

# An Empirical Study on the Construction of Teaching Competency Model of University Teachers Under the Background of MOOC

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## Abstract

With the rapid development of Internet information technology, the global higher education has set off a wave of MOOC teaching. This MOOC education revolution has brought a huge impact on the traditional education mode of universities. It not only requires university teachers to change their teaching concepts, but also puts forward more stringent requirements on the competency of university teachers. However, there are still many problems and deficiencies in the current domestic higher education in the information technology era. Based on this, this paper first analyses the current development and application of MOOC education, then studies the status quo of university teachers' teaching ability, and finally gives the construction and application strategy of university teachers' teaching competency model based on MOOC background.

**Keywords:** Teaching Competency Model, University Teachers, MOOC;

## 1. Introduction

With the rapid development of computer information technology, it provides a new technical guarantee and means for the promotion and reform of current university education. Under the background of information revolution affecting all walks of life, the integration of information technology and university higher education not only injects new vitality into its education methods and means, but also makes the knowledge dissemination and information transmission of universities more efficient and direct. In the current situation of the spread of the new global epidemic situation, MOOC teaching based on information technology has once again become an important means of teaching in universities. Online teaching not only further opens the university curriculum resources, but also enables teachers and students to get rid of the time and space constraints, and can conduct academic research and exchange more freely. It can be said that the current MOOC education revolution has brought great

impact on the traditional education mode of universities. It not only requires university teachers to change their teaching concepts, but also puts forward more stringent requirements on the competency of university teachers.

However, a large part of the reality is that the current teaching role and competency of university teachers obviously cannot keep up with the rapid change of information technology era. On the one hand, University Teachers' MOOC teaching ability and experience are still insufficient, both the depth and breadth of the use of information technology need to be further improved; on the other hand, the teaching process of university teachers is lack of innovation, and limited by their own knowledge reserve status, teachers are difficult to give full play to the effect and role of MOOC teaching.

Based on the current situation and conditions of information network teaching in China, not only teachers need to make positive transformation, so as to better adapt to this relatively new teaching mode,

universities should also actively explore the reform of teachers' management mode, evaluation method and competency, only in this way can they adapt to the future development needs of higher education<sup>[4]</sup>. However, there are still many problems and deficiencies in the current development of domestic

higher education in the information technology era. The specific performance is shown in the following table 1. These problems have seriously restricted the mission and goal of cultivating key talents needed by the society.

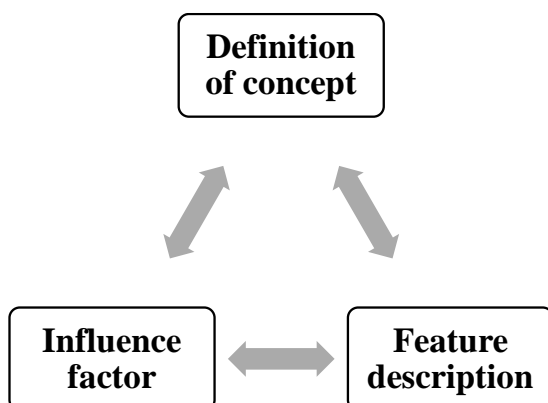
**Table 1.** The Problems and deficiencies of higher education.

Aspects	Problems	Effects
Teacher experience	Insufficient	The relationship between teaching and scientific research cannot be well coordinated
Knowledge structure	Imperfect	Attach importance to scientific research and despise Teaching
Education training	Insufficient	It is difficult to master the teaching process systematically
Lesson model	Unscientific	It is difficult to teach students in accordance with their aptitude

Under the current background of the times, in order to better adapt to the development of the times and cultivate more talents in line with the social needs, universities should actively strengthen the research on Teachers' competency according to the current situation and problems of their education, and analyse the teaching competency of university teachers from the following aspects as shown in Figure 1. Build a scientific and reasonable competency model, so as to comprehensively and objectively reflect the teaching level of university teachers, help to find out the deficiencies, improve their teaching ability and guide the continuous rise of their professional level.

In addition, the construction of faculty competency model based on the background of MOOC not only plays an important role in promoting the comprehensive and scientific research on the current situation and deficiencies of higher education, but also can build a harmonious relationship between university teachers' scientific research and teaching, and improve teachers' teaching ability while ensuring scientific research level. Moreover, the construction of the competency model of University Teachers Based on the background of MOOC can improve the teaching effect and knowledge literacy of teachers from the aspects of performance management, professional ability evaluation and other dimensions and levels, so as to lay a solid foundation for the cultivation of talents.

