Evaluation of the Core Literacy of Innovative and Entrepreneurial Talents in the Digital Sports Industry

Feiping Liu[1,2], Zhengyu Wei[1], Qiuping She[1],Qiujing[1]

[1]Department of Physical Education, Wuhan Institute of Technology, Wuhan 430205, Hubei, China

[2]School of Management, Wuhan University of Technology, Wuhan 430070, Hubei, China

Abstract

To establishing and optimising a assessment system for innovative and entrepreneurial talent training in universities is not only a practical need for talent improvement for but can also be a profound reflection of higher education reform results to meet the progress of the sports industry . This study explores the methods and standards for effectively evaluating the key competence and core literacy of digital sports industry innovative and entrepreneurial talents. Through a literature review and questionnaire survey, 4 primary indicators and 15 secondary indicators to measuring the core literacy of digital sports industry innovative and entrepreneurial talents were determined, and an measurement indicator system for the core literacy of digital sports industry innovative and entrepreneurial talents was built. Experts use the AHP method to measure the index's importance, and mainly use advanced method to achieve comprehensive evaluation. Finally, taking the undergraduate students of a college of physical education as an example, this paper conducts an empirical analysis and provides countermeasures and suggestions according to the evaluation results. The aim is to guide colleges and universities and relevant decision-making institutions to evaluate the level of innovative talents scientifically and provide a basis for improving innovative level for college students.

Keywords: Digital sports industry; Innovative and entrepreneurial talent; Core literacy; Evaluation

1. Introduction

Currently, digital technology innovation-driven sports entrepreneurship practices are constantly emerging and realizing the integrated improvement of sports industry, giving birth to the digital sports industry. Digital innovative entrepreneurs are the driving force of a country's innovation-driven improvement in digital economic time. Refer to the process of pursuing value creation through the establishment of enterprises or social organizations with practical actions, links such as the improvement of entrepreneurial opportunities and the continuous operation and management of enterprises. Hence, talents are the significant parts of the progress of the digital sports industry. Currently, it is the primary task to exploit entrepreneurial and innovative talent to promote the improvement of digital sports improvement depends on the improvement of education.

In recent years, the in-depth improvement of China's digital sports talent improvement system has also accelerated the establishment of relevant training models. The National policy document emphasizes that take the improvement demand as a guide to stimulate the innovation vitality and potential of various talents is very important; to reach improvement of innovative talent improvement and talent transformation into productive forces in sports schools; and to guide and support higher sports institutions to cultivate more sports talent with an innovative spirit and entrepreneurial ability, which are urgently needed by the industry. As the main channel of sports personnel training, disciplines and majors must take the initiative to reach the demand of sports improvement in the process of promoting the strategy of strengthening education, strengthening talent, strengthening digital sports and promoting health in China. The digital strategic significance of the talent in the

field of digital sports should be recognized, the method of cultivating digital talent in the sports industry should be comprehensively explored, and the basic and supportive role of highly educated talent in the innovation and improvement of sports undertakings should be fully considered [1].

With the sweeping wave of the third scientific and technological revolution, the widespread application of several major disruptive technological innovations represented by ChatGPT technology, education ecology has undergone profound changes, and the new trend of technological change has not only brought impacts and challenges to moral judgment, knowledge reserves, ability and quality of innovative and entrepreneurial talent but also put forward new requirements. The 18th National Congress of the Communist Party of China proposed to introduce innovation into entrepreneurship, and then realize entrepreneurship to promote employment. In this environment, domestic colleges and universities continue to focus on cultivating entrepreneurial and innovative talents [2]. For example, initiated by Tsinghua University, the "China University Education Alliance" was established in Beijing [3]. Hefei University of Technology has incorporated digital method into its student training system and has actively carried out a school-enterprise cooperation "hundreds and hundreds". In the in-depth process of the talents, as a carrier of talent training, to establish an effective core quality evaluation system talent to reflect the effectiveness of digital attainment is more than significant [4].

