

Professional Development of County-level Physical Education Teachers from the Perspective of the New Curriculum Standards: A Case Study of Huaiji County

Lina MA^{*}, Yulin CHEN

College of Sports and Health, Zhaoqing University, Zhaoqing 526061, China

Abstract Using methods such as questionnaire survey and literature review, a survey was conducted on the professional development of physical education teachers in Huaiji County under the background of the new curriculum standards. The research results found that physical education teachers in Huaiji County have a relatively good distribution structure in terms of teaching experience, age, and education level, but the gender ratio and professional title ratio need to be improved. In terms of professional competence, teachers have shown good performance in teaching implementation ability, but there is still room for improvement in teaching design ability. A certain proportion of teachers still express dissatisfaction with professional title promotion, hardware configuration satisfaction, salary and benefits, and school reward mechanisms. Based on this, this study proposes some measures to improve the professional development level of county-level physical education teachers, such as enhancing teachers' teaching design and implementation abilities, strengthening the cultivation of technical action demonstration abilities, improving hardware configuration satisfaction and teaching effectiveness reflection level, strengthening guidance and support for teachers' professional development, and enhancing the promotion and implementation of post employment training.

Key words New curriculum standards; County-level physical education teachers; Professional development

DOI 10.19547/j.issn2152–3940.2024.05.008

In order to fully implement the *Curriculum Standards for Physical Education and Health in Compulsory Education (2022 Edition)* by the Ministry of Education, the document clearly states that "moral education should be prioritized, intellectual education level should be improved, and physical education and aesthetic education should be strengthened"^[1]. The document emphasizes the leading role of core competencies, promotes the comprehensive and healthy growth of students' physical and mental health, and constructs a trinity curriculum teaching system of "learning, practice, and competition". In this context, the professional development of county-level physical education teachers is particularly urgent and important. Huaiji County is taken as the research object, and this county faces many challenges and opportunities in the implementation of the new curriculum standards. How to better adapt to the requirements of the new curriculum standards, improve the quality of physical education teachers, and help students develop comprehensively, has become an urgent problem for local educators to solve.

Some previous studies have focused on exploring the impact of the new curriculum standards on physical education and how

teachers can adapt to the educational requirements of the new curriculum standards; the other part of the previous studies focused on exploring the theory and practice of professional development for physical education teachers. Through these studies, it can be seen that more and more scholars recognize that physical education teachers should actively seek self breakthroughs in the context of the new curriculum standards, to adapt to the education reform and development under the new situation.

This paper focuses on the professional development of physical education teachers in Huaiji County under the new curriculum standards. It aims to comprehensively analyze the current situation and existing problems of the professional development of physical education teachers in Huaiji County under the background of the new curriculum standard, and propose the targeted suggestions.

1 Research object and methods

1.1 Research object The professional development of physical education teachers in Huaiji County is taken as the research object.

1.2 Research methods

1.2.1 Literature review method. Through materials such as China National Knowledge Infrastructure, library literature, sports news, and the website of the Ministry of Education, literature on "county-level teachers" and "county-level physical education teacher education" is arranged, and a comprehensive and profound theoretical basis has been formed. This will help to conduct

Received: August 5, 2024 Accepted: September 23, 2024

Supported by Key Education Research Project of Zhaoqing Education Development Research Institute in 2023 (ZQJYY2023016); Key Education Research Project of Zhaoqing Education Development Research Institute in 2016 (ZQJYY2016003).

^{*} Corresponding author.

a more in-depth analysis on the research status and cutting-edge trends of the professionalization development of county-level physical education teachers.

1.2.2 Questionnaire survey method. For the purpose and main subjects of this survey, the *Survey Questionnaire on the Professional Development of Physical Education Teachers in Huaiji County* has been developed. Questionnaires were distributed to 251 physical education teachers in Huaiji County, with a total of 251 questionnaires distributed and 251 questionnaires collected. The recovery rate reached 100%, and the effective rate was 100%.

1.2.3 Mathematical statistics method. After distributing the questionnaire, the data were summarized and organized. Excel was used to organize the data, and perform some basic statistical processing and analysis on the data.

