

Development Strategies for Higher Education Institutions Based on the Cultivation of Core Competitiveness

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Abstract—The development of higher education institutions is the inevitable path towards strong scientific research ability of higher education. Currently, under the impact of the strategies of developing world-class universities, and strengthening the core competitiveness of disciplines, higher education institutions in China are faced with immense challenges. Based on the cultivation of core competitiveness, this paper explores the evaluation and development strategies for the core competitiveness of higher education institutions. The results show that: core competitiveness is a comprehensive intangible ability, and improving core competitiveness helps to clarify the direction and enhancing the quality of talent training. The core competitiveness of China's higher education institutions has continued to improve, as evidenced by the growth in educational resources, educational fund, and scientific results. The core competitiveness of higher education can be evaluated by the following indexes: school-running philosophy, academic production capacity, management model innovation capacity, campus culture construction capacity, human resource management innovation capacity, and training model innovation capacity. The research results lay a theoretical basis for the reform of higher education institutions.

Keywords—higher education institutions, core competitiveness, development strategy, talent training, innovation ability

1 Introduction

Higher education has received more attention from people than ever before, and now the new era has posed even higher requirements for the development of education field [1, 2]. In fact, the development of higher education not only should adapt to the needs of the country, but should pay attention to the development of international community, retain and develop the traditional features of the country, and cultivate talents with a global vision [3, 4]. Now there's an upsurge of building "double first-class" universities and disciplines in the education field in China, and the Chinese universities and colleges are making great efforts to optimize the structure of higher education, and improve the effect and quality of higher education [5]. At present, the

serious lack of facilities, resources, and investment has brought great challenges to the development of higher education [6, 7], and there're other problems such as the too-low proportion of expenditure for school personnel, and the resource allocation of higher education institutions does not conform to the law of development of higher education [8].

There are many types of higher education institutions such as development institutions, evaluation institutions, and supervision institutions [9]. The close cooperation of higher education institutions provides a guarantee for the connection and interaction among various components in the higher education system [10, 11]. In China, these higher education institutions haven't fully played their roles, and the contradictions existing in the construction and research works of higher education have become more prominent in these days, and higher education institutions generally have problems such as dislocated functions, unclear boundaries, and mismatch between structures and functions, etc. [12, 13]. Despite of these unsolved issues, the comprehensive reform of higher education has made certain progress, acting as important organizations for studying the laws of higher education, higher education institutions have well played their role of "think tank" when providing theoretical support for colleges and universities and solving practical questions [14]. The development of higher education institutions could contribute to the full use of their functions, help to promote the scientific management of these institutions, and push forward the research of higher education [15].

The core competitiveness of higher education is essentially the capacity to optimize social objectives and achievements, and to maximize the created value [16, 17]. The core competitiveness of higher education is unique to the disciplines, it is an integration of resources, knowledge, and abilities that can maintain a long-term competitive advantage [18, 19]. Taking art or sports students for instance, their core competitiveness is to acquire knowledge, skills, and personal qualities through teaching, training, and extracurricular practical activities, and then excel in a certain aspect [20]. The core competitiveness of higher education aims to solve the employment issue of students, and the competence of students is directly related to their employability, employment quality, and career development, etc. [21]. Based on the cultivation of core competitiveness, this paper attempts to explore the evaluation of the core competitiveness of higher education institutions and propose targeted development strategies for them, in the hopes of providing a theoretical evidence for the reform of higher education institutions.

2 Status quo of core competitiveness of higher education institutions

2.1 Analysis of status quo

Higher education institutions in the United States started earlier and they are more mature than those in China [22]. Then, the changes in higher education and the scale of higher educational schools have promoted the development of the research work of

colleges and universities, which has also urged the establishment of academic research institutions [23]. Higher education started in China during the period of the establishment of the nation, then it grows with the country and matures in recent years, however, the core competitiveness of higher education institutions in China still lags their counterparts in America [24]. Now in China, the responsibilities of higher education institutions are expanding, the researchers are more professional and the research methods are more scientific [25]. Table 1 lists the differences between higher education institutions in China and the United States. In terms of functional content, the Chinese higher education institutions mainly engage in theoretical research and specific administrative work, while the American higher education institutions directly assume the specific research projects of the schools; in terms of organization orientation, the Chinese higher education institutions are academic institutions, while the American higher education institutions are administrative institutions; in terms of research purpose, the research purpose of Chinese higher education institutions is mainly to develop academic theories, while the research purpose of American higher education institutions is to improve the management practice.