Educational evaluation is connected with education level, education and the formulation of related policies and the future improvement of education. "The evaluation index determines the direction of running a school." With the steady implementation of China's "Innovative five-in-one improvement strategy" and "talent power strategy" and the continued popularity of "Entrepreneurship for everyone ", the quality review and optimization of talent is theoretical and practical issue in the field of higher education [5]. With the joint efforts of all sectors of society, the of innovative and entrepreneurial talent in Chinese universities has made great progress [6], the exercise of talent has taken shape and gradually improved, and the reform of the talent supply side continues to inject vitality into China's high quality and high added value improvement [7]. However, the current research shows that Chinese universities do not care the evaluation of the effect and quality of education, and there are few educational empirical evaluation studies supported based on scientific tools. To provide a satisfactory answer to the practical questions of in colleges and universities is difficult, such as whether it is effective, how effective it is, and which results are better [8]. Obviously, choosing a scientific and effective evaluation perspective and establishing a systematic evaluation index system is necessary for people to be satisfied with education [9]. Therefore, this study introduces and improves educational evaluation tools, establishes an evaluation index for the core literacy of talent in the digital sports industry of colleges and universities, and selects representative universities for empirical analysis to provide a theoretical and practical reference for the optimization of education and the reform of higher education systems and mechanisms [10].

2. Research Review

2.1 Research on the evaluation index of the core literacy of innovative and entrepreneurial talent

Early studies on talent training for mainly focused on the value analysis and theoretical discrimination of the index construction [11], focusing on the theoretical basis of the evaluation theme and value orientation of talent training indicators, or putting forward preliminary ideas on the aluation system and the selection of indicators [12]. Liu Wei believes that it is necessary to conduct a analysis of the comprehensive ability, subject level, ability[13], employment status, curriculum setting, teaching quality monitoring, school-enterprise cooperation effectiveness and other aspects of college graduates to build a system for tracking and evaluating talent training quality[14]. Zhang Dongming et al. proposed a comprehensive assessment method for education quality, which includes one primary indicator 13 secondary indicators 91 tertiary indicators, including the improvement of institutions, the ranks of teachers, student conditions and stakeholders [15]. Liang Zhenghan proposed that the talent training evaluation system is composed mainly of talent training status data and an evaluation system, and the evaluation system includes the evaluation connotation, evaluation level and evaluation method [16]. Duan Xiaoyang believes that universities should establish a complete training quality evaluation system, such as diversified evaluation subjects [17]. Vesper (K. H.) and Gartner (W. B.) proposed the "seven-factor evaluation method" after interviews and exchanges with experts from business schools around the world. It includes entrepreneurship courses offered by colleges and universities, teachers' publishing of entrepreneurship textbooks or monographs, schools' social

influence, alumni's participation in education, alumni's choice of self-employment, alumni's innovation in entrepreneurship projects, and scholars' entrepreneurial outreach activities in colleges and universities. Many scholars have put forward many views on the improvement and training of innovative and entrepreneurial talents, the mainstream of which are process evaluation and impact factor evaluation [18]. The so-called process evaluation mainly includes curriculum setting, environment training, capital investment, professional teacher training and the number of relevant teaching materials. The purpose of impact assessment is to test the changes it brings to the educates, including cognitive changes, emotional changes and behavioral changes. This system can form a virtuous circle through the feedback of the educated. For example, we can understand the students' entrepreneurial complex, the degree of understanding of entrepreneurship, the judgment and market analysis of the employment situation, and the size of the innovation ability to examine the promotion role of this model. The change may be explicit or implicit. Most scholars conduct research according to the criteria of impact effect evaluation and process evaluation. Based on the CIPP evaluation model, some scholars have established a dual-track evaluation model based on effect and quality according to four different dimensions to measure the level of entrepreneurship and innovation education in universities. Tian Jun et al. built an evaluation index system for innovative and entrepreneurial talent covering six dimensions, namely, basic knowledge of science and technology, scientific moral quality, entrepreneurial motivation, social influence, innovation ability and scientific output performance, based on the commonalities and professional requirements of the evaluation of talent in R&D technology, engineering technology and innovation and entrepreneurial technology [19]. The relevant research has laid the main theoretical foundation for the quality evaluation of digital sports industry innovative and entrepreneurial talent training in China.