2 Results and analysis

2.1 Definition of related concepts

2.1.1 Curriculum standards for physical education and health. The curriculum standards for physical education and health are educational standards for primary and secondary education. According to the *Curriculum Standards for Physical Education and Health in Compulsory Education (2022 Edition)*, the new curriculum standards for physical education and health emphasize the development of students' core competencies, the promotion of students' physical and mental health, the adoption of more balanced and diversified curriculum arrangements, and the cultivation of students' sports abilities, healthy behaviors, and sports ethics^[2].

2.1.2 Professional development of teachers. Professional development of teachers refers to the continuous improvement of teachers' educational concepts, professional knowledge, educational skills, and other aspects in their professional careers, in order to meet the needs of educational reform and social development^[3].

2.2 Basic situation of physical education teachers in Huaiji County Through statistical analysis of the teaching experience, gender, age, educational title, education background, publication status, and research ability of physical education teachers in Huaiji County, a comprehensive understanding of the talent structure, development trends, and academic research situation of physical education teachers in Huaiji County can be obtained.

2.2.1 Structure of teaching age. According to Table 1, there are 38 physical education teachers with 1 – 5 a of teaching experience, accounting for 15.14%; 17 physical education teachers with 6 – 10 a of teaching experience, accounting for 6.77%; 53 physical education teachers with 11 – 15 a of educational experience, accounting for 21.12%; 143 physical education teachers who have worked for 16 a or more, accounting for 56.97%. From the above data, it can be concluded that the number of physical education teachers with 16 a or more of teaching experience is the highest, indicating that the teaching staff of physical education teachers in Huaiji County is very stable.

Table 1 Structure of teaching age of physical education teachers in Huaiji County (n = 251)

Teaching age//a	Number of people	Proportion//%
1 – 5	38	15.14
6 – 10	17	6.77
11 – 15	53	21.12
≥16	143	56.97

2.2.2 Gender structure. Seen from Table 2, male physical education teachers in Huaiji County account for the vast majority, reaching 82.47%, while females only account for 17.53%. This data reflects the gender imbalance in the field of physical education teachers.

Table 2 Gender structure of physical education teachers in Huaiji County (n = 251)

Gender	Number of people	Proportion//%
Male	207	82.47
Female	44	17.53

2.2.3 Age structure. According to Table 3, the proportion of young teachers aged 25 – 40 is 10.36%, 11.95%, and 18.33%, respectively. The proportion of middle-aged teachers aged 41 – 46 and above is 27.09%, indicating that the age distribution of physical education teachers in Huaiji County is relatively reasonable.

Table 3 Age structure of physical education teachers in Huaiji County (n = 251)

Age	Number of people	Proportion//%
Under 25 years old	13	5.18
25 – 30 years old	26	10.36
31 – 35 years old	30	11.95
36 – 40 years old	46	18.33
41 – 45 years old	68	27.09
46 years old and above	68	27.09

2.2.4 Title structure. According to Table 4, in terms of professional titles, physical education teachers in Huaiji County have the highest number of intermediate professional titles, accounting for 57.77%, followed by junior professional titles, accounting for 24.30%, and fewer senior professional titles, accounting for 9.16%. This reflects the unreasonable professional title structure of physical education teachers in the county, and the insufficient number of teachers with senior professional titles and above. This not only has a negative impact on teachers' work enthusiasm, but also hinders the development of physical education teaching work.

Table 4 Title structure of physical education teachers in Huaiji County (n = 251)

Title	Number of people	Proportion//%
Junior	61	24.30
Intermediate	145	57.77
Senior	23	9.16
Super	0	0
Unrated	22	8.76

2.2.5 Educational background structure. Table 5 shows that in

terms of education , bachelor degrees account for the highest proportion , reaching 96.41% , followed by college degrees , accounting for 2.79% . The proportion of people with a master's degree is very low , accounting for 0.80% . It can be inferred that the vast majority of physical education teachers in Huaiji County have a bachelor's degree .

Table 5 Educational background structure of physical education teachers in Huaiji County (*n* =251)

Educational background	Number of people	Proportion//%
College	7	2.79
Bachelor	242	96.41
Master	2	0.80

2.2.6 Publication status of papers. From Table 6 , it can be seen that 76 individuals have published 1 paper , accounting for 30.28% of the total ; 40 people have published 2 papers , accounting for 15.94% of the total number of people ; 13 physical education teachers have published 3 papers , accounting for only 5.18% ; there are 28 physical education teachers with 3 or more papers , accounting for 11.15% of the total number. From this , it can be inferred that the overall research progress of physical education teachers in Huaiji County is not ideal .