The combination of MOOC teaching and university teachers' competency model under the support of information technology can not only analyze the characteristics of teachers' competency, main structure and guide teaching practice, but also guide the scientific and reasonable planning of teachers' promotion and salary distribution. Generally speaking, the research on the construction



**Figure 1.** Construction elements of teaching competence of university teachers.

of University Teachers' competency model based on MOOC has important practical value and theoretical guidance value.

## 2. The development and application of MOOCS in universities

### 2.1. The concept and development of MOOC education

MOOC is a network education method based on Internet technology. It can share high-quality

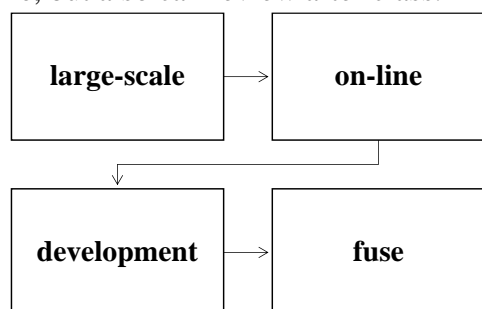
teaching resources and knowledge system with professional teaching platform and information-based teaching means<sup>[1]</sup>. At the same time, it is also an effective carrier of information transmission to realize information exchange and transmission not limited to space and time. With the continuous iterative development of information technology, the current development of MOOC teaching presents several development trends as shown in Table 1 below.

**Table 2.** The development trends of MOOC teaching.

Aspects	Features	Functions
Scale	Continue to expand	Driving the rapid construction of platform system
Independence	Related MOOCS	Recombination, relocation, forward transport
Teaching philosophy	Continuous innovation	Constructing equal teaching relationship between online and offline
Teaching method	Continuous improvement	More interactive and continuous learning
Network technique	Increase interest	Reform teaching mode

### 2.2. The characteristics of MOOC education

With the gradual popularization and development of MOOCS, the characteristics of MOOCS are shown in Figure 2. Most of the MOOCS have a fixed class time and belong to the teacher guidance type, and most of the MOOC teaching platforms are built and integrated by the university itself. Secondly, MOOC teaching is more interactive than traditional classroom teaching. In addition to setting up professional course courseware, teachers will also design special MOOC operation mechanism. In addition, MOOC teaching requires more extensive sources of students, students can fully learn at the same time, but also can review after class.



**Figure 2.** The characteristics of MOOCS education.

In terms of teaching scale, MOOC teaching is mixed and has a more open nature. For example, tens of thousands of people can attend a class at the same time. In the mode, the MOOCS video is divided into small pieces. When watching the video, other content can be related and shared, so as to attract the attention of students, at the same time, it can also play a better display effect. In addition, on the interactive level, students can communicate with teachers based on the communication community built by MOOC platform. In the current higher education, most universities require students to complete the courses according to the requirements. Therefore, based on MOOCS, students can freely choose courses, instead of being affected by teachers and hardware resources as the traditional classroom, so that students can choose the courses of interested teachers and complete the credits.

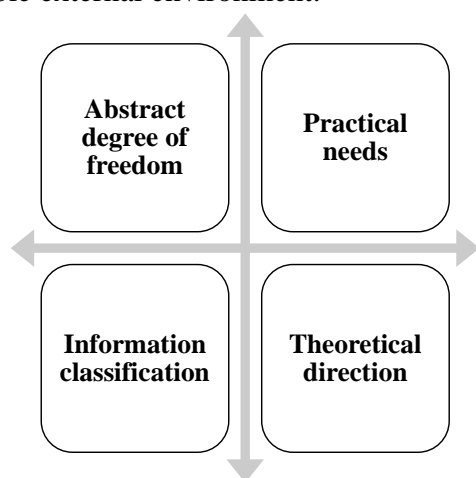
#### 2.2.1. Key elements of MOOC teaching

The key elements of MOOCS teaching in universities are mainly in the following aspects: firstly, teachers are required to carry out personalized teaching design; secondly, systematic

support services; in addition, there should be social mutual learning, intensive high-quality resources and a dynamic teaching environment. Moreover, a successful MOOCS teaching design should involve more diverse elements, such as pictures, text, sound, video and background, so that teachers' teaching materials can be more fully displayed. The key to the teaching elements of courseware MOOC is to realize the organic coordination among education, information, emotion and derivative, so as to give full play to the advantages of MOOC teaching.

