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A Study on the Characteristic Elements of Teachers' Academic Competence in Teachers' Colleges and Universities Based on Rootedness Theory

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Abstract

Teachers of normal colleges and universities are teachers who train teachers. They shoulder the historical task of cultivating the backbone of society and the important task of cultivating cross-century construction talents. At present, the theoretical research of international academic ability is mature, the practical exploration is gradually launched, and the improvement of academic ability has become an international trend. In this study, the research scheme design of academic ability model construction was mainly conducted, Z Province of China was selected as the sample region, and 16 teachers from normal universities in the region were taken as the research objects, and the characteristic elements of academic ability of teachers in normal universities were summarized through behavioral event interview and rooted theory coding.

Keywords: Rooted Theory, academic ability, Elements of identity.

Introduction

With the advent of the 21st century, the global economic, social, political and cultural environment has changed dramatically. Education, as an area of advancing with The Times, its goal are constantly changing. Higher education plays an important role in promoting national development, social progress and individual development. Teachers in normal colleges and universities are teachers who train teachers. They shoulder the historical responsibility of cultivating the backbone of society and the important responsibility of cultivating talents for cross-century construction. How to improve the academic ability of this group has attracted the interest of many researchers. As an important issue, academic ability has become a topic of great concern with the continuous development of today's society.

The group of teachers in normal colleges has the particularity of their profession. They play dual roles, that is, educators and researchers. In today's society, in a sense, teachers have no scientific research, but no academic level. In scientific research, teachers can not only improve their academic level, feel the forefront of the development of modern science and technology, but also improve their ability to find problems and solve problems creatively. The combination of scientific research and teaching can enable teachers to continuously improve the summary and achieve more results in the teaching practice. This point should be paid attention to.

Literature Review

The term "academic ability" can be divided into two parts, namely "academic" and "ability". Scholars

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define these two groups of concepts mainly from the "Cihai", in which "academic" is defined as more specialized and systematic knowledge; while "ability" refers to the ability to complete certain activities. The study of academic competence has attracted the attention of many educators, and has been studied successively. Ernest Boyer, former president of the Carnegie Association for the Promotion of Teaching, put forward the academic thought to improve the reality of the declining quality of undergraduate teaching in American universities and the excessive attention of teachers to academic development. That is, academic is divided into inquiry academic, integrated academic, applied academic and teaching academic. To some extent, this idea balances the relationship between teaching and scientific research of colleges and universities, and also promotes the balanced development of teachers (Boyer, 1990). Boyer (1990) put forward a new "big academic", academic can be divided into "discovery (research), integration, application and teaching" four kinds of independent and cross contact form, clearly put forward the concept of "academic" and the complete plan, and a certain theoretical construction, form a relatively complete university academic thought system. The report is considered the basic starting point for university academic development. Teachers' academic ability development research is an important aspect of academic research. In the existing research, the research of Boya, Schaen and other scholars has important representativeness and influence. Shulman (1999) As an integrator of academic research, his research on the development of teachers' academic ability has more deeply entered the field of professional and practice, and provided professional knowledge and professional practice foundation. In terms of theoretical support for academic competence development, Donald.A. The contribution of Schoen (2008) is very remarkable. Based on the criticism of "technical rationality", his view of "reflective practice" and "cultivating reflective practitioners" has produced a profound and extensive influence, especially in the field of teacher professional development. Because the core spiritual quality of academic ability is critical reflection ability, Schoen has proposed a systematic theory of "reflection in action", "reflection on action" and "reflection in action" based on "reflection in action". Hay McBer (2014) believes that "specialization, leadership ability, thinking, setting expectations, and relationship with others" are the five types of academic ability characteristic groups of high performance teachers, and they are subdivided into 16 specific academic ability elements. Dineke (2015) pointed out that teachers' academic ability should be the combination of teachers' personality characteristics, professional knowledge and teaching skills and teaching attitudes to deal with different teaching situations. It can be seen that in the demand of improving the quality of higher education, the academic ability of teachers deserves special attention.