2.2 Research on methods for evaluating the core literacy of innovative and entrepreneurial talent

After some achievements have been made on a theoretical basis, the evaluation of innovative level and entrepreneurship education has gradually shifted to a more in-depth evaluation methodology level, in which many studies have been carried out from a qualitative perspective and studied by quantitative methods, and Some commonly used paradigms for data analysis are fuzzy comprehensive evaluation and analytic hierarchy process are more typical. For example, Xu Junhai et al. adopted rooted research technology theory to analyze survey data on national policies related to plans and 25 innovative talent training engineering projects and extracted the EVG structural dimension model for the evaluation of innovative talent training engineering projects by using the dual performance concept of "process + result"[20]. Wang Wei et al. used cluster analysis and correlation analysis to mine and classify the data on the scientific research potential of talent in universities [21]. Xu Jianjun et al. [22]. evaluated the improvement level of in Zhejiang Province by using hierarchical analysis and the Decision Testing and Evaluation Laboratory (AHPDEMATEL). Wu Weidong [23] et al. conducted a statistical and cluster analysis based on data from the "International College Student Competition combined with a data portrait and then predicted and judged the hot spots, trends and ecology of education at the three levels of region, institution and industry. Wang Changlin [24] used a deep learning method and fuzzy fault tree analysis to study the entrepreneurial education quality of college students and found that the proposed method had a good effect on the evaluation of entrepreneurial education quality, which was of great significance for improving the evaluation of entrepreneurial education quality. In the evaluation research of entrepreneurship education in British universities, the entrepreneurial effect of college students is taken as the evaluation model, and the quality standard of entrepreneurship education is defined, that is, the target of entrepreneurship education is the basis for judging the quality of entrepreneurship education [25]. Empirical research, descriptive statistical analysis, objective evaluation and curriculum evaluation are generally adopted. In summary, at present, some progress has been made in the selection of theoretical frameworks and methods for the quality evaluation of talent training. However, on the whole, most of the theoretical, viewpoint and speculative results are the main results, and empirical studies are relatively lacking [26]. The few existing empirical studies have several shortcomings, such as the use of cumbersome methods and chaotic indicators. Therefore, more in-depth empirical exploration is urgently needed to provide new references and guidance for training practices for digital sports industry innovation and entrepreneurial talents.

3. Construction of An Evaluation Index System For The Core Literacy Of Innovative And Entrepreneurial Talent In The Digital Sports Industry

3.1 Principles of index system construction

3.1.1 Adaptive principles

The scientific principle is mainly reflected in the objectivity, comprehensiveness and accuracy of the index system. At the same time, the overlap between indicators is avoided, and a well-defined organic whole is finally presented, which can better reflect the essential characteristics and core qualities of digital sports industry innovation and entrepreneurial talents. Before establishing the index system, it is necessary to build a comprehensive system based on the improvement of Chinese students' core literacy; the core knowledge, ability, characteristics and character of improvement of entrepreneurial and innovative talents.

3.1.2 Principle of comprehensiveness

This part requires that the construction of indicators be comprehensive and multidimensional and must be hierarchical, clearly structured, interconnected, coordinated, and widely accessible. The index system constructed in this paper should fully reflect the various core qualities of the training objectives of digital sports industry entrepreneurial innovative talents of colleges and universities. In the construction process, multiple rounds of the Delphi method and repeated consultation are necessary to achieve all-round improvement, accuracy and effectiveness of the indicator system.

3.1.3 Operability principles

The principle of operability requires that all indicators in the index system have feasibility, and the concept of indicators should be clear and easy to investigate and analyse [27]. The relevant indicators require strong implementability and simple and clear meaning, and in line with actual demand, it is best to achieve quantitative analysis of indicators.

3.1.4 Timeliness principle

The construction of the index system demand to follow the characteristics of The Times, and the selected indicators also need to meet the realistic improvement demand of the digital sports industry and contemporary society [28]. The talent training target index system constructed in this paper should conform to the laws of education improvement at the present stage, the latest direction of the improvement of the current digital sports industry, and the practical requirements of the training of digital sports talent [29].

