 [ⓐ]	1.80810 [ⓐ]	2.266 [ⓐ]	24 [ⓐ]	0.033* [ⓐ]
Puzzle solution (PLS) [ⓐ]	4.2308 [ⓐ]	1.69085 [ⓐ]	1.6154 [ⓐ]	1.70970 [ⓐ]	3.922 [ⓐ]	24 [ⓐ]	0.001** [ⓐ]
Educate(EDU) (DEV) [ⓐ]	8.4615 [ⓐ]	2.78733 [ⓐ]	5.5385 [ⓐ]	2.33150 [ⓐ]	2.900 [ⓐ]	24 [ⓐ]	0.008** [ⓐ]
Empathy (EMP) [ⓐ]	4.2308 [ⓐ]	2.86222 [ⓐ]	1.0769 [ⓐ]	1.55250 [ⓐ]	3.492 [ⓐ]	24 [ⓐ]	0.002** [ⓐ]
Team integration (TMI) [ⓐ]	1.0000 [ⓐ]	1.00000 [ⓐ]	0.2308 [ⓐ]	0.43853 [ⓐ]	2.540 [ⓐ]	24 [ⓐ]	0.022* [ⓐ]
Human based (HMB) [ⓐ]	2.8462 [ⓐ]	1.51911 [ⓐ]	1.0769 [ⓐ]	0.95407 [ⓐ]	3.140 [ⓐ]	24 [ⓐ]	0.002** [ⓐ]
Student-centered (SDC) [ⓐ]	0.6923 [ⓐ]	0.85485 [ⓐ]	0.0769 [ⓐ]	0.27735 [ⓐ]	2.469 [ⓐ]	24 [ⓐ]	0.027* [ⓐ]
Language expression (LGE) [ⓐ]	1.4615 [ⓐ]	0.77625 [ⓐ]	0.6154 [ⓐ]	1.19293 [ⓐ]	2.144 [ⓐ]	24 [ⓐ]	0.042* [ⓐ]
Responsibility (RSP) [ⓐ]	4.4615 [ⓐ]	2.06621 [ⓐ]	2.0000 [ⓐ]	1.73205 [ⓐ]	3.292 [ⓐ]	24 [ⓐ]	0.003** [ⓐ]
Guidance and monitoring(GNM) [ⓐ]	3.2308 [ⓐ]	1.78670 [ⓐ]	0.8462 [ⓐ]	1.06819 [ⓐ]	4.130 [ⓐ]	24 [ⓐ]	0.000*** [ⓐ]
Professionalization (PRO) [ⓐ]	2.9231 [ⓐ]	1.75412 [ⓐ]	1.3077 [ⓐ]	1.54837 [ⓐ]	2.489 [ⓐ]	24 [ⓐ]	0.020* [ⓐ]
Total [ⓐ]	87.0769 [ⓐ]	19.7419 [ⓐ]	42.2308 [ⓐ]	7.46273 [ⓐ]	7.661 [ⓐ]	24 [ⓐ]	0.000*** [ⓐ]

*p<0.05; **p<0.01; ***p<0.01(Same meaning below)

3.2 Average Ranks of Competency Characters Difference Test

T test was conducted to detect the differences between the high-performance group and the ordinary-performance groups use the average rank of competency characters as the index. The results see table 2.

Table 2 show that the high-performance group and ordinary-performance group have significant differences in fifteen competency characters and total scores.

Table 2 The results of competency characters average ranks difference *t* test between the high-performance group and the ordinary-performance group