Combined with this study, the author believes that academic ability should be divided into basic ability and comprehensive ability, among which basic ability includes theoretical knowledge cognitive ability, academic communication ability, data collection and processing ability, academic ethics ability; including finding and solving ability, academic method mastery and application ability, written writing ability, academic innovation ability; meanwhile, this study further considers that academic ability is a systematic training process, based on the experience of disciplines and their own basic ability, scholars formed after receiving professional academic practice and training activities.

Methodology

McClelland (1973) cited a large number of research results to suggest that in addition to subjective intelligence, knowledge, skills and other aspects, personal ideas and motivation also affect work performance, emphasizing that collecting first-hand information to explore the core influencing factors, to improve the ability and quality of the organization and individuals. In 1982, McClelland and Boyatzis published "competent manager: an efficient performance model", define competence as a person has and used in a life role in any characteristics, the potential characteristics of the individual, may be motivation, traits, skills, self image or social role, or knowledge (Boyatzis, 1982). Since then, competency

has been widely used in the human resource management of enterprises in the United States, the United Kingdom, Canada, Japan and other developed countries (ShippmannJS, 2000).

Knowledge and skills, self-concept, characteristics and motivation are the basic elements of human ability and quality. McLelland believes that people's ability and quality has the following characteristics: ① The best way to understand people's ability is not to judge through intelligence, ability tests and other means, but to observe what people have done to achieve ultimate success. ② The best way to achieve high performance is to let people show the ability and quality of high performance in the same position. ③ Ability is not acquired through genetics, but through learning and can be changed. ④ Ability and quality is visible and understandable, and is linked with meaningful work and life. The ability quality model is defined as the sum of the ability quality required for a specific position or task role, that is, the ability quality model. This includes all the important knowledge, skills and behaviors that affect individual success and is often used by organizations to test the abilities and qualities of employees. Individual use of the ability and quality model can help them to distinguish the ability and quality of the job needs, their own advantages and shortcomings, the need to continue to learn, improve the field of improvement, and the direction of career development.

The research idea is to take the post role of high performance as the research object, extract the relevant ability and quality characteristics through the behavioral event interview method, and construct the ability and quality model. This idea requires the model builders to have professional interview skills and explore the ability and quality characteristics of high performance people through interviews, so as to guide on-the-job employees to learn and train according to this standard, so as to improve their own ability and quality and improve their work performance. Using this method, this study uses the behavioral event interview and rooted theory research method to extract the characteristics of teachers' academic ability through coding induction.

- (1) Behavior event interview method
- (A) Behavioral event interview method

Behavioral event interview method (Behavioral Event Interview) is an open behavioral retrospective exploration technique developed by Mc Clelland in the 1970s (Mcber Hay, 2014). This study intends to use "non-programmed standardized interviews" and "primary informant interviews". "Non-programmed standardized interviews" means that all respondents answered the same questions, but the order of the questions was changed by individual responses. The "main information provider interview" is an in-depth interview with people with expertise, status or communication skills who are willing to share with researchers. Therefore, this study was mainly conducted by conducting interviews with the main information providers, and the order of the questions was varied by the response of the respondents. Because the views of the main information providers are often biased and one-sided, their statements are often unclear. The information obtained from the main informants represents "awareness" rather than "fact", so it can be understood by the main informant by the language communication.

In this study, the behavioral event interview method helped the interviewees to recall and elaborate the most influential events in the academic process of growing into teachers, clearly record the background, process, personal behavior, results and perception, and extract the ability and quality characteristics through the analysis of the interview data. In this study, 16 teachers were interviewed in Z Province.

- (2) Rooted theory research method
- (2) Grounded theory research method

Rooted theory research method is a qualitative research method of bottom-up induction coding proposed by American scholars Anselm Shi Te and Barney Glaser in 1967. Glaser and Strauss (1967)

first proposed root theory in his discovery of Rooted Theory. In the following decades, many researchers also constantly revised and improved the theoretical system that eventually became a system.

This method is based on the original data, induction, generalization, refining, so as to construct the theory. In this study, we can summarize and sort out the characteristics of teachers' academic ability. Through the careful study of the root theory, I learned that the strict root theory method is divided into four steps: proposing research questions, collecting data on the spot, data coding step by step, theoretical testing and discussion.