Table 6 Paper publication status of physical education teachers in Huaiji County (*n* =251)

Number of articles	Number of people	Proportion//%
1	76	30.28
2	40	15.94
3	13	5.18
>3	28	11.15
0	94	37.45

2.2.7 Scientific research ability. From Table 7 , it can be seen that there are 30 physical education teachers in Huaiji County who have led various teaching and research or scientific research projects , accounting for 13.15% of the total . There are 146 teachers who have participated in projects , accounting for 58.17% of the total . However , there are 81 teachers who have not led projects , accounting for 32.27% of the total , and 57 teachers who have not participated in projects , accounting for 22.71% of the total . It can be seen from this that the enthusiasm of physical education teachers in Huaiji County to apply for research projects is not high .

Table 7 Situation of hosting or participating in the project by physical education teachers in Huaiji County (*n* =251)

Item	Number of people	Proportion//%
Hosted	33	13.15
Participated	146	58.17
Never hosted	81	32.27
Never participated	57	22.71

2.3 Current status of professional development of physical education teachers in Huaiji County

2.3.1 Current status of professional competence of physical education teachers. The professional ability of physical education

teachers is the core link of professional competence and one of the main indicators of their professional level^[8] . Table 8 includes information on design ability of physical education teaching , implementation ability , technical action demonstration ability , hardware configuration satisfaction , and teaching effectiveness reflection methods .

Table 8 Survey data on the professional competence of physical education teachers in Huaiji County (*n* =251)

Item		Number of people	Proportion %
Design ability of physical education teaching	Very strong	8	3.19
	Relatively strong	113	45.02
	General	130	51.79
	Very poor	0	0
Implementation ability of physical education teaching	Relatively poor	0	0
	Very strong	19	7.57
	Relatively strong	129	51.39
	General	103	41.04
Technical action demonstration ability	Very poor	0	0
	Relatively poor	0	0
	Very strong	11	4.38
	Relatively strong	140	55.78
Hardware configuration satisfaction degree	General	99	39.44
	Relatively poor	1	0.40
	Very poor	0	0
	Can meet	110	43.82
Teaching effectiveness reflection and optimization	Cannot meet	141	56.18
	Often reflect comprehensively on their teaching and optimize their design	140	55.78
	Occasionally thinking , reflecting comprehensively and optimizing designs are rare	111	44.22
	Never reflecting	0	0

According to survey data , 3.19% of physical education teachers believe that their ability to design physical education teaching is very strong , 45.02% think it is relatively strong , and 51.79% think it is average . This reflects a certain degree of differentiation in teachers' self-evaluation of their own design abilities .

In terms of the implementation ability of physical education teaching , 7.57% of the surveyed physical education teachers believe that their physical education teaching implementation ability is very strong , 51.39% think it is relatively strong , and 41.04% think it is average . This indicates that most teachers have a high evaluation of their teaching implementation ability , but there is also a portion of teachers who have a low self-evaluation of their implementation ability .

In terms of technical action demonstration ability , 4.38% of teachers consider themselves very strong , 55.78% consider themselves relatively strong , and 39.44% consider themselves average . The data shows that most teachers have a positive attitude to-

wards their demonstration ability, but there are also a few teachers who have certain shortcomings in their demonstration ability.

In terms of hardware facilities, 43.82% of teachers believe that the school's hardware facilities can meet the requirements, 56.18% of teachers believe that they are insufficient, and a considerable number of teachers are dissatisfied with the school's hardware equipment, which will affect the quality and effectiveness of teaching.

In terms of reflecting on teaching effectiveness, 55.78% of teachers often conduct comprehensive reflection and optimize design, 44.22% of teachers only occasionally reflect, and a very small number of teachers conduct comprehensive reflection and optimization. The survey results indicate that the majority of teachers are reflecting on and optimizing their teaching outcomes, but there are also some teachers with lower levels of reflection and optimization.

2.3.2 Current status of professional development of physical education teachers. The professional development of physical education teachers is a crucial aspect in the field of education. By analyzing the survey data of the teacher group, it can have a more comprehensive understanding on the current situation and needs of physical education teachers in terms of professional development, providing useful references for promoting the progress of education and improving teaching level^[4].