### 2.2.2. Risk response of MOOC teaching

In the current era of information explosion, students and teachers are faced with a lot of information and consultation, which contains a lot of useful information, but also contains a lot of garbage consultation, which requires teachers and students to have a strong knowledge system and judgment ability, so as to unify the knowledge point of view scientifically. Secondly, in the judgment level of knowledge part-time, it is required to effectively distinguish and classify valuable knowledge, common sense and worthless affairs, so as to accurately obtain information. Based on this, the risk response level of MOOC teaching should be based on the operation and development as shown in Figure 3, so as to adapt to the complex and changeable external environment.



**Figure 3.** Risk response operation level of MOOC.

### 2.2.3. MOOC information potential and personalized path

With the increase of the amount of information faced by students, the trend of students' individuation is gradually enhanced, which is the inevitable phenomenon caused by the individualization of bachelor's degree. Secondly, the cross product of information person vector is the main inducement that leads to the inherent individuation of bachelor degree<sup>[2]</sup>. The vector product of information human leads to the enhancement of external competitiveness. The more information in MOOC class is, the higher the enthusiasm of students is. Even under the same classroom information, students' interest and passion are different. Therefore, it is necessary to intensify students' emotional potential so as to produce a stream of consciousness.

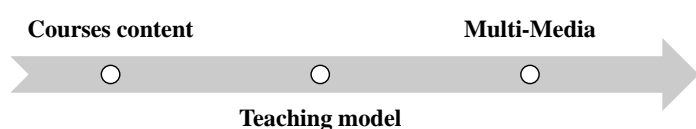
### 2.3. Innovative mechanism of MOOC teaching

The innovation mechanism of university education based on MOOCS perspective should start from the level of students' cultural intuition, and cultivate students' ability to be ready for development and innovation bifurcation. Secondly, in the logic level of science, we should make full use of the non-equilibrium phase change under the effect of information potential to realize the innovation of MOOCS under the information condition. As the MOOC teaching based on information conditions, leapfrog innovation and development is the basic requirement and characteristics of MOOC teaching, and the path selection and evaluation mechanism based on the cultivation of innovation ability should be constructed to realize the close connection between teaching content and textbook selection.

### 3. Analysis on the current situation of teaching ability of university teachers

In recent years, with the country's increasing investment in higher education, colleges and universities gradually expand the scale of enrollment, in this context, the demand for teachers is also gradually increasing<sup>[3]</sup>. With the expansion of universities, the structure of teachers in most universities is gradually showing a trend of youth. Although these trends timely solve the practical needs of the shortage of university teachers, they

bring many new problems. It is mainly manifested in a series of practical problems, such as paying attention to academic qualifications and neglecting experience in the recruitment of teachers, which leads to a series of practical problems such as the knowledge of professional learning theory and teaching theory, strategy and method of newly recruited university teachers are not competent for the teaching and training objectives of the university. The specific performance is shown in the following aspects as in figure 4.



**Figure 4.** The problems of teaching ability of university teachers.

*3.1. It is difficult to grasp the teaching content accurately*

At present, although most of the university teachers have higher education background, they are lack of teaching experience. In this case, university teachers, especially the newly recruited university teachers, are difficult to undertake the teaching task alone. Due to the lack of teaching practice knowledge, most university teachers lack accurate and systematic grasp and understanding of the curriculum system of higher education. Secondly, for the new university teachers, many of their teaching contents and majors are not their professional expertise, which leads to their poor understanding of the teaching content and lack of familiarity, so they can only recite the course according to the book in class.

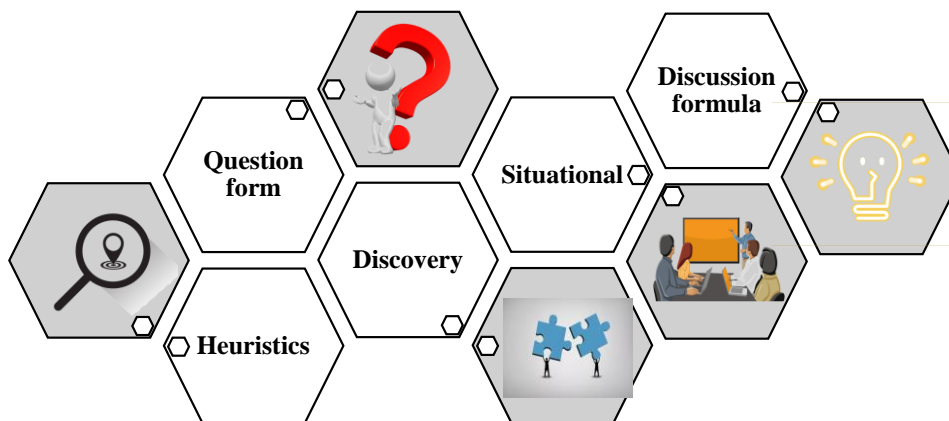
In addition, due to the lack of experience, some university teachers' teaching process is inseparable

