Research on the Construction of an Evaluation Index System for the Employment Ability of Master of Physical Education Students Based on the Competency Model

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Abstract: Driven by the National Fitness Orienteering Strategy and the policy dividends of the 14th Five-Year Plan for Sports Development, China's sports industry is currently in a stage of rapid development. However, it is faced with the structural contradiction between talent cultivation and market demand. To solve this dilemma, this paper innovatively constructs an evaluation system of six core dimensions of employability based on the theoretical framework of competency model and by integrating the Fuzzy Analytic Hierarchy Process and Delphi expert consulting method. Through the systematic quantitative analysis of each secondary indicator, it not only accurately reveals the differential weight distribution of the indicators in each dimension, but also constructs a trinity quality monitoring mechanism of cultivation-assessment-evaluation from the perspective of the mismatch between supply and demand. This provides a quantifiable decision-making basis for colleges and universities to optimize curriculum settings, strengthen practical teaching, and improve employment guidance, effectively promoting the dynamic adaptation between the cultivation of high-level sports talents and the development of the sports industry.

Keywords: Master of Physical Education; Employment Ability; FAHP; Competency Model; Evaluation System

1. Introduction

In the digital economy era, the rapid rise of new quality productivity and the in-depth promotion of new liberal arts construction by the Ministry of Education are reshaping the demand structure of China's labor market. The cultivation of employability of physical education masters faces double challenges. The construction of new liberal arts requires humanities and social sciences talents to have data thinking and technology application ability. The Development Plan for Professional Degree Postgraduate Education (2020-2025) points out that it is an inevitable choice to cultivate high-level applied talents with strong professional ability to enter the stage of high-quality development[1]. Facing the current situation, colleges and universities should focus on cultivating applied talents with both professional accomplishment and practical ability, deepen teaching reform and improve the quality of education, so as to enhance students' employment competitiveness. The evaluation index system constructed in this study is constructed on the basis of previous studies. Delphi method and FAHP are used to sort out the data of each dimension and calculate, and finally the importance of each index is obtained to measure its weight.

2. Literature review

2.1 Master of Physical Education

Master of physical education is usually divided into academic master and professional master, the two focus on different training. Master of physical education graduate students as a valuable talent in China's physical education system and education system[2]. It is mainly to train professional talents who can solve practical problems in physical education teaching posts. Its main professional direction is physical education teachers in primary and secondary schools, physical education teachers in colleges and universities and school physical education administrators[3]. Therefore, this study focuses on

employability and the construction of indicators mainly around teachers and coaches.

2.2 Competency model

John, an American scholar who studied the performance of American pilots, created the critical event method in 1954 and became the application pioneer of the core method in the field of competency research[4]. McClelland again proposed competency and emphasized the knowledge, ability, motivation, or trait that competences have a direct relationship with work or job performance or other outcomes in life[5]. A competency model refers to the sum of competences required for a given task role, which defines the knowledge,skills,attitudes and behaviors that a person needs to have in a particular field or position.

2.3 Research status at home and abroad

In recent years, the research on competency-based index system in China has shown a rapid development trend to accurately measure the core competencies of specific posts or occupations. The increase of teaching age can improve general knowledge, teaching skills and non-cognitive abilities of primary school Chinese teachers, while the other factors are not significant[6]. Delphi method and Fuzzy Analytic Hierarchy Process (FAHP) are used to establish a hierarchical fuzzy evaluation model for vehicle intelligent network system[7].

Hairi and other foreign scholars put forward 6 dimensions of graduates' employability[8]. Through structural equation model analysis of nurses, it was found that there were significant differences in the influence of different professional competency dimensions on cultural competence[9]. There is a consensus that there is significant difference in the importance of competency dimension. The ability evaluation of engineering college graduates pays more attention to professionalism[10], while the construction management industry pays more attention to personal attributes[11]. This industry difference highlights the need for dimension weight assignment. To sum up, scholars at home and abroad have made some achievements in the research of competency-based index system. The combination of Delphi method and FAHP can reduce subjective deviation and provide scientific solution for weight distribution of evaluation index through quantitative fuzzy judgment.

3. Study design

3.1 Object of study

The core object of this study is the employability of physical education masters. Through the competency model, the evaluation system is constructed to solve the problem of how to evaluate the employability of physical education masters scientifically. Based on competency model, this paper analyzes the core competence of physical education master students in career development and constructs a scientific evaluation index system.

As valuable talents in China's sports system and education system, postgraduates with master's degree in physical education. It is mainly to train professional talents who can solve practical problems in physical education teaching posts. Its main professional direction is physical education teachers in primary and secondary schools, physical education teachers in colleges and universities and school physical education administrators. Therefore, this study focuses on employability and the construction of indicators mainly around teachers and coaches.

