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Innovative and Entrepreneurial Talent Evaluation in E-commerce under the Context of the New Liberal Arts

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Abstract: *This article focuses on evaluating the quality of e-commerce professional innovation and entrepreneurship talent cultivation within the framework of New Liberal Arts. Through an in-depth discussion on the evaluation index system, it proposes a corresponding cultivation framework and strategy tailored to the current landscape. Firstly, it analyzes the emerging demand for evaluating e-commerce innovation and entrepreneurship talent cultivation in the context of New Liberal Arts, stressing the significance of enhancing the quality of talent cultivation amid the rapid evolution of e-commerce. Building upon this analysis, a multidimensional and multilevel evaluation index system for e-commerce innovation and entrepreneurship talent cultivation is formulated, centered around "two-dimensional cultivation, four-way linkage, and multidimensional integration," providing a comprehensive and scientifically grounded basis for evaluation. Lastly, employing the Analytic Hierarchy Process and empirical evidence, the article conducts an evaluation of e-commerce innovation and entrepreneurship talent cultivation, offering targeted cultivation strategies. This study enriches the theoretical framework of e-commerce professional innovation and entrepreneurship talent cultivation evaluation.*

Keywords: *new liberal arts; e-commerce major; innovative and entrepreneurial talents; cultivation quality evaluation*

1. Introduction

In the realm of constructing New Liberal Arts, research and practical endeavors regarding the cultivation of innovative and entrepreneurial talents in e-commerce fields remain largely exploratory, with a limited corpus of literature available.[1] Nonetheless, international research on innovation and entrepreneurship talent cultivation has yielded abundant theoretical insights and practical wisdom. Internationally, innovation and entrepreneurship education is often deeply intertwined with professional education, emphasizing the imperative of integrating professional and innovation/entrepreneurship education to foster high-quality innovative talents[4] (Gibb, 2007; Katz, J. A., 2003). In China, the advancement of innovation and entrepreneurship education has prompted various universities to explore tailored education models. Tsinghua University, leveraging its robust research capabilities and educational resources, has developed an "university-government-enterprise" ecological network model for innovation and entrepreneurship education, offering extensive platforms for practical endeavors through collaborative efforts[6] (Ma Yongbin and Bo Zhe, 2015). Similarly, Zhejiang University, with its comprehensive disciplinary coverage and distinguished faculty, has devised a holistic innovation and entrepreneurship education system, encompassing the entire innovation and entrepreneurship process[7] (Lin Weilian and Wu Wei, 2017). Furthermore, many Chinese innovation and entrepreneurship education models adopt a tripartite approach involving the government, enterprises, and academia, integrating theoretical courses with practical activities to nurture students' innovation and entrepreneurship awareness comprehensively[9] (Qiu Hanqin and Du Yingying, 2022; Meng Yanfang and Zhao Jinghe, 2023; Yang Li-Ying, 2023).

The rapid growth of the e-commerce industry has created a critical demand for e-commerce professionals. By 2025, according to the "14th Five-Year Plan for the Development of E-commerce," the sector is expected to require a workforce of 70 million. However, despite this anticipated surge, there is a shortage of qualified e-commerce professionals, presenting recruitment challenges for many enterprises. Additionally, the industry's diversification further exacerbates the scarcity of highly skilled e-commerce professionals with interdisciplinary expertise, innovative capabilities, and global perspectives, which are

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essential for navigating businesses through evolving landscapes.

Current talent cultivation frameworks, especially within the context of the "new liberal arts," lack thorough research and systematic planning to address the evolving demands of e-commerce innovation and entrepreneurship. Moreover, research on e-commerce talent cultivation remains limited. Given the industry's rapid evolution, there is a pressing need for professionals with enhanced innovation and entrepreneurial skills. However, existing research fails to bridge this gap, exacerbating the mismatch between talent cultivation and industry demands. Therefore, grounded in the imperative of nurturing innovative and entrepreneurial talents in e-commerce within the scope of the "new liberal arts," this study aims to explore and evaluate the quality of talent cultivation in the e-commerce profession.