3.2 Evaluation index system framework

Table 1 Evaluation index system of the core literacy of digital sports industry entrepreneurial innovative talents.

	Primary index	Secondary index
Evaluation of core literacy of innovative and entrepreneurial talents in digital sports industry C	Knowledge of innovation and entrepreneurship C_1	Legal policy knowledge C_{11}
		Information technology knowledge C_{12}
		Management knowledge C_{13}
		Sports expertise C_{14}
	Ability of innovation and entrepreneurship C_2	Organizational leadership C_{21}
		Professional and technical capability C_{22}
		Pioneering and innovative ability C_{23}
		Operation and management ability C_{24}
		Social communication ability C_{25}
	Characteristics of innovation and entrepreneurship C_3	Innovation consciousness C_{31}
		Drive for innovation C_{32}
		Psychological quality C_{33}
	Innovative and entrepreneurial character C_4	Moral realm C_{41}
		Value concept C_{42}
		Sound personality C_{43}

According to the principles and key points of index system design and the general criteria and methods of evaluating index system design, this paper combs the core literacy of, In the existing studies, the knowledge reserve required for entrepreneurship and innovation, the quality of entrepreneurship and innovation talents, as well as the concept characteristics of and its meaning are discussed [30]. At the same time, according to "The Program for Action to Improve National Digital Literacy and Skills" of China, through interviews with scholars in the domain of sports research, experts in the field of sports industry practice and mentors, the components of the training objectives digital sports industry entrepreneurial innovative talents of colleges and universities are summarized and extracted. Finally, an evaluation index system for the core literacy of innovative and entrepreneurial talent in the digital sports industry of colleges and universities was developed, including 4 first-level indicators and 15 second-level indicators, as shown in Table 1.

3.2.1 Knowledge of innovation and entrepreneurship

The knowledge reserve for entrepreneurship and innovation refers to the knowledge of that sports majors in contemporary colleges and universities should possess under a new technological environment such as Internet of Things, cloud computing and big Data. The traditional and single knowledge structure can no longer meet the demand of The Times, and the boundaries between different disciplines and different majors are no longer clear. In addition to mastering professional sports knowledge, digital sports industry entrepreneurial innovative talents at colleges and universities must also have a wealth of knowledge in various disciplines and different fields, such as information technology, legal policies and management [31]. Only with a diversified entrepreneurial knowledge system can the innovative and entrepreneurial talent of sports majors in contemporary colleges and universities more accurately find and use their own business opportunities in fierce competition and ultimately achieve entrepreneurial success in the digital sports industry.

3.2.2 Ability of Innovation and entrepreneurship

Ability is characterized by social practice and innovation, and it is a strong comprehensive ability.abilities mainly include organizational and leadership, digital operation and management, digital innovation and professional technology. In terms of training innovative and entrepreneurial talent in the sports industry at colleges and universities, it is necessary to focus on training students' leadership, decisiveness, innovative thinking, digital market operation and professional and technological innovation [32]. From a realistic point of view, big data, artificial intelligence and other digital technologies can be used to improve the efficiency and accuracy of work. For instance, sports competition is characterized by uncertainty, with digital technology tools used by players to be decisive at key times, sports training provided by players for more strict planning and self-management, and the use of technical and tactical data analysis enabling team sports members to achieve increasingly good unity, cooperation, communication and coordination ability. Therefore, in the teaching of specialized courses, higher sports colleges should explore relevant digital elements and pay attention to the cultivation of students' leadership, decisiveness, innovative thinking ability and professional and digital technical innovation ability.

3.2.3 Characteristics of innovation and entrepreneurship

The characteristics of include three secondary indexes: innovation consciousness, innovation drive and psychological quality. Innovation consciousness is the premise of, which involves strong initiative, can reflect the attitude of college students toward, and can affect the direction of college students' entrepreneurial behavior. Having a certain sense of innovation can stimulate college students' interest in entrepreneurship and increase creative ideas. The innovation drive takes self-knowledge and responsibility as its main criteria. in the new digital era need to be guided by correct values that are able to link social responsibility with their own improvement and better create their own value and social value. Psychological quality was measured by stress resistance, behavioral cognition, emotional response to the quick improvement of a digital society, etc. This quality can reflect an individual's attitude when encountering complex problems or when facing conflicts between personal interests and social interests or national interests and courage to face challenges from changes in the digital society.