Competency characters [Ⓢ]	High-performance group (N=13) [Ⓢ]		Ordinary-performance group (N=13) [Ⓢ]		<i>t</i> [Ⓢ]	<i>df</i> [Ⓢ]	<i>P</i> [Ⓢ]
	<i>M</i> [Ⓢ]	<i>SD</i> [Ⓢ]	<i>M</i> [Ⓢ]	<i>SD</i> [Ⓢ]			
	Achievement motivation(ACH) [Ⓢ]	2.5377 [Ⓢ]	1.26531 [Ⓢ]	0.5585 [Ⓢ]			
Innovation (INV) [Ⓢ]	2.4946 [Ⓢ]	1.75780 [Ⓢ]	0.3785 [Ⓢ]	0.67635 [Ⓢ]	4.051 [Ⓢ]	24 [Ⓢ]	0.001** [Ⓢ]
Conceptual thinking (CT) [Ⓢ]	1.4738 [Ⓢ]	1.29257 [Ⓢ]	0.3331 [Ⓢ]	0.88160 [Ⓢ]	2.629 [Ⓢ]	24 [Ⓢ]	0.015* [Ⓢ]
Detail observe (DTO) [Ⓢ]	2.3331 [Ⓢ]	1.26572 [Ⓢ]	1.0000 [Ⓢ]	0.96244 [Ⓢ]	3.023 [Ⓢ]	24 [Ⓢ]	0.006** [Ⓢ]
Motivation (MTV) [Ⓢ]	2.3985 [Ⓢ]	1.39782 [Ⓢ]	1.2315 [Ⓢ]	1.33821 [Ⓢ]	2.174 [Ⓢ]	24 [Ⓢ]	0.040* [Ⓢ]
Plan performance (PLP) [Ⓢ]	1.5385 [Ⓢ]	1.60028 [Ⓢ]	0.2823 [Ⓢ]	0.55923 [Ⓢ]	2.672 [Ⓢ]	24 [Ⓢ]	0.018* [Ⓢ]
Professional dedication (PFD) [Ⓢ]	2.1692 [Ⓢ]	1.24644 [Ⓢ]	1.0323 [Ⓢ]	0.98131 [Ⓢ]	2.584 [Ⓢ]	24 [Ⓢ]	0.016* [Ⓢ]
Direct (DIR) [Ⓢ]	0.2308 [Ⓢ]	1.16575 [Ⓢ]	-0.0769 [Ⓢ]	0.27735 [Ⓢ]	0.926 [Ⓢ]	24 [Ⓢ]	0.364 [Ⓢ]
Introspection(INT) [Ⓢ]	2.4138 [Ⓢ]	1.77313 [Ⓢ]	0.9869 [Ⓢ]	1.05501 [Ⓢ]	2.494 [Ⓢ]	24 [Ⓢ]	0.020* [Ⓢ]
Educate(EDU) (DEV) [Ⓢ]	2.6115 [Ⓢ]	0.80726 [Ⓢ]	1.7085 [Ⓢ]	0.94049 [Ⓢ]	2.627 [Ⓢ]	24 [Ⓢ]	0.015* [Ⓢ]
Identify and employ (IDE) [Ⓢ]	1.7308 [Ⓢ]	1.96565 [Ⓢ]	0.3077 [Ⓢ]	0.59646 [Ⓢ]	2.498 [Ⓢ]	24 [Ⓢ]	0.025* [Ⓢ]
Empathy (EMP) [Ⓢ]	2.4269 [Ⓢ]	1.57116 [Ⓢ]	0.3269 [Ⓢ]	0.62789 [Ⓢ]	4.475 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]
Team integration (TMI) [Ⓢ]	2.1285 [Ⓢ]	2.19989 [Ⓢ]	0.4615 [Ⓢ]	0.96742 [Ⓢ]	2.501 [Ⓢ]	24 [Ⓢ]	0.023* [Ⓢ]
Language expression (LGE) [Ⓢ]	2.7054 [Ⓢ]	1.65556 [Ⓢ]	0.3200 [Ⓢ]	0.91818 [Ⓢ]	4.543 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]
Guidance and monitoring(GNM) [Ⓢ]	2.1900 [Ⓢ]	1.18383 [Ⓢ]	0.6023 [Ⓢ]	0.88801 [Ⓢ]	3.868 [Ⓢ]	24 [Ⓢ]	0.001** [Ⓢ]
Resources integration (RSI) [Ⓢ]	0.9231 [Ⓢ]	1.25576 [Ⓢ]	0.0000 [Ⓢ]	0.00000 [Ⓢ]	2.650 [Ⓢ]	24 [Ⓢ]	0.021* [Ⓢ]
Total [Ⓢ]	71.3654 [Ⓢ]	24.89594 [Ⓢ]	30.3492 [Ⓢ]	16.46060 [Ⓢ]	4.955 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]

3.3 The Highest Rank Scores of Competency Characters Difference Test

T test was conducted to detect the highest rank scores differences between the high-performance group and the ordinary-