Table 1. Differences between higher education institutions in China and the United States

	China	United States
Research object	Basic theories of education in the field of higher education	Basic data and information
Functional content	Theoretical research and specific transactional work	Undertake specific research projects of the school
Organization orientation	Academic institutions	Administrative agencies
Research purpose	Developing academic theory	Improving management practices

Figure 1 shows the gross enrollment rate of higher education institutions in China from 2013 to 2020. The gross enrollment rate exhibits a gradual growth over the years. Compared with 2013, from 2014 to 2020, the gross enrollment rate increased by 5.98%, 7.75%, 29.9%, 32.7%, 49.6%, 58.1%, and 58.8%, respectively. Figure 2 shows the first-time employment rate of higher education institutions from 2013 to 2020. On the whole, the first-time employment rate was always above 87%, the number kept around 90%, showing an overall increasing trend over the years, it decreased slightly in 2015 and 2019, which is related to the policy environment of the country.

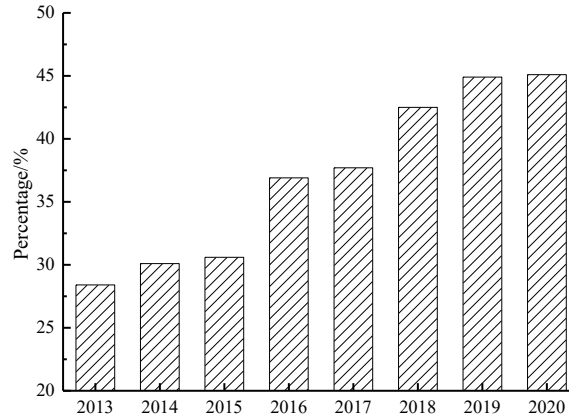


Fig. 1. Gross enrollment rate of higher education institutions, 2013-2020

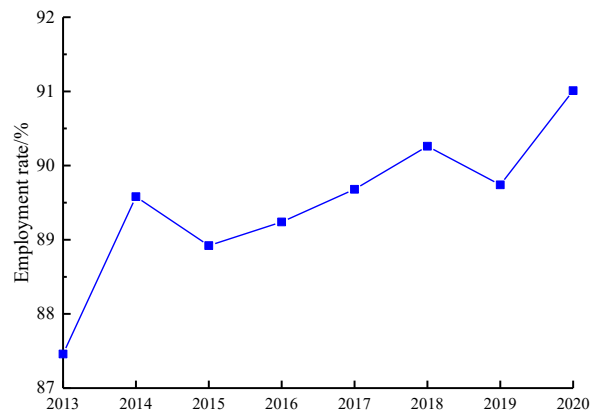


Fig. 2. First-time employment rate of higher education institutions, 2013-2020

2.2 Analysis of problems

In recent years, the national and provincial natural science foundation programs are carried out smoothly, and positive progress has been made in aspects of undertaken programs and published academic papers of higher educational institutions [26, 27]. Senior talents are the main force of the core competitiveness of higher education institutions. For the core competitiveness of higher education in some areas, there're still a bunch of problems, as listed in Figure 3, first, the research ability of higher education institutions is incompetent, a few colleges and universities are in a disadvantaged position across the country, their main manifestations include the low output and low transformation of educational research results. Second, the research forces of higher education are scattered and not integrated, cooperative research institutions can share resources, complement each other's advantages and disadvantages, thereby improving the effectiveness and efficiency of research. Third, there's a "generalization phenom-

enon" with the higher education institutions, many colleges, universities, and higher education institutions have been regarded as administrative institutions, resulting in that many people do not have time for research works. Fourth, the research methods adopted by higher education institutions are not reasonable. Figure 4 analyzes the reasons for the problems existing in the core competitiveness of higher education institutions. First, many higher education institutions have a weak disciplinary foundation, researchers in these institutions do not have a solid theoretical foundation. Second, the research teams in higher education institutions generally have the characteristics of inter-discipline and multi-identity. Third, many higher education institutions have a weak research ability, with the increase of the number of doctoral graduates, there's an imbalance in the number of recruited doctors in higher educational institutions, institutions that ranked higher and with a stronger professional ability have more researchers, so the group effect is bigger, and the gap of research ability between institutions is obvious. Fourth, for many disciplines, there're too few research papers, and too few journals that can publish these papers, so it is slightly unfair in academic evaluation.