Put forward research questions: root theory is a kind of scientific qualitative research method, applicable field is relatively broad, problems can be put forward by intuition and interest, but the applicable conditions have certain requirements, namely the research problem to come from some actual phenomenon or real data, cannot hypothesis and theory construction, only need certain literature analysis, and then from the field research nature found in the real data.

Field data collection: the process of data collection is not a system design, unchanged, but in the process of data collection and analysis according to the research direction constantly adjust change, mainly by determining the direction, depth interview, data collection processing steps, in the process of subsequent coding again, according to the content of the research targeted supplementary materials.

Data step coding: is rooted in the main program of the theoretical research, generally divided into open, spindle, selective coding three steps, open coding is the original data of the field investigation word by word of decomposition screening and extraction, and give the theme label, the step is not a simple symbol, but to retain the original content first conceptualization, integrate these concepts together further category. Spindle coding is constantly classified in the execution program, and then a few categories that can express the central meaning emerge, and then discover the internal relationship between different categories. The main operational purpose of spindle coding is to connect the related categories with distinct themes and obvious connections. Selective coding is to carry out analysis and comparison between the main categories obtained in the previous program. By creating the method of creating story lines, each categories organically form the core category, and test the category relationship with the original data, and finally determine the core category.

Theory test and discussion: after performing the complete root theory program, theory initial formation, then need to test the theory of the scientific, credibility, dense, to continue to collect new data samples, the theoretical model theory saturation test, through the procedural processing of new data, check can produce new concepts, at the same time again compare related literature and theory, to verify the theory and put forward the new category, and continue to supplement the original theory until saturation.

In this study, the behavioral event interview method is used to obtain first-hand research data; the grounded theory research method is used to code the interview materials, analyze the number and person, and extract the representative codes to obtain the characteristics and elements of the academic ability of teachers in normal colleges. In the process of research, the opinions of peer experts were consulted, and the triangle cross test method was adopted to ensure the validity of the interview questionnaire and the results, and to ensure the standardization and science of the coding process, which enhanced the objectivity to a certain extent and overcame the subjective tendency of qualitative research.

Empirical Results and Analysis

The study included collecting and organizing the relevant research data, determining the research protocol, and developing the interview outline and protocol. From January to April 2023, the researchers conducted one-on-one interviews of behavioral events with 16 formal interviewees, and after the interviews, all interview recordings were text transcribed. After transcription, the researcher will check the text against

the recording to ensure the maximum compliance with the actual recording content and form the most important data of this study. Coding quality is a key factor that directly affects the research results. Based on the grasp of coding quality, researchers not only participate in coding, but also invite an experienced psychological education colleague to participate and form a two-person coding group. In this study, using the rooted theory paradigm, according to the gradually abstract principle of hierarchical extraction, it successively carries out the coding work of open coding, association coding and core coding. On this basis, the coding team has repeatedly discussed to form a preliminary coding dictionary. Coding dictionary is conducive to the initial concept classification, researchers according to the coding dictionary for formal coding, can maximize the degree to ensure the internal consistency of coding.

Table 1: Dictionary of Teachers' Academic Ability Coding in Normal Universities

| order number | Item | order number | Item | order number | Item | order number | Item |
|--------------|-----------------------------|--------------|--|--------------|--------------------------------|--------------|---|
| 1 | Subject knowledge | 15 | self-management | 29 | loving to excel others | 43 | Have a big picture |
| 2 | Classroom teaching | 16 | Pay attention to thinking | 30 | Have the courage to bear | 44 | Care for students |
| 3 | transformation of education | 17 | Good at learning | 31 | keep on carving | 45 | To serve the society |
| 4 | research-on-research | 18 | consciousness of innovation | 32 | Willing to contribute | 46 | hobbies and interests |
| 5 | professional ability | 19 | dare to explore new ground | 33 | pursue perfection | 47 | Self-motivated |
| 6 | information technology | 20 | take this opportunity to | 34 | Strong sense of responsibility | 48 | cherish posts and devote wholeheartedly to work |
| 7 | academic exchange | 21 | Modest tolerance | 35 | justice and equity | 49 | need for achievement |
| 8 | instruct students | 22 | Optimistic and confident | 36 | People oriented | 50 | Goal pursuit |
| 9 | management by objective | 23 | Flexible | 37 | The pursuit of efficiency | | |
| 10 | Process management | 24 | aggressiveness | 38 | Good at accumulation | | |
| 11 | School-school cooperation | 25 | endure hardships and be capable of hard work | 39 | pursuit of excellence. | | |
| 12 | Post internship | 26 | Integrity and honesty | 40 | search one's heart | | |
| 13 | director of tournament | 27 | Work hard | 41 | face difficulty directly | | |
| 14 | Master the needs | 28 | peace of mind | 42 | dare to challenge | | |