3.2 Research technique

3.2.1 Delphi method

This research carries out two rounds of expert consultation through Delphi method, and designs questionnaire structure around the construction of evaluation index system of employment ability of physical education master students. Electronic anonymous distribution, experts through the Likert 5-level scale to score each dimension and put forward specific suggestions for modification. SPSS was used to calculate and normalize the weights of each index. The experts are all from the fields closely related to the employability of the physical education master students focused on in this study, so the expert team has certain authority and representativeness.

3.2.2 Fuzzy Analytic Hierarchy Process

Fuzzy Analytic Hierarchy Process is a research method based on fuzzy mathematics, which is obtained from the advantages of Analytic Hierarchy Process and fuzzy comprehensive evaluation method.

Coefficient of Variation Formula: $CV = \dfrac{\sigma}{\mu}$

Where σ represents the standard deviation of the expert score of an indicator. μ represents the average expert score of an indicator.Among them, a CV < of 0.25 indicates a high degree of consensus among experts, while a CV of > 0.25 indicates that there is a large divergence of opinions and the indicators need to be re-evaluated or adjusted[12].

Normalized weights: $W_i = \dfrac{CV_i}{\sum_{j=1}^{n} CV_j}$

Where CVi represents the coefficient of variation of the ith index; Wi represents the normalized weight of the ith indicator, with values ranging from 0 to 1 and the sum being 1. The higher the value of Wi, the higher the contribution of the ith indicator to employability.

4. Empirical analysis

4.1 Determination of evaluation indicators

By referring to Li Xin's research[13] in "Construction and Test of Competency Model of Primary and Secondary School PE Teachers, "this paper has formed 9 first-level indexes and 38 second-level indexes in the preliminary construction stage. By integrating the first round of experts' opinions, integrating teaching knowledge and teaching ability into teaching knowledge and ability, deleting scientific research ability, adjusting sports training management into secondary indicators of teaching knowledge and ability, 6 primary indicators and 31 secondary indicators are constructed. The second round of questionnaires focused on the importance and operability of indicators (the evaluation indicators set up can be measured, evaluated and implemented in practical application) using Likert 5-level scale scores.

The data obtained from the second round of questionnaire are calculated. The coefficient of variation of each indicator is less than 0.25, indicating that the experts' opinions are relatively consistent. The Pearson correlation coefficient between the two results was 0.870, indicating that the questionnaire had high stability. Finally, it is determined that the teaching knowledge and ability (Education art, professional knowledge, professional skill evaluation, teaching strategy, action demonstration and technical explanation, sports team training and management, referee ability, athlete selection), professional accomplishment (Respect for students, sense of responsibility, love and dedication, professional thinking, overall concept), professional development (learning consciousness, professional research ability, team cooperation, reflection and improvement, innovation), personal efficacy (work attitude, time management, performance orientation, execution, achievement motivation), social adaptation (communication coordination, emotional control, pressure response, flexibility and adaptation), student concept (care for students, supervision and guidance, experience openness, student development) evaluation system.

4.2 Weight confirmation of evaluation indicators

According to the detailed data, the coefficient of variation of importance is normalized, and then the weight value of each first-level index can be obtained through formula calculation. Weight values were ranked from high to low as follows: student concept (0.213), professional accomplishment (0.189), social adaptation (0.173), professional development (0.145), personal efficacy (0.141), teaching knowledge and ability (0.139). In the study of the competency model of the backbone students, it is found that the concept factors such as values have a significant impact on the competency of the backbone students[14].

5. Conclusions

(1) Based on the iceberg model and onion model theory, combined with the professional

characteristics of physical education masters, this study constructs an evaluation index system of employability, which includes six dimensions: teaching knowledge and ability, professional accomplishment, professional development, personal efficacy, social adaptation and students' concept.

(2) The results show that the weight of the first level index is significantly higher than that of the concept, professional accomplishment and social adaptation. Professional skill level determines whether students can get a job, while professional ethics, professionalism, etc. determine how far students can go in the job and how much they can achieve[15]. It indicates that recessive traits have higher impact on employment competitiveness than dominant skills.

(3) Achievement motivation and performance orientation have the highest weight in the dimension of personal efficacy, which reflects the outstanding competitiveness of physical education masters in goal-driven and result-oriented aspects. Executive ability, professional research ability, respect for students and other secondary indicators have low weights, reflecting the shortcomings of physical education masters in practice transformation and professional ethics. Some colleges and universities pay attention to technology teaching and ignore value guidance, which leads to students' lack of ability to deal with complex ethical problems[16].

Acknowledgements

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