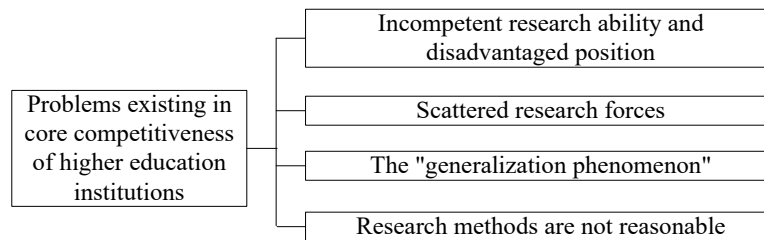


Fig. 3. Problems existing in core competitiveness of higher education institutions

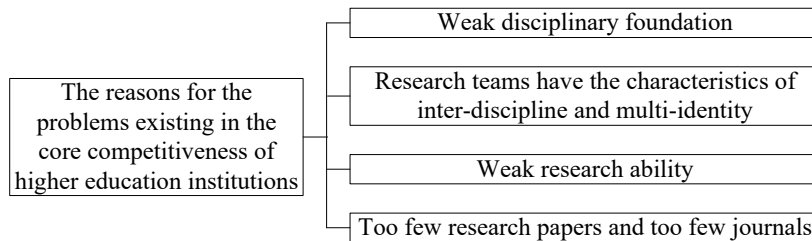


Fig. 4. Reasons for problems existing in the core competitiveness of higher education institutions

3 Evaluation index system (EIS) proposal

3.1 Index selection principles

Core competitiveness is a comprehensive intangible ability [28]. When selecting indexes for the evaluation of core competitiveness, the multi-dimensional hierarchical

structure is usually adopted [29, 30]. Figure 5 lists the index selection principles, including the scientific principle, meaning that the selected indexes should have a theoretical basis and be able to reflect the core competitiveness of a discipline objectively and reasonably; the systematic principle, meaning that definite indexes should be selected from the levels and perspectives of the core competitiveness of the discipline, and the selected indexes should be able to reflect the core competitiveness of the disciplines comprehensively; the typical principle, meaning that the selected indexes should be suitable for the evaluation object, fully cover the core competitiveness of the discipline, and must contain the core competitiveness of the students of this discipline; the feasible principle, meaning that the selected indexes should conform to the actual objective level of the measurement object and can be quantified.

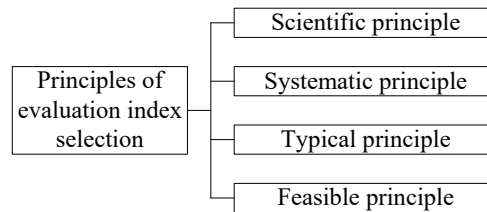


Fig. 5. Principle for selecting evaluation indexes of core competitiveness

3.2 Index determination

The research on the competitiveness of higher education is an extension of the research on the competitiveness of enterprises. Many domestic scholars conduct evaluations by establishing core competitiveness analysis indexes and evaluation indexes. Figure 6 shows the analysis indexes of the core competitiveness of higher education. The first-level indexes include school-running philosophy, academic production capacity, management model innovation capacity, campus culture construction capacity, human resource management innovation capacity, and training model innovation capacity. Under the first-level index school-running philosophy, the second-level indexes include the degree of specialization, the degree of people-oriented, and the degree of openness; second-level indexes under the first-level index academic production capacity include: discipline construction capacity, number of famous teachers, and knowledge production capacity; second-level indexes under the first-level index management model innovation capacity include: the degree of management integration, the degree of management informatization, and flexible management; the first-level index campus culture construction capacity has only one second-level index, the acquisition level of educational skills; second-level indexes under the first-level index human resource management innovation capacity include: teacher strength, coordination and communication skills, and human resource structure; second-level indexes under the first-level index training model innovation capacity include: the degree of reasonableness of training model, and the graduate employment quality.