from the teaching materials, but they grasp the teaching materials unscientifically and comprehensively. It is difficult to reflect the key points and key points whether the case cited is inappropriate or the theoretical explanation content.

*3.2. The teaching mode is too unitary*

At present, many university teachers do not systematically graduate from normal universities, so they are relatively lack of teaching theory and basic teaching skills of higher education<sup>[4]</sup>. These deficiencies seriously affect the theoretical and practical teaching activities of these university teachers. Secondly, contemporary higher education gradually pays attention to the subjective role of students, so teachers are required to pay attention to the use of teaching methods and means as shown in Figure 5 in the classroom teaching process to enhance students' learning enthusiasm and initiative.

In addition, under the background of the gradual rise of MOOC teaching, the traditional indoctrination and unidirectional teaching methods have been unable to meet the teaching needs. This requires the university teachers to innovate the teaching mode scientifically and systematically, and find the teaching methods that support the teaching theory of modern higher education, especially the teaching methods that meet the teaching needs of MOOC. Only in this way can it realize the optimization and integration of teaching ideas and contents, promote the innovation of teaching practice, and effectively improve the teaching effect of College Classroom under the background of MOOC.



**Figure 5.** Teaching methods and means of higher education.

**3.3. Unskilled application of information technology**  
With the gradual rise of MOOC in universities, this teaching method puts forward higher requirements for University Teachers' information literacy, especially the ability to use multimedia technology<sup>[5]</sup>. At present, most university teachers

can use multimedia and information technology to assist their teaching activities. However, many teachers' application of multimedia information technology shows a generalized state, which is shown in the following table 3.

**Table 3.** Unskilled application of information technology.

Aspects	Consequences
Copy textbooks	The multimedia courseware become a copy of the textbook
Focus on form	Distract students' attention
Ignore elements	Dilute students' attention to the key points and difficulties
Lack of experience	The understanding of teaching content is not deep
Lack of information teaching ability	Unable to integrate teaching content and information technology organically

The problems shown in Table 3 are mainly due to the fact that many teachers are not proficient in the application of information technology, lack of sufficient information literacy, and it is difficult to deeply integrate teaching activities with information technology, resulting in the application of multimedia information technology to improve the teaching effect. In addition, due to the lack of effective information-based teaching platform in some universities, it is difficult for teachers to effectively use the platform to carry out diversified teaching activities. From the above analysis, we can see that under the background of MOOC, it is urgent

to analyze the competency of university teachers effectively and build an efficient analysis model.

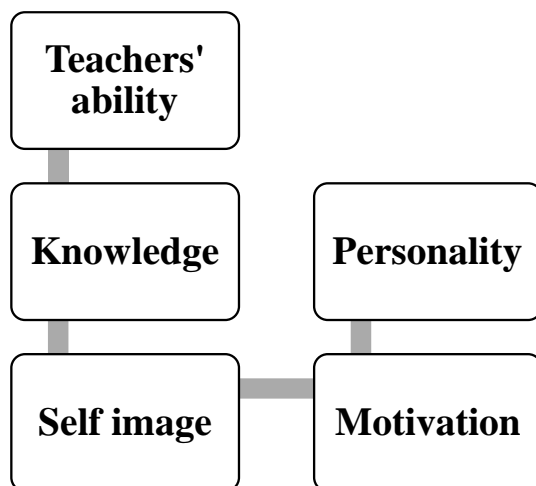
**4. Construction and application of teaching competency model of university teachers**

**4.1. The definition of teaching competence of university teachers**

University Teachers' teaching competence refers to the combination of teachers' personality characteristics, knowledge, teaching skills and teaching attitude required under the background of higher education<sup>[6]</sup>. Secondly, it also refers to a kind of professional knowledge, professional skills and professional values possessed by individual

university teachers and related to the implementation of successful teaching. In addition, it also covers the university teachers' knowledge, skills, values and other aspects of the specific content, and it directly

affects the teaching effect of teachers. Generally speaking, the teaching competency of university teachers includes several aspects as shown in Figure 6 below.