Table 3 The results of the Highest rank scores of competency characters difference *t* test between the high-performance group and the ordinary-performance group

Competency characters [Ⓢ]	High-performance group (N=13) [Ⓢ]		Ordinary-performance group (N=13) [Ⓢ]		<i>t</i> [Ⓢ]	<i>df</i> [Ⓢ]	<i>P</i> [Ⓢ]
	<i>M</i> [Ⓢ]	<i>SD</i> [Ⓢ]	<i>M</i> [Ⓢ]	<i>SD</i> [Ⓢ]			
	Achievement motivation(ACH) [Ⓢ]	4.0769 [Ⓢ]	2.10006 [Ⓢ]	1.2308 [Ⓢ]			
Innovation (INV) [Ⓢ]	4.3846 [Ⓢ]	2.53438 [Ⓢ]	0.7692 [Ⓢ]	1.30089 [Ⓢ]	4.576 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]
Analysis and judgment (ANJ) [Ⓢ]	3.6923 [Ⓢ]	2.42846 [Ⓢ]	1.8462 [Ⓢ]	1.95133 [Ⓢ]	2.137 [Ⓢ]	24 [Ⓢ]	0.043* [Ⓢ]
Conceptual thinking (CT) [Ⓢ]	1.7692 [Ⓢ]	1.42325 [Ⓢ]	0.4615 [Ⓢ]	1.19829 [Ⓢ]	2.534 [Ⓢ]	24 [Ⓢ]	0.018* [Ⓢ]
Detail observe (DTO) [Ⓢ]	3.7692 [Ⓢ]	1.87767 [Ⓢ]	1.6154 [Ⓢ]	1.75777 [Ⓢ]	3.019 [Ⓢ]	24 [Ⓢ]	0.006** [Ⓢ]
Introspection(INT) [Ⓢ]	4.0769 [Ⓢ]	2.90004 [Ⓢ]	1.3846 [Ⓢ]	1.44559 [Ⓢ]	2.996 [Ⓢ]	24 [Ⓢ]	0.006** [Ⓢ]
Educate(EDU) (DEV) [Ⓢ]	7.9231 [Ⓢ]	3.72965 [Ⓢ]	4.4615 [Ⓢ]	2.93301 [Ⓢ]	2.630 [Ⓢ]	24 [Ⓢ]	0.015* [Ⓢ]
Identify and employ (IDE) [Ⓢ]	2.7692 [Ⓢ]	3.16633 [Ⓢ]	0.4615 [Ⓢ]	0.87706 [Ⓢ]	2.532 [Ⓢ]	24 [Ⓢ]	0.024* [Ⓢ]
Empathy (EMP) [Ⓢ]	5.4615 [Ⓢ]	3.68817 [Ⓢ]	0.8462 [Ⓢ]	1.40512 [Ⓢ]	4.216 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]
Team integration (TMI) [Ⓢ]	2.4615 [Ⓢ]	2.98930 [Ⓢ]	0.4615 [Ⓢ]	0.96742 [Ⓢ]	2.295 [Ⓢ]	24 [Ⓢ]	0.037* [Ⓢ]
Language expression (LGE) [Ⓢ]	3.2308 [Ⓢ]	1.69085 [Ⓢ]	0.8462 [Ⓢ]	2.23033 [Ⓢ]	3.072 [Ⓢ]	24 [Ⓢ]	0.005** [Ⓢ]
Responsibility (RSP) [Ⓢ]	5.2308 [Ⓢ]	2.97640 [Ⓢ]	2.3846 [Ⓢ]	2.32875 [Ⓢ]	2.715 [Ⓢ]	24 [Ⓢ]	0.012* [Ⓢ]
Guidance and monitoring(GNM) [Ⓢ]	4.5385 [Ⓢ]	3.12558 [Ⓢ]	0.9231 [Ⓢ]	1.32045 [Ⓢ]	3.842 [Ⓢ]	24 [Ⓢ]	0.001** [Ⓢ]
Professionalization (PRO) [Ⓢ]	3.7692 [Ⓢ]	2.08782 [Ⓢ]	1.6923 [Ⓢ]	2.13638 [Ⓢ]	2.507 [Ⓢ]	24 [Ⓢ]	0.019* [Ⓢ]
Resources integration (RSI) [Ⓢ]	1.5385 [Ⓢ]	1.89804 [Ⓢ]	0.0000 [Ⓢ]	0.00000 [Ⓢ]	2.922 [Ⓢ]	24 [Ⓢ]	0.013* [Ⓢ]
Total [Ⓢ]	119.6923 [Ⓢ]	33.66844 [Ⓢ]	51.6923 [Ⓢ]	28.17914 [Ⓢ]	5.584 [Ⓢ]	24 [Ⓢ]	0.000*** [Ⓢ]