| Serial | term | Serial | term | Serial | term | Serial | term |
|--------|-------------------------------|--------|---|--------|---|--------|------------------------------|
| 1 | subject knowledge | 15 | self-regulation | 29 | competitive | 43 | see the big picture |
| 2 | classroom teaching | 16 | reflective | 30 | Take Charge | 44 | Caring for students |
| 3 | reform of teaching profession | 17 | be good at learning | 31 | Perseverance | 45 | Serving the community |
| 4 | scientific research | 18 | Creative awareness | 32 | willingness to give (idiom); giving of one's time | 46 | Hobbies |
| 5 | professional capacity | 19 | dare to explore | 33 | pursue perfection | 47 | ambitious |
| 6 | information technology | 20 | Seize the opportunity | 34 | strong sense of responsibility | 48 | industrious and hard-working |
| 7 | academic exchange | 21 | Modesty and tolerance | 35 | equitable and just | 49 | Demand for achievement |
| 8 | Mentoring students | 22 | optimistic and confident | 36 | people-oriented | 50 | Pursuit of Objectives |
| 9 | target management | 23 | adaptable | 37 | The pursuit of efficiency | | |
| 10 | process management | 24 | Proactive | 38 | be good at accumulating | | |
| 11 | School-School Cooperation | 25 | hardworking and enduring hardships | 39 | Pursue excellence. | | |
| 12 | job attachment | 26 | honest | 40 | self-examination | | |
| 13 | Competition Guidance | 27 | make a serious effort | 41 | face up to difficulties | | |
| 14 | Mastering demand | 28 | tranquil and even-tempered (idiom); calmly disposed | 42 | dare to challenge | | |

After completing the coding of all the interview materials, the two coders further check, check and discuss to reduce the coupling of teachers' academic ability elements and maximize the accuracy of coding. After encoding, the data were analyzed statistically. After coding data statistics, normal school teachers academic ability elements form 18 class level coding, namely open coding, mainly includes: professional ability, guide students, classroom teaching, teaching reform, scientific research, school cooperation, post practice, competition, summary thinking, learning, explore innovation, responsibility, perseverance, broad, strong desire to do better, Wuxi, achievement demand, goal pursuit.

Secondary coding, that is, related coding, research repeatedly review the original data, the primary coding of the overall classification, summarized and sorted out the connection between the categories, and finally sorted out. As shown in Table 2, there are five categories: teaching and research ability, practical ability, development ability, personality attitude and internal motivation. On this basis, two categories of core codes are formed, namely, explicit ability and internal implicit ability of teachers in normal colleges. Finally, on the basis of three-level coding and statistics, the statistical table of academic ability characteristics of teachers in normal colleges is formed.

Table 2

| Core coding | Affiliate encoding | Open coding | Mention the number of people | The number of mention | |
|----------------------|-------------------------------|---|------------------------------|-----------------------|----|
| Expression ability | Teaching and research ability | professional ability | 16 | 18 | |
| | | instruct students | 12 | 19 | |
| | ability of practice | Classroom teaching | 11 | 20 | |
| | | transformation of education | 10 | 22 | |
| | | research-on-research | 16 | 15 | |
| | | School-school cooperation | 13 | 18 | |
| | Development ability | Post internship | director of tournament | 12 | 18 |
| | | | Summary thinking | 10 | 15 |
| | | Development ability | Learning to improve | 14 | 18 |
| | | | Explore innovation | 15 | 30 |
| Personality attitude | | | responsibility | 12 | 22 |
| responsibility | | | 16 | 25 | |
| Intrceptive ability | Personality attitude | keep on carving | 13 | 16 | |
| | | good state of mind | 11 | 23 | |
| | | Self-motivated | 16 | 22 | |
| | internal motivation | cherish posts and devote wholeheartedly to work | need for achievement | 16 | 36 |
| | | | Goal pursuit | 11 | 30 |
| | | Goal pursuit | 15 | 15 | |