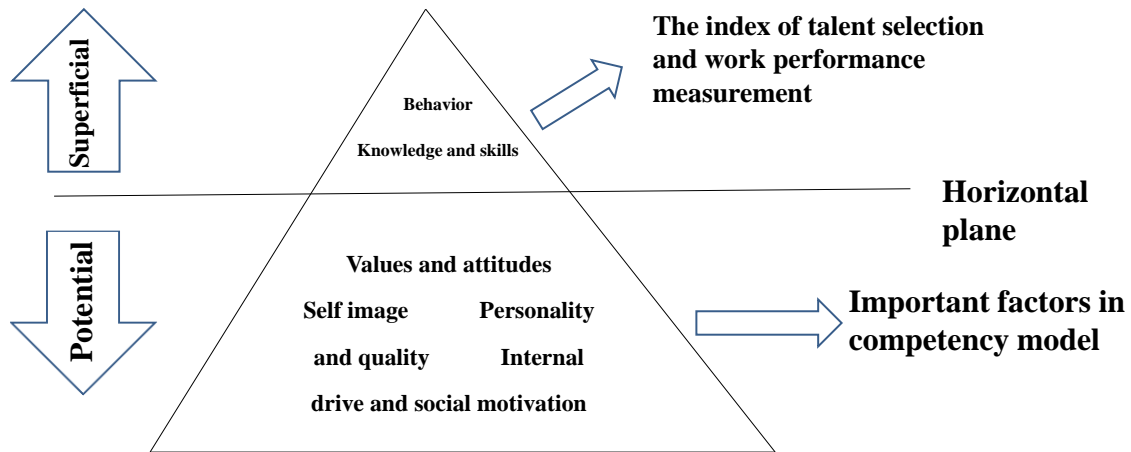
**Figure 6.** The teaching competency of university teachers.

#### 4.2. Classification of competency characteristics of university teachers

The competency characteristics of university teachers can be divided into benchmark competency and discriminative competency. Among them, in the level of benchmark competency, it mainly refers to the common quality required by university teachers to complete their work, that is, the common characteristics required by university teaching positions and higher education industry<sup>[7]</sup>. At the level of discriminative competency, it mainly refers to the competency that can distinguish excellent and ordinary performance of university teachers. In short, it is the unique characteristics of university teachers' positions and outstanding people in higher education industry from ordinary people.

#### 4.3. Construction of university teacher's competency model

The competency model of university teachers refers to the summation of these surface and potential characteristics that constitute the work of higher education<sup>[8]</sup>. The complete competency model of university teachers includes several groups, as well as some specific characteristics of competency, as shown in Figure 7. Among them, the superficial competence includes behavioral knowledge and skills, which is equal to the traditional talent selection and performance measurement indicators. The potential competency, including values, attitudes, self-image, personality, quality, internal drive and social motivation, is difficult to be valued, but it is just an important element in the competency model.



**Figure 7.** Competency model of university teachers.

*4.4. Analysis on competency model of university teachers*

Based on the competency model of university teachers, the surface features of university teachers, such as knowledge and skills, which are easy to be observed and evaluated, are above the horizontal plane<sup>[9]</sup>. The knowledge of university teachers is mainly reflected in professional knowledge, education and psychology knowledge. Excellent university teachers should not only be able to firmly grasp the knowledge system of the subject, but also skillfully use a variety of teaching methods, and be able to integrate these knowledges into practical teaching activities. Secondly, on the level of

University Teachers' skills, it mainly refers to the ability of expression, analysis and conceptual thinking of university teachers. Teachers' skills can be directly evaluated through MOOC teaching activities and listening to classes.

In addition, at the social role level, the social role of university teachers is the image they try to express in front of students, parents, schools and society, as shown in Table 4 below. University teachers should have a clear positioning of their social role, so as to correctly regulate and guide their own behavior and performance.