3.4 The Construction of Competency Characters System of Teacher in University

At last the competency characters system of teacher in university was constructed based on the above the results of *t* test and deleted common competency characters in all kinds of business. It includes two kinds of competency model, excellent teacher's competency model

performance group. The results see table 3.

Table 3 show that the high-performance group and ordinary-performance group have significant differences in fifteen competency characters and total scores.

and prerequisite teacher's competency model. Detail see table 4.

Table 4 The Competency characters model of teacher in university

	Competency characters ⁴³			
Excellent teacher's competency model ⁴³	Achievement motivation ⁴³	Innovation ⁴³	Analysis and judgement ⁴³	Conceptual thinking ⁴³
	Detail observe ⁴³	Motivation ⁴³	Plan performance ⁴³	Professional dedication ⁴³
	Introspection ⁴³	Puzzle solution ⁴³	Educate ⁴³	Identify and employ ⁴³
	Empathy ⁴³	Human based ⁴³	Student-centered ⁴³	Language expression ⁴³
	Responsibility ⁴³	Guidance and monitoring ⁴³	Professionalization ⁴³	Resources integration ⁴³
Prerequisite teacher's competency mode ⁴³	Flexible and adaption ⁴³	Analytical thinking ⁴³	Charismatic ⁴³	Public relation ⁴³
	communication and coordination ⁴³	Plan making ⁴³	Enterprising ⁴³	Openness ⁴³
	Frontier tracking ⁴³	Orderings ⁴³	Teamwork ⁴³	Team leader ⁴³
	Information analysis ⁴³	Action ⁴³	Learning ⁴³	stratagem ⁴³
	Execute ⁴³	Optimize ⁴³	Self-discipline ⁴³	Self-confidence ⁴³

According to cluster analysis, we divided the competency characters of teacher in university into six categories. See table 5.

Table 5 Competency Characters cluster

Characters cluster ⁴³	Competency characters ⁴³
Achievement and action ⁴³	Achievement motivation, Detail observe, Enterprising, Frontier tracking, Action, Learning, Execute ⁴³
Help and service ⁴³	Openness, Puzzle solution, Empathy, Human based, Student-centered ⁴³
Impact and influence ⁴³	Charismatic, Public relation, communication and coordination, Motivation, Language expression ⁴³
administration ⁴³	Plan performance, Plan making, Educate, Identify and employ, Teamwork, Team leader, Guidance and monitoring, Optimize, Resources integration ⁴³
cognition ⁴³	Analysis and judgment, Analytical thinking, Conceptual thinking, Orderings, Information analysis, stratagem, Professionalization ⁴³
Self efficiency ⁴³	Innovation, Flexible and adaption, Professional dedication, Introspection, Responsibility, Self-discipline, Self-confidence ⁴³

4. Conclusions

The competency model of teacher in university was constructed by used the traditional competency model construct method. The main findings were listed as follows:

1. The competency model of teacher in university has two parts, one of them is excellent teacher's competency model and the other is prerequisite teacher's competency mode.

2. The excellent teacher's competency model includes twenty

characters. They are achievement motivation, innovation, analysis and judgment, conceptual thinking, detail observe, motivation, plan performance, professional dedication, introspection, puzzle solution, educate, identify and employ, empathy, human based, student-centered, language expression, responsibility, guidance and monitoring, professionalization and resources integration.

3. The prerequisite teacher's competency mode was consisted of twenty characters. They are flexible and adaption, analytical thinking, charismatic,

public relation, communication and coordination, plan making, enterprising, openness, frontier tracking, orderings, teamwork, team leader, information analysis, action, learning, stratagem, execute, optimize, self-discipline and self-confidence

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