Seen from Table 9, 45.42% of physical education teachers have a good understanding of "teacher professional development". This indicates that most teachers have a basic understanding of professional development, while another part is not very clear. In terms of teachers' understanding of the necessity of professional development, nearly half of them believe that it is very necessary or relatively necessary to improve their professional level, accounting for 48.61% and 48.21% respectively. This reflects the general awareness among the teacher community of the importance of professional development in improving teaching standards and career development. However, there is also a small percentage of teachers who hold an unnecessary or indifferent attitude towards this, accounting for 9.38%, and this needs to be taken seriously.

The necessity of post service training for teachers and the importance attached by schools to training are also important aspects of teachers' professional development. The survey shows that about 90% of teachers believe that training can improve their personal skills and abilities, while nearly 70% of teachers believe that training can solve problems in teaching practice. This reflects the positive attitude and expectations of teachers towards training.

In terms of the promotion mechanism for professional titles, about 35% of teachers are dissatisfied with the current mechanism. In terms of salary and benefits levels and school reward mechanisms, nearly 50% of teachers express dissatisfaction or uncertainty. These data reflect some challenges and issues that teachers may face in their professional development process, which require further attention and resolution.

2.3.3 Current situation of professional attitude of physical education teachers. The professional attitude and values of physical education teachers are crucial to the education industry. The work attitude and responsibility sense of teachers directly affect the

growth and development of students, reflecting the quality and strength of education. By investigating and analyzing the professional attitudes of physical education teachers, it can gain a deeper understanding of their level of passion for the teaching profession, sense of professional responsibility, and identification with the education industry, as well as the existing problems^[5].

Table 9 Survey data on the professional development of physical education teachers in Huaiji County ($n=251$)

Item		Number of people	Proportion %
Understanding level of the term "teacher professional development"	Very familiar	22	8.76
	More familiar	114	45.42
	Generally familiar	99	39.44
	Not more familiar	15	5.98
	Not familiar	1	0.40
Understanding the necessity of teachers improving their professional level	Highly necessary	122	48.61
	More necessary	121	48.21
	Indifferent	7	2.79
	Not more necessary	1	0.40
	Not necessary	0	0
Reasons for participating in vocational training	Mandatory requirement, must participate	78	31.08
	Enhance personal level and ability	227	90.44
	Expand horizons and gain experience	200	79.68
	Solve problems in teaching practice	174	69.32
	Expand interpersonal circle	56	22.31
Satisfaction with the promotion mechanism of professional titles	Very satisfied	18	7.17
	Satisfied	70	27.89
	General	80	31.87
	Dissatisfied	83	33.07
Satisfaction with salary and benefits level	Satisfied	91	36.25
	Dissatisfied	124	49.40
	Uncertain	36	14.34
Satisfaction with the school's reward mechanism	Satisfied	79	31.47
	Dissatisfied	131	52.19
	Uncertain	41	16.33

According to Table 10, nearly 53% of physical education teachers express a strong liking for the job of being a physical education teacher, while 40.64% express a preference for it. This indicates that most physical education teachers are filled with love and joy towards their work. In addition, in terms of the original intention of choosing a teaching profession, over 67% of teachers believe that it is to realize their own life value and pursue a career throughout their lives, and 25.1% believe that this job is important to themselves. This reflects the recognition and values of physical education teachers towards the cause of education.

According to the survey, over 48% of teachers believe that their sense of professional responsibility is very strong, while 48.61% consider it relatively strong. This indicates that most

physical education teachers have a high sense of responsibility and mission towards their work, and are willing to contribute their efforts to the education cause.

Table 10 Survey data on professional attitudes of physical education teachers in Huaiji County (*n* =251)

Item		Number of people	Proportion %
What was your initial intention for choosing the teaching profession	Realize the value of life	170	67.73
	Important work	63	25.10
	Means of livelihood	10	3.98
	Accumulate experience	8	3.19
	Others	0	0
What do you think of your sense of professional responsibility	Very strong	121	48.21
	Relatively strong	122	48.61
	General	7	2.79
	Relatively poor	1	0.40
	Very poor	0	0

2.4 Factors affecting the development of physical education teachers in Huaiji County

2.4.1 Personal factors. The personal qualities of physical education teachers in schools play a crucial role in professional development, as individuals have a significant impact on professional growth^[6]. These factors include age, gender, and abilities, which shape the teaching style and career development path of a physical education teacher to varying degrees.