3.2.4 Innovative and entrepreneurial character

The characteristics of include three secondary indexes: moral state, value concept and sound personality. The moral realm is measured by academic integrity, ideological character, personal quality and law-abiding. With

respect to social responsibility consciousness, ideals and beliefs and positive attitudes, society demand both moral and ability talent and talent requirements in addition to creative professional skills and knowledge, but it must also have a certain sense of mission and social responsibility[33]. If you want to succeed in entrepreneurship, you must abide by national laws and regulations and business rules and actively create economic and social benefits. A healthy personality mainly includes a positive and optimistic attitude toward life, indomitable willpower, courage to challenge the quality of resistance to pressure and frustration, and a pioneering and enterprising spirit of innovation [34]. These spiritual qualities and personality traits are the necessary qualities for, which provides an effective premise for college students to carry out.

4. Fuzzy Evaluation Model of the Core Literacy of Innovative and Entrepreneurial Talent in the Digital Sports Industry

4.1 Determining the indicator weights

In this study, YAAHP 10.3 software is used to construct a target index system model of innovative and entrepreneurial talent training in sports colleges and universities, each index of the hierarchical structure model is weighted, and a matrix consistency test and data analysis are carried out. First, the use of YAAHP 10.3 software is based on the analytic hierarchy method, a hierarchical model can be established, and then matrix data can be input, sorted according to the value, and then the calculated data can be output and analyzed. Consistency tests. To ensure the credibility of a single hierarchical sort and total sort, it is necessary to perform a consistency test on the judgment matrix, so it is necessary to check the random consistency ratio CR. When, it is considered that the consistency of the judgment matrix is acceptable. When, the judgment matrix should be modified appropriately. Second, the real-time consistency ratio calculation function provided by the YAAHP 10.3 software can help users manually adjust the inconsistent judgment matrix and mark the judgment matrix that demand to be corrected, and the entire correction process is automatically completed [35]. In addition, an important feature of the analytic hierarchy process is to express the relative importance level of the two evaluation indicators in the form of the pair-to-pair importance ratio, and the weight determines the contribution of each indicator to the training goal of innovative and entrepreneurial talent in sports colleges and universities. Based on the literature, expert interview survey data and questionnaire results, this study adopts the scale method of 1-9 and its reciprocal according to the average importance degree of each indicator (Table 2). A relative comparison between each pair of indicators is carried out, and the weight of each indicator of the judgment matrix is assigned. Finally, the weight coefficient of each indicator was calculated by YAAHP software (Table 3~ Table 7).

Table 2 Meaning of the comparative degree of relative importance.

Fuzzy scale	Meaning
1	Equally important
3	Slightly important
5	Obviously important
7	Strongly important
9	Extremely important
2, 4, 6, 8	The median value of the above adjacency judgments
Count backward	If the ratio of importance of element i to element j is a_{ij}, then the ratio of importance of element j to element i is $a_{ji} = 1/a_{ij}$

Table 3 Weights of the core literacy indicators.

	C_1	C_2	C_3	C_4	W
C_1	1	1/2	1/2	1/2	0.1373
C_2	2	1	1	3	0.3611
C_3	2	1	1	2	0.3263
C_4	2	1/3	1/2	1	0.1753
$\lambda_{\max} = 4.1172, CI = 0.0391, CR = 0.0439 < 0.1$					

Table 4 Weight of each index of knowledge.

C_1	C_{11}	C_{12}	C_{13}	C_{14}	W_1
C_{11}	1	1/4	1/3	1/4	0.0772
C_{12}	4	1	3	1/2	0.3183
C_{13}	3	1/3	1	1/3	0.1545
C_{14}	4	2	3	1	0.4500
$\lambda_{max} = 4.1439, CI = 0.0480, CR = 0.0539 < 0.1$					

Table 5 Weight of each index of ability.