Figure 7 shows the evaluation indexes of the core competitiveness of higher education institutions. The first-level evaluation indexes include: practice teachers' ethics,

learn to teach, learn to educate people, and learn to develop. Figure 8 gives the evaluation results of the first-level indexes of the core competitiveness of higher education institutions. More than 80% of the people think that the index of “practice teachers’ ethics” is very reasonable, more than 90% of the people think that the index of “learn to teach” is very reasonable, more than 80% of the people think that the index of “learn to educate people” is very reasonable, and more than 80% of the people think that the index of “learn to develop” is very reasonable. Figure 9 shows the evaluation results of the second-level indexes of the core competitiveness of higher education institutions. The evaluation pass rate of the second-level indexes exceeded 80%.

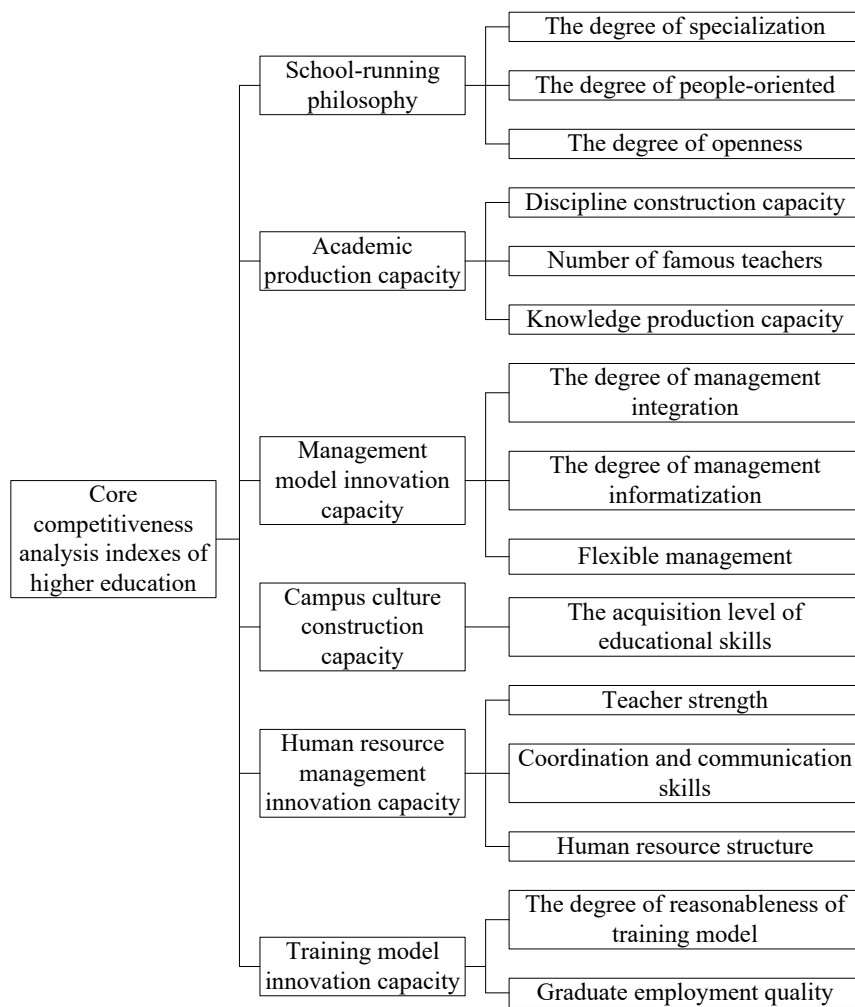


Fig. 6. Analysis indexes of core competitiveness of higher education

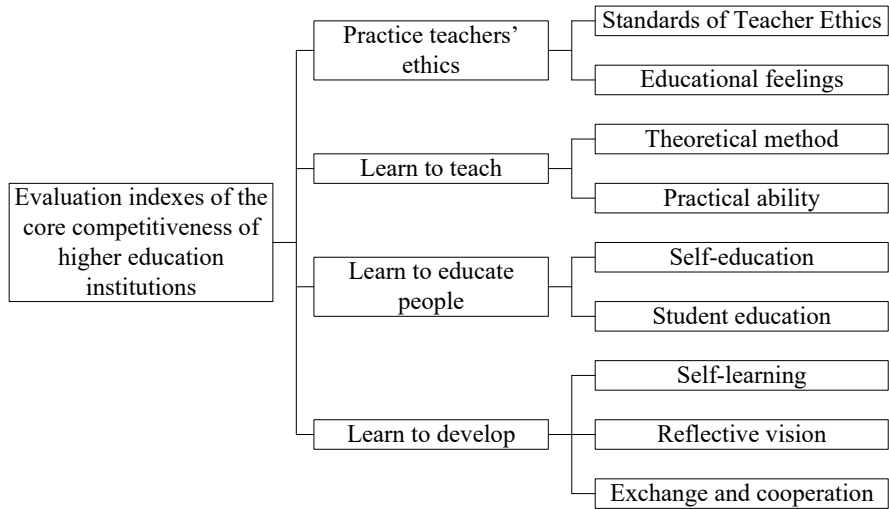


Fig. 7. Evaluation indexes of the core competitiveness of higher education institutions