Age is one of the factors that cannot be ignored. Young physical education teachers are usually more energetic and innovative, able to adapt to new teaching concepts and methods faster, thereby improving teaching effectiveness. Gender is also one of the factors that affect the career development of physical education teachers; personal professional ability is a key factor affecting the career development of physical education teachers. Teaching design ability, teaching implementation ability, and technical action demonstration ability are all basic qualities that physical education teachers must possess in their work. The possession of these abilities enables physical education teachers to make better contributions to the development of physical education.

2.4.2 School factors. School factors include professional title evaluation, hardware configuration, post employment training, and reward mechanism. Professional title evaluation is an indispensable part of the development of the teaching profession. The professional title evaluation system is conducive to improving the work enthusiasm and initiative of physical education teachers, and promoting their teaching and research level; hardware configuration is the material basis for physical education teachers to carry out teaching work. If schools do not invest enough in teaching hardware facilities, it will limit teachers' teaching innovation and development space; the post service training provided by schools is also important for the professional growth of teachers. Through regular training and learning, physical education teachers can master new teaching methods and skills, and enhance their professional competence; the reward mechanism is an important factor affecting the career development of physical education teachers. A reasonable reward mechanism can motivate teachers to devote

themselves to their work and pursue better teaching and research results.

2.4.3 Social factors. The professional growth of physical education teachers cannot be separated from social factors. No school exists independently from society, so schools are influenced by the social environment, and teachers are also influenced by social factors^[7]. Salary and benefits are particularly crucial, and a reasonable salary system is the guarantee for the career stability and satisfaction of physical education teachers.

3 Conclusions and suggestions

3.1 Conclusions

(1) A survey is conducted on the cognition of physical education teachers in Huaiji County regarding their professional abilities from four aspects, including teaching experience, gender, age, and education level. Data shows that teachers' teaching experience, age, and educational background are positively correlated with the perception of their own professional abilities. Additionally, as the professional title level increases, the gender ratio gap becomes larger, and overall there is a negative correlation.

(2) The professional competence of physical education teachers in Huaiji County is an important foundation to support their professional development, and has a significant constraining effect on their professional development level. By investigating the professional abilities of physical education teachers in the county, the following conclusions are found. Firstly, physical education teachers in Huaiji County overall have a relatively good ability to implement physical education teaching, while their mastery of physical education teaching design ability is average. Secondly, the technical action demonstration by physical education teachers is relatively standardized. Thirdly, most physical education teachers will comprehensively reflect on their teaching and optimize their design after completing a class. Fourthly, physical education teachers have a relatively high enthusiasm for participating in vocational training while on duty, and their purpose of participating in training is good. However, some physical education teachers believe that vocational training is a mandatory requirement, and their willingness to participate is low. Overall, the willingness of physical education teachers in Huaiji County to participate in vocational training is relatively positive. The vast majority of physical education teachers believe that teaching can realize their own life value and is a lifelong pursuit.

(3) The growth of physical education teachers is the result of the combined effects of personal, school, and social factors, and these three aspects interact and constrain each other. To achieve better development of physical education, it is necessary to continuously improve the professional quality of physical education teachers. At the same time, schools and society need to create a good environment. Only by working together can physical education achieve greater development.

3.2 Suggestions

3.2.1 Enhancing teachers' ability in teaching design and implementation. To enhance the professional development of county-level physical education teachers, the following measures can be taken. Firstly, it should carry out training on teaching design and

implementation abilities for physical education teachers, and introduce advanced teaching concepts and methods. Secondly, it should establish a teaching design evaluation mechanism to regularly evaluate and guide teachers' design plans and teaching implementation, ensuring that teaching content meets educational requirements and students' actual needs. Thirdly, it should encourage teachers to participate in various academic competitions, lectures, and other activities, exchange and learn from each other, and enhance their enthusiasm and creativity.

3.2.2 Improving hardware configuration. To improve the hardware configuration of county-level physical education teachers, it is necessary to increase investment in school hardware facilities, to ensure that teaching equipment and venues can fully meet the needs of physical education teaching, and provide teachers with a good teaching environment and working conditions.

3.2.3 Improving the level of reflection on teaching effectiveness. To improve the reflection level of teaching effectiveness of county-level physical education teachers, schools should establish a reflection mechanism and evaluation system. Teachers can be encouraged to constantly reflect and optimize their teaching outcomes by organizing teaching and research activities, holding teaching observation and lectures, and other means. A set of evaluation indicators and standards for teaching reflection should be developed, and regular evaluations and feedback should be conducted to guide teachers to continuously improve their teaching methods and techniques, thereby enhancing the effectiveness of teaching and learning.