C_2	C_{21}	C_{22}	C_{23}	C_{24}	C_{25}	W_2
C_{21}	1	3	1	2	3	0.3212
C_{22}	1/3	1	1/2	1/2	2	0.1259
C_{23}	1	2	1	1	3	0.2579
C_{24}	1/2	2	1	1	2	0.2070
C_{25}	1/3	1/2	1/3	1/2	1	0.0880
$\lambda_{max} = 5.0811, CI = 0.0203, CR = 0.0181 < 0.1$						

Table 6 Weights of indicators of characteristics.

C_3	C_{31}	C_{32}	C_{33}	W_3
C_{31}	1	1	2	0.3874
C_{32}	1	1	3	0.4434
C_{33}	1/2	1/3	1	0.1692
$\lambda_{max} = 3.0204, CI = 0.0102, CR = 0.0176 < 0.1$				

Table 7 Weight of each index of character.

C_4	C_{41}	C_{41}	C_{41}	W_4
C_{41}	1	1/2	2	0.2970
C_{42}	2	1	3	0.5396
C_{43}	1/2	1/3	1	0.1634
$\lambda_{max} = 3.0102, CI = 0.001, CR = 0.0088 < 0.1$				

We can see that in Table 3, from the weight results of the first-level indicators, the importance of indicators ranked from high to low are ability, characteristics, character and knowledge. Table 4 to Table 7 show that in the category of knowledge, the weights of sports expertise and information technology knowledge are greater, while the importance of business management knowledge and legal policy knowledge is relatively lower. In the category of ability, the weights of organizational leadership ability, management ability and pioneering and innovation ability are relatively high, and their importance is relatively prominent. In the category of characteristics, the weight value of drive and innovation consciousness is higher, but the weight value of psychological quality is lower. In the category of character, the weight value of sound personality and moral realm is higher, and the weight value of value concept is lower.

4.2 Fuzzy comprehensive evaluation

In this paper, we used the fuzzy comprehensive evaluation method. The evaluation language that is not easy to quantify is fuzzy, and relatively reasonable fuzzy numbers are assigned to the grading to obtain the evaluation status of each index of the evaluation object. Then, a comprehensive analysis is carried out.

4.2.1 Establish a review set

Generally, represents the collection of comments. In this paper, the evaluation indicators are designed as follows: excellent, good, normal, poor, and very poor. The indicators are assigned values from 0 to 100 and are graded according to their quality, as shown in Table 8.

Table 8 Corresponding table of satisfaction scores and representations.

Evaluation degree	Excellent	Good	Normal	Poor	Very poor
Score	100-90	90-70	70-50	50-30	30-10

4.2.2 Determine the evaluation matrix

According to the frequency of the evaluation grade of each index by experts, the specific score of the evaluation object in each index is determined by collating statistics, which can be expressed in $p_i = \{p_{i1}, p_{i2}, \ldots, p_{in}\}(i = 1,2,\ldots,n)$, where p_i represents the membership level of the i index, and a single factor fuzzy comprehensive evaluation matrix can be constructed with p_{ij} as a row, as shown in the following formula.

$$p_i = \begin{pmatrix} p_{i11} & p_{i12} & \cdots & p_{i1n} \\ p_{i21} & p_{i22} & \cdots & p_{i2n} \\ \vdots & \vdots & \ddots & \vdots \\ p_{ir1} & p_{ir2} & \cdots & p_{irn} \end{pmatrix}(i = 1,2,\ldots,m) \tag{1}$$

where r represents the number of elements in the factor and n represents the number of elements in the indicator review set. According to the weights of the evaluation indexes and the scores of the evaluation objects, a single factor fuzzy comprehensive evaluation matrix can be obtained **Error! Reference source not found.**.