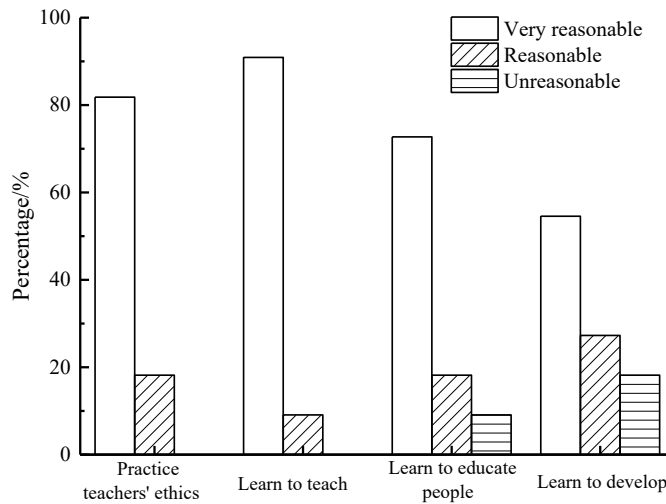


Fig. 8. Evaluation results of first-level indexes of core competitiveness of higher education institutions

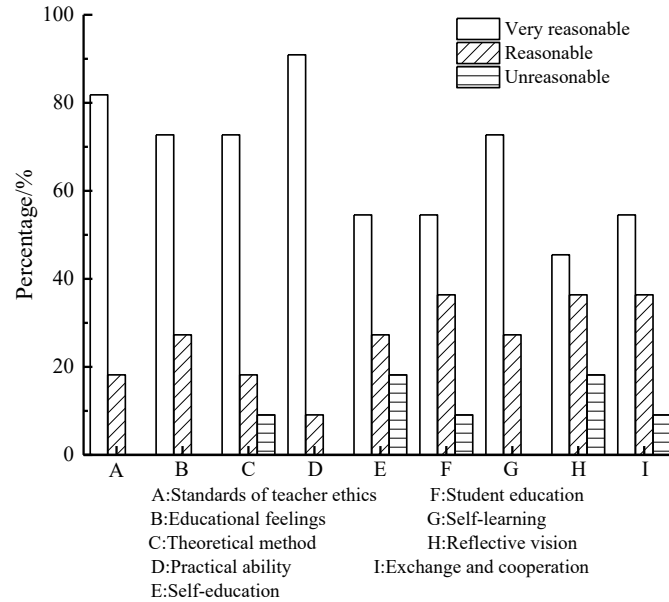


Fig. 9. Evaluation results of second-level indexes of core competitiveness of higher education institutions

4 Evaluation of the core competitiveness of higher education institutions

4.1 Comparison of core competitiveness of higher education institutions

There are many methods for evaluating the core competitiveness of higher education institutions, including the scientific research funding, scientific research strength, faculty strength, student enrollment, student employment quality, and student employment rate, etc. [31]. The strength of faculty reflects the number of teachers in a higher education institution; the strength of scientific research measures the ability of the higher education institution to develop and innovate the disciplines [32]. In this study, we defined five factors of core competitiveness, namely the enrollment scale, education efficiency, education resources, education funding, and scientific research strength. Then, our research team conducted questionnaire surveys in Shandong Province, Hubei Province, Henan Province, Anhui Province, Jiangxi Province, and Jiangsu Province to evaluate the core competitiveness of higher education institutions in each province. Figure 10 shows the scores of the core competitiveness of each province. Shandong Province ranked the top in terms of student enrollment scale; Hubei Province scored the highest in terms of education efficiency; Henan Province outperformed others in terms of education funding; and Jiangsu Province’s scientific research strength was the best.