Statistical table of characteristic elements of teachers' academic ability in normal colleges

| core code | associative coding | open coding | Number of references | Number of references | | |
|----------------------|--------------------------------|-----------------------------------|---------------------------|---------------------------|----|----|
| epigenetic capacity | Teaching and research capacity | professional | 16 | 18 | | |
| | | capacity | 16 | 18 | | |
| implicit ability | attitude | Mentoring students | 12 | 19 | | |
| | | classroom teaching | 12 | 19 | | |
| | | classroom teaching | 11 | 20 | | |
| | | classroom teaching | 11 | 20 | | |
| | | reform of the teaching profession | 10 | 22 | | |
| | | reform of the teaching profession | 10 | 22 | | |
| | | scientific research | 16 | 15 | | |
| | | scientific research | 16 | 15 | | |
| | | practical ability | School-School Cooperation | School-School Cooperation | 13 | 18 |
| | | | | School-School Cooperation | 13 | 18 |
| | | Development capacity | Development capacity | job attachment | 12 | 18 |
| | | | | job attachment | 12 | 18 |
| | | | | Competition | 10 | 15 |
| | | | | Guidance | 10 | 15 |
| Concluding thoughts | 14 | | | 18 | | |
| Concluding thoughts | 14 | | | 18 | | |
| Learning Enhancement | 15 | | | 30 | | |
| Learning Enhancement | 15 | | | 30 | | |
| implicit ability | attitude | Exploring Innovation | 12 | 22 | | |
| | | Exploring Innovation | 12 | 22 | | |
| | | Responsibility | 16 | 25 | | |
| | | Responsibility | 16 | 25 | | |
| | | Perseverance | 13 | 16 | | |
| | | Perseverance | 13 | 16 | | |
| implicit ability | attitude | good attitude | 11 | 23 | | |
| | | good attitude | 11 | 23 | | |

| | | | |
|----------------------|-----------------|----|----|
| | ambitious | 16 | 22 |
| | | 16 | 22 |
| intrinsic motivation | industrious and | 16 | 36 |
| | hard-working | 16 | 36 |
| | Demand for | 11 | 30 |
| | achievement | 11 | 30 |
| | Pursuit of | 15 | 15 |
| | Objectives | 15 | 15 |

Discussion and Contributions

It is found that the academic ability of teachers in normal colleges has the following characteristics.

It is found that the academic ability of teachers in normal universities has the following characteristics.

(1) The unity of practicality and individuality

(A) the unity of practicality and individuality

Practice and individuality are the typical characteristics of teachers' academic ability. The former is gradually formed and developed in the relevant academic activities; the latter characteristic emphasizes the uniqueness of the individual. The growth and development of academic ability cannot be separated from various practical activities, such as teaching, academic forum, academic reports, academic paper writing, etc., which can be improved through practice. Individuality determines that the teachers of each normal college have differences in their interests, ideas, thinking mode and knowledge structure. Therefore, the individual's academic ability will present the characteristics of personalized and diversified. For example, some teachers are good at grasping professional knowledge and analyzing problems, while some teachers have high academic sensitivity and are good at capturing academic hot spots. That is to say, the teachers of normal colleges will have different emphasis on the five aspects of academic ability, which requires giving full play to the advantages of the teachers' academic ability in the training, and appropriately balancing other abilities.