Through the conversion of the fuzzy factor, the fuzzy comprehensive evaluation model of the core literacy of innovative and entrepreneurial talent in the digital sports industry of colleges and universities can be obtained, as shown in the following equation.

$$B = A \cdot P \tag{2}$$

where $A = (a_1, a_2, \ldots, a_m), B = (b_1, b_2, \ldots, b_n), P = |p_{ij}|_{mn}$, the element in A represents the weight of the index, the element in B represents the score of each evaluation level, and the element in P represents the proportion of the number of people in the evaluation level of each indicator. According to this, the value of the grade fuzzy vector B of the above four levels can be obtained.

5. Empirical Analysis

5.1 Evaluation of the core literacy of innovative and entrepreneurial talent in the digital sports industry of a university

Using the undergraduate students of a college of physical education as an example, 98 students who had participated in undergraduate projects, discipline competitions, enterprise internships and social practices were selected. By interviewing the counselors and class teachers of the above students and integrating the evaluation results of college students' projects, the award grades of discipline competitions, the evaluation of enterprise internships and other information, the scoring data of the counselors and class teachers were obtained, and then we need to evaluate the overall core quality of students' .

The first step is to determine the evaluation factors and establish the review set.

According to the above indicator system, the known and determined evaluation index set is $U = \{C_1, C_2, C_3, C_4\}$, where C_1 is knowledge, C_2 is ability, C_3 is trait, and C_4 is character. Moreover, the core literacy assessment set was established as $V = \{V_1, V_2, V_3, V_4, V_5\}$, where V_1 = excellent, V_2 = good, V_3 = normal, V_4 = poor, and V_5 = very poor.

The second step is to determine the index weight.

The weight of each factor of the core quality of Digital sports industry innovation and entrepreneurial talents is taken as the corresponding weight of the evaluation factor by the weight of the above analytic hierarchy process **Error! Reference source not found.**, that is, $W = [0.1373, 0.3611, 0.3263, 0.1753]$.

The third step is to construct the fuzzy evaluation matrix.

As experts, all counselors and class teachers comprehensively evaluate students' performance in terms of various factors, as shown in Table 9.

Table 9 Evaluation results.

Index		Index evaluation set				
		Excellent	Good	Normal	Poor	Very poor
C_1	C_{11}	0.20	0.40	0.15	0.20	0.05
	C_{12}	0.10	0.15	0.30	0.25	0.20
	C_{13}	0.05	0.30	0.40	0.25	0
	C_{14}	0.20	0.30	0.15	0.20	0.15
C_2	C_{21}	0.25	0.25	0.15	0.20	0.15
	C_{22}	0.30	0.35	0.15	0.20	0
	C_{23}	0.05	0.30	0.30	0.15	0.20
	C_{24}	0.05	0.30	0.40	0.25	0
	C_{25}	0.45	0.20	0.15	0.20	0
C_3	C_{31}	0.05	0.20	0.40	0.15	0.20
	C_{32}	0.10	0.20	0.15	0.30	0.25
	C_{33}	0.20	0.25	0.20	0.20	0.15
C_4	C_{41}	0.25	0.25	0.15	0.20	0.15
	C_{42}	0.30	0.30	0.15	0.25	0
	C_{43}	0.45	0.20	0.15	0.20	0

As shown in Table 9, the fuzzy comprehensive evaluation matrix of experts on students' knowledge of is as follows:

$$R_1 = \begin{bmatrix} 0.20 & 0.40 & 0.15 & 0.20 & 0.05 \\ 0.10 & 0.15 & 0.30 & 0.25 & 0.20 \\ 0.05 & 0.30 & 0.40 & 0.25 & 0 \\ 0.20 & 0.30 & 0.15 & 0.20 & 0.15 \end{bmatrix}$$

The same is true for R_2, R_3, and R_4.

The fourth step is fuzzy transformation. Fuzzy change results are obtained by using a fuzzy product:

$$Y_1 = W_1 \cdot R_1 = (0.1450, 0.2599, 0.2364, 0.2237, 0.1350)$$

The same is true for Y_2, Y_3 and Y_4.