3.2.4 Strengthening guidance and support for teachers' professional development. To promote the professional development of county-level physical education teachers, it is necessary to strengthen guidance and support. Firstly, teacher professional knowledge popularization activities can be held to enhance teachers' awareness of professional development through lectures, seminars, and other forms. Secondly, teachers should be encouraged to actively participate in vocational training and learning exchange activities to expand their professional horizons and knowledge fields, and continuously improve their professional qualities and abilities.

3.2.5 Strengthening the promotion and implementation of post employment training. One of the important measures to promote the professional development of county-level physical education teachers is strengthening the promotion and implementation of post employment training. It should develop a post employment training plan and conduct targeted training courses and activities based on actual needs. To meet the personalized development needs of teachers, diverse and targeted training content should be designed, including the improvement of teaching skills, course design, evaluation, etc. It should establish a training performance evaluation system and evaluate and monitor its implementation effectiveness. On this basis, combined with the actual situation, corresponding adjustments and improvements will be made to the training plan to improve the learning effectiveness and satisfaction of trainees, in order to ensure that the training activities effectively promote the professional quality and level of teachers.

References

- [1] Ministry of Education of the People's Republic of China. Notice of the Ministry of Education on issuing the curriculum plan and standards of compulsory education (2022 edition) [EB/OL]. http://www.moe.gov.cn/srcsite/A26/s8001/202204/t20220420_619921.html, 2022-04-08.
- [2] GU N. The publication of the *Curriculum Standards for Physical Education and Health in Compulsory Education (2022 Edition)*: School physical education classes will become more interesting [EB/OL]. <https://www.sport.gov.cn/n20001280/n20067626/n20067766/c24244877/content.html>, 2022-04-28.
- [3] WANG GY. Research on the professional development of rural physical education teachers in Guizhou Province [D]. Guiyang: Guizhou Normal University, 2023.
- [4] YANG M. Research on the current situation and optimization design of ideological and political education in physical education and health curriculum of high schools under the background of new curriculum standards [D]. Taiyuan: Shanxi University, 2023.
- [5] SU W. Research on the professional development of physical education teachers in primary and secondary schools from the perspective of teacher teaching specialization theory: A case study of identification and solution of problems in basketball lesson study [D]. Guangzhou: Guangzhou Sport University, 2021.
- [6] GUO M. Research on post employment education of physical education teachers in colleges and universities based on the perspective of teacher professional development [D]. Wuhan: Central China Normal University, 2012.

(From page 26)

- [4] LIANG F, HU J, YANG XL, *et al.* Reform and innovation of the curriculum system for landscape architecture design based on "cultivation education - smart teaching" [J]. *Modern Horticulture*, 2024, 47(14): 180-182.
- [5] LIANG F, HU J, YANG XL, *et al.* Research on the reform and innovation of smart agriculture professional textbook construction based on "farming and reading education - smart teaching" [J]. *Smart Agriculture Guide*, 2024, 4(14): 1-4.
- [6] LIU HX, GUO YP, WANG DB. Research on the cultivation of "dual qualified" teachers in applied undergraduate universities under the OBE concept [J]. *Technology Vision*, 2019(23): 72-73.
- [7] WANG CB, ZHU YL, WANG DB, *et al.* Research on the deep integration of information technology and curriculum teaching under the

background of new agricultural science [J]. *Anhui Agricultural Bulletin*, 2021, 27(1): 149-150.

- [8] HUANG W, BAN XD, ZHANG M, *et al.* Exploration on the construction of off campus internship bases based on the cultivation of outstanding agricultural and forestry talents [J]. *Rural Practical Technology*, 2019(4): 16.
- [9] HUANG W, WANG DB, ZHU YL, *et al.* The application of course ideology and politics in cultivating innovative abilities of students in applied universities [J]. *Think Tank Era*, 2019(9): 173, 180.
- [10] NIU JQ, MIAO XR, DENG X, *et al.* Research and practice on talent cultivation models in local universities that match transformation and development: A case study of horticulture major at Yulin Normal University [J]. *Modernization of Education*, 2019, 6(A5): 49-51.