(2) The unity of stability and dynamics

(B) the unity of stability and dynamics

The stability of academic ability means that once the ability is cultivated, it can be maintained for a long time, forming a fixed psychological quality. It will not disappear with the passage of time, but not used for a long time will affect the ability of proficiency. Therefore, the stable academic ability of the teachers in the normal college needs to be continuously strengthened through the activities such as academic paper writing, investigation and research development and academic research guidance. Academic ability is practical and developed from practical activities. According to Marx's point of view, practical activities have the characteristics of history and reality, so academic ability must be a process of "from nothing to something" or "from something to excellent", that is, it shows that academic ability is dynamic. In addition, human's physical and mental development has stage characteristics, and the formation and development of human's academic ability must follow this objective law. Therefore, the academic ability of teachers in normal colleges should follow the characteristics of physical and mental development, step by step and arrange teaching courses and academic activities reasonably. Only on the real effect and mobilize the enthusiasm of teachers in normal colleges, so as to expand the vision and achieve the ideal effect.

(3) The unity of external dominance and internal recessive phase

(C) the unity of explicit and implicit

Explicit means that the academic ability of teachers in normal universities can be observed and evaluated. The judgment can mainly be made through the performance of expression. For example, in classroom

or academic activities, teachers' teaching logic is clear, clear expression, infectious, but also reading notes or paper writing language fluent expression, clear thinking, complete logical system and so on. Internal recessive means that some of its capabilities cannot be directly observed, hidden in the depths. These hidden abilities include academic self-cognition, motivation and interest, and so on, which determine the external manifestation of academic ability. According to the iceberg model, the explicit ability is the part floating on the surface, while the implicit ability is the part hidden underwater. The training goal of teachers' academic ability in normal college is to promote the improvement of explicit ability by understanding teachers' self-cognition and stimulating their interest and motivation in academic research.

Through the analysis and coding of the original data, it is found that the academic ability of normal university teachers can be divided into two categories: explicit academic ability and internal implicit academic ability. Explicit academic ability is the external expression of teachers' professional ability, which can be quantified and can also be cultivated through nurture, including the three core elements of teaching and scientific research ability, practical ability and development ability.

1. Teaching and scientific research ability. Teaching and scientific research ability is the basic academic ability of teachers, and it is also the most mentioned academic ability characteristic element in the interview. The interviewees mentioned it 94 times, including five categories of open coding, namely, professional ability, guiding students, classroom teaching, teaching reform, and scientific research.
2. Practical ability. Compared with ordinary undergraduate colleges, the biggest characteristic of normal colleges is strong practicality, so practical ability is a significant characteristic of teachers in normal colleges. The interviewees were mentioned 51 times. Practical ability is the core academic ability of teachers, which includes school-school cooperation, post practice and competition guidance.
3. Develop capacity. Development ability refers to the ability to help to improve oneself and constantly improve oneself, which determines the space and speed of personal growth. The interviewees were mentioned for 70 times. The coding are summary thinking, learning improvement and exploration and innovation.

Internal implicit academic ability is the factor of self-concept characteristics and personal characteristics. This ability determines the direction of individual struggle, but also provides strong motivation support, can stimulate people's initiative and creativity. This study found that the implicit academic ability of teachers plays an important role in promoting teachers, which is manifested as individual attitude and internal motivation.

1. Personality and attitude. Personality is the general term for individual thoughts, emotions, values, beliefs, perception, behaviors and attitudes. It affects how individuals examine themselves and their surroundings. The interviewees mentioned it 86 times, including open codes including responsibility, perseverance, good attitude and self-motivated.
2. Intrinsic motivation. Internal motivation, as a psychological drive, plays a role in stimulating and maintaining people's actions. The interviewees mentioned it 81 times, and the open codes included were love and dedication, achievement needs and goal pursuit.

Conclusions and Limitations

The development of academic ability is not only a matter of individual ability, but also involves all aspects of the whole educational system and social and cultural environment. The above research on academic ability is only a further explanation of academic ability. In terms of research limitations, it is worth mentioning that the selection of this study sample is only a representative province in China, and the study object is 13 normal universities in the province, and the sample has certain limitations. At the same time, although the triangular cross test checks the validity of rooted theory coding, the

representativeness of this study sample should be further explored. There is further room for subsequent research, such as the questionnaire design of teachers' academic ability based on theoretical model, the construction, verification and analysis of academic ability model of teachers in normal universities, and exploring the influencing factors of academic ability of teachers in this group, all of which will be further discussed in future research.

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