The fifth step is comprehensive evaluation. By synthesizing the results of the single-level evaluation, the overall fuzzy relationship matrix is obtained:

$$R = \begin{bmatrix} 0.1450 & 0.2599 & 0.2364 & 0.2237 & 0.1350 \\ 0.1104 & 0.2927 & 0.2667 & 0.2573 & 0.0729 \\ 0.2009 & 0.2349 & 0.1934 & 0.2302 & 0.1406 \\ 0.2039 & 0.2233 & 0.1767 & 0.2337 & 0.1628 \end{bmatrix}$$

Therefore, the overall fuzzy comprehensive evaluation results are as follows:

$$B = W \cdot R = (0.1282, 0.2978, 0.2551, 0.2349, 0.0841)$$

It is normalized to obtain:

$$\hat{B} = (0.13, 0.30, 0.26, 0.23, 0.08)$$

According to the principle of maximum membership, the core literacy of innovative and entrepreneurial talent in the college is at a good level.

5.2 Application of evaluation results

5.2.1 Construction of the curriculum system

The course for the sports industry is actually a course network supported by many disciplines, including not only sports and management but also economics and psychology, which involve a wide range of subjects. ""is listed as an independent public basic course in the talent training program. If it is separate from related courses, it is difficult to fully achieve the goal of entrepreneurial talent training. Therefore, based on the 4 factors and 15 elements of the research conclusion, the overall goal design of the course group can be carried out [37]. First, the knowledge system is deconstructed, the different course contents under which it belongs are clarified, and the knowledge learning and ability cultivation are integrated into the curriculum to form a three-dimensional network format curriculum system [38]. Second, according to the characteristics of the physical education curriculum, the mode of "theory course + post practical operation course + course + competition simulation + real operation project" can be adopted to gradually transition from theoretical cognition to comprehensive practice to realize the innovation of the curriculum system and teaching mode.

5.2.2 Establishment of multiple tracking evaluation mechanism

To better diagnose and revise the teaching process and guide and motivate students to clear their own direction of effort, we should establish a reasonable index system and optimize the evaluation method. Based on the index system of literacy established in this paper, detailed items are used for students' self-evaluations at multiple time points, such as nonexposure to the improvement of entrepreneurial and innovative talents, acceptance of education, graduation, and implementation of personal entrepreneurship [39]. In addition to students' self-evaluations, combined with school evaluations based on theory, skills and ideological quality and enterprise evaluations based on job adaptation and task performance, students' ability improvement and growth files are formed together[40]. Tracking information data can provide effective feedback information for schools to better carry out improvement of entrepreneurial and innovative talents and provide a scientific basis for education decision-making [41].

5.2.3 School-enterprise collaborative training path

Sports majors in colleges and universities can give full play to the advantages of school-enterprise cooperation and build a training mechanism that integrates theoretical knowledge, technical skills and industry practice [42]. In addition to classroom teaching, in the process of professional training and practice, students are allowed to visit, investigate, practice and practice successful enterprises and actually participate in the operation process of enterprises to enhance their entrepreneurial skills reserves and industry practical experience [43]. Extracurricular activities, such as on-campus competitions, marketing skills simulation, and entrepreneur lectures, are actively held to extend education and to promote the love and passion of the students [44].

6. Conclusion

Based on the literature and the characteristics of digital sports industry construction, this study constructed an evaluation index system for the core literacy of innovative and entrepreneurial talent in the digital sports industry, used an analytic hierarchy process to determine the weight of each index, and adopted a fuzzy comprehensive evaluation method to evaluate the core literacy of innovative and entrepreneurial talent in a college of physical education. According to the index weight, organizational leadership, management, innovation, sports expertise and information technology knowledge are particularly important. In addition, drive, innovation consciousness, and the moral realm are also more important. By observing the evaluation results of the core qualities of innovative and entrepreneurial talent in a college of physical education, it can be seen that the current innovative and entrepreneurial talents are slightly insufficient in terms of information technology knowledge, innovation ability, innovation consciousness and other aspects. At present, the evaluation of physical education, economics and management students at a university is limited to their performance at school, and are long-term processes. Therefore, in future research, the evaluation period of students should be relaxed by interviewing students themselves or issuing questionnaires to obtain more accurate evaluation results and provide more targeted suggestions on the cultivation of ability.

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