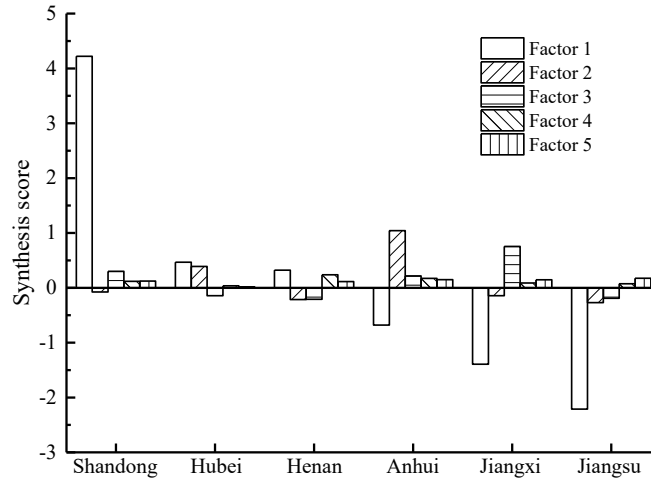


Fig. 10. Scores of the core competitiveness of each province

4.2 Strategies for enhancing the core competitiveness of higher education institutions

Higher education institutions are now working hard to strengthen their core competitiveness, some of them strive to enhance core competitiveness by attracting talents constantly, some concentrate on their advantageous disciplines to create double first-class disciplines, however, during the overall development of the core competitiveness of higher education institutions, there're still many deviations and shortcomings, to cope with such defects, this paper proposed a few strategies for enhancing the core competitiveness of higher education institutions, as shown in Figure 11. First, strengthen the research teams, increase the number of professional researchers, especially interdisciplinary researchers; second, encourage researchers to conduct empirical research, promote cooperation between local double first-class institutions and key colleges and universities, and drive the transformation and development of independent institutions; third, enhance research strength of higher education institutions, clarify their positions and functions, and actively motivate people who are interested in higher education research to participate in the cooperative research teams, also, measures such as setting up full-time research positions, increasing the number of researchers, and forming research teams could be taken to enhance the research level of higher education institutions; fourth, foster academic exchanges among colleges and universities and accelerate platform construction, for institutions with good scientific research strength, urge them to hold academic conferences and seminars, and join their efforts to create core journals; fifth, optimize the guarantee system for the research work of higher education institutions, realize integration of various institutions with government taking the lead, and local governments should give more support for advantageous colleges and universities.

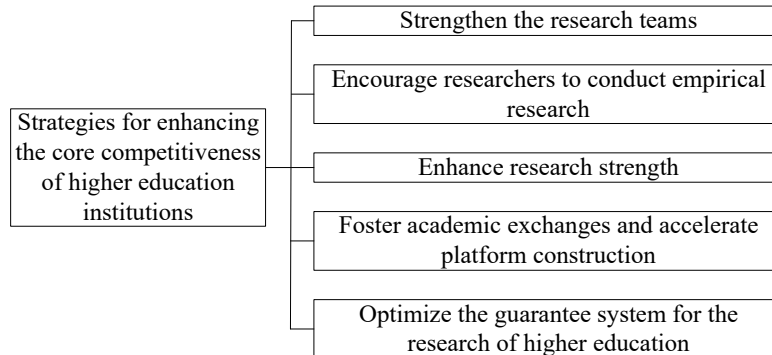


Fig. 11.Strategies for enhancing the core competitiveness of higher education institutions

5 Conclusions

Based on the cultivation of core competitiveness, this paper studied the evaluation and development strategies of the core competitiveness of higher education institutions. The specific conclusions are as follows:

1. Compared with 2013, from 2014 to 2020, the gross enrollment rate of higher education institutions in China increased by 5.98%, 7.75%, 29.9%, 32.7%, 49.6%, 58.1%, and 58.8%, respectively, and the first-time employment rate also showed an overall increasing trend.
2. The first-level analysis indexes of the core competitiveness of higher education include school-running philosophy, academic production capacity, management model innovation capacity, campus culture construction capacity, human resource management innovation capacity, and training model innovation capacity. The first-level evaluation indexes of the core competitiveness of higher education institutions include practice teachers' ethics, learn to teach, learn to educate people, and learn to develop.
3. In the future, the core competitiveness of higher education institutions can be improved by strengthening the research teams of higher education institutions, encouraging researchers to conduct empirical research, enhancing research strength of higher education institutions, and optimizing the guarantee system for the research work of higher education institutions, etc.

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