**Table 4.** The social roles of university teachers.

Groups	Social roles
Students	Communicators, educators, administrators, demonstrators, parents and friends
Parents	The bridge between students and parents, parents' consultation object
University	member of university, participate in the management and implement of university regulations
Society	Love teachers' profession, and set up a good image of teachers

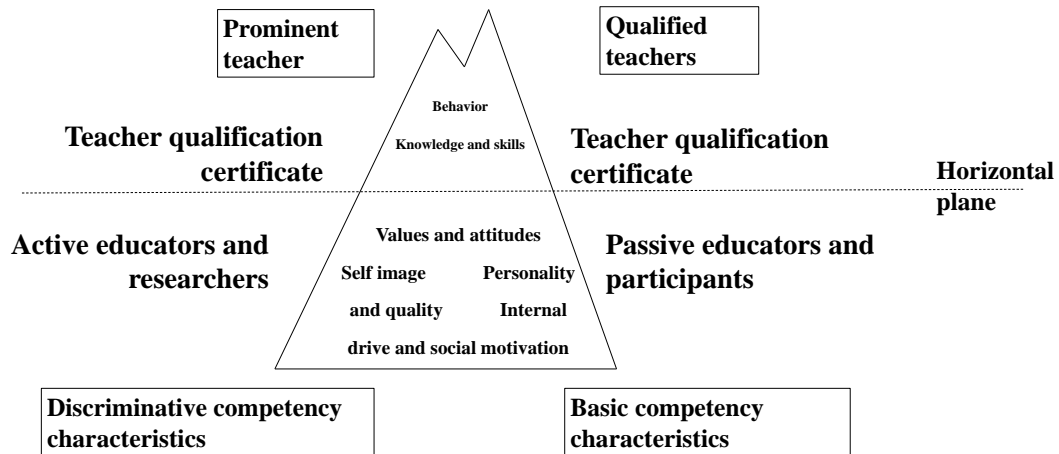
In the self-concept level of university teachers, university teachers should have correct self-awareness, including self-control ability, evaluation ability and reflection ability, and have a correct understanding and understanding, so as to influence their own behaviour and performance imperceptibly from a deep level.

In terms of the characteristics of university teachers, as relatively persistent characteristics of individual behaviour, different university teachers have different characteristics. Therefore, teachers should have the characteristics of understanding, respecting and tolerating others, as well as enthusiasm, self-confidence, sense of responsibility,



integrity, creativity and stable emotions. At the level of motivation of university teachers, as an important factor determining teachers' explicit behaviour and natural and stable psychological tendency, University Teachers' motivation will effectively

affect their own behaviour and performance of the core factors. In general, the characteristics of teaching competency model of university teachers are shown in Figure 8 below.



**Figure 8.** Features of competency model of university teachers.

#### 4.5. Application of teaching competency model of university teachers

The teaching competency model of university teachers defines the standard of excellent university teachers, organically combines all the requirements for excellent performance in the position of university teachers, and presents them to the organization managers and employees in the form of the model for their application, so as to further improve the MOOC teaching level of university teachers and enhance their professional development ability.

Under the background of MOOCS, universities should help teachers define the connotation of MOOCS teachers' teaching work and make clear the training contents of MOOC teachers. Secondly, we should expand the team of high-quality MOOC teachers, guide the career planning of university teachers, and then formulate development goals and development plans according to the requirements of competency model, and seek ways to improve the ability of university teachers. In addition, teachers should evaluate and predict their own professional development scientifically and objectively based on the teaching practice and competency model of

MOOC, so as to lay the foundation for effective teaching practice.

#### 5. Conclusion

In summary, the construction of University Teachers' competency model based on the background of MOOCS not only plays an important role in promoting the comprehensive and scientific research on the current situation and shortcomings of higher education, but also can build a harmonious relationship between university teachers' scientific research and teaching, and improve teachers' teaching ability while ensuring the level of scientific research. An all-round and multi-dimensional analysis of the teaching competency of university teachers and the construction of a scientific and reasonable competency model will help to comprehensively and objectively reflect the teaching level of university teachers, help to find out the deficiencies, improve their teaching ability and guide the continuous rise of their professional level.

Based on the analysis of the current development and application of MOOC education in universities, this paper studies the concept, development status, characteristics, key elements and innovation

mechanism of MOOC education. Secondly, through the analysis of the current situation of University Teachers' teaching ability, this paper points out the current teaching situation and problems of university teachers. Finally, this paper constructs the teaching competency model of university teachers based on the background of MOOC, and analyzes its construction strategy and specific application under the background of MOOC, so as to help university teachers to formulate development goals and development plans based on the competency model, and seek ways to improve the ability of university teachers.

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