2. Construction of Evaluation Indicator System for Cultivating Innovative and Entrepreneurial Talents of E-commerce Majors in the Context of New Liberal Arts

2.1 Cultivation Objectives of Innovative and Entrepreneurial Talents for E-Commerce Majors in the Context of New Liberal Arts

The cultivation of e-commerce professionals with interdisciplinary competencies, international outlooks, innovative mindsets, robust interpersonal communication, and adept organizational coordination has emerged as the cornerstone of talent development, particularly within the framework of the new liberal arts[8]. This study investigates the demand for e-commerce innovation and entrepreneurship talents within corporate and institutional spheres through a comprehensive approach encompassing interviews, surveys, and field research. It meticulously examines the requisite abilities and attributes essential for e-commerce professionals within the context of the new liberal arts and identifies prevailing deficiencies within existing talent cultivation paradigms. By juxtaposing these findings with the contemporary benchmarks for nurturing innovative and entrepreneurial talents in e-commerce within the new liberal arts milieu, notable disparities surface, including misalignment between training objectives and industry requisites, incongruities between students' practical proficiencies and project exigencies, and incongruences in teaching capabilities and the training imperatives.

In response to these exigencies, this paper advocates for a "two-dimensional cultivation, four-party linkage, diversified integration" model for cultivating e-commerce innovation and entrepreneurship talents. "Two-dimensional cultivation" entails a nuanced approach to fostering entrepreneurial aptitude across two pivotal domains: "e-commerce development technology" and "e-commerce operation management," tailored to individual student aptitudes and entrepreneurial potentials. "Four-party linkage" underscores the imperative of synergizing resources drawn from the School of Management Science and Engineering, the School of Innovation and Entrepreneurship, industry-academic collaboration platforms, and innovation and entrepreneurship practice platforms to forge a cohesive ecosystem conducive to holistic student development[2]. "Diversified integration" underscores the amalgamation of expertise, innovation, and industry-academic synergies throughout the student cultivation continuum. This multifaceted approach engenders integration across diverse dimensions, including specialization and creativity, industry-academic symbiosis, and theoretical-practical synthesis, ultimately augmenting students' innovation and entrepreneurship proficiencies.

Consequently, this paper proposes a comprehensive quality evaluation index system tailored for e-commerce innovation and entrepreneurship talent training within the new liberal arts milieu, aimed at systematically assessing and enhancing the quality of talent cultivation in this domain.

2.2 Key Elements of Innovative and Entrepreneurial Talent Cultivation for E-Commerce Majors in the Context of New Liberal Arts

Based on the "two-dimensional cultivation, four-party linkage, diversified integration" model proposed for cultivating innovative and entrepreneurial talents in the field of e-commerce, when analyzing the competency elements of e-commerce talents, we can establish indicators reflecting key areas for the comprehensive development of e-commerce talents, such as industry, teaching, research, ideological and political education, specialization, and entrepreneurship. Among the critical elements for cultivating innovative and entrepreneurial talents in the e-commerce profession, knowledge and skills are easily observable and measurable, representing abilities that e-commerce talents directly apply in their work. Simultaneously, intrinsic characteristics such as individual motivation, traits, self-concept, and social roles play crucial roles in the long-term development and potential exploration of e-commerce talents, despite being challenging to directly observe and measure[3].The final analysis results regarding

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the factors of cultivating innovative and entrepreneurial talents in e-commerce are presented in Table 1.

Table 1: Key Elements of Cultivating Innovative and Entrepreneurial Talents in E-Commerce Major

key constituent	Description of elements
professions	Elemental content: Comprehensive assessment of the proficiency and innovation of e-business talents in the mastery of professional knowledge, application of skills and practical operation.
	Assessment indicators: professional knowledge, interdisciplinary competence, project performance for professional knowledge and competence.
pedagogical	Elemental content: Measurement of the extent to which the curriculum is aligned with market needs, the effectiveness of teaching methods and the quality of teaching.
	Evaluation indicators: number of relevant course offerings, degree of innovation in teaching methods, application of innovative teaching methods, etc.
(scientific) research	Elemental content: examines the contribution of e-commerce talents in the field of research, innovation and academic achievements.
	Assessment indicators: number and quality of scientific research projects, number and impact factor of academic papers published, and effectiveness of scientific research results transformation.
estate	Elemental content: reflecting the degree of close co-operation with enterprises in the process of cultivating e-commerce talents, the degree of participation in internship and practical training, and the ability to apply in the industry.
	Evaluation indicators: number of cases of enterprise cooperation, quality of completed internship training, effect of industrial technology application, etc.
Civic and Political Science	Elemental content: Emphasis on the results of training e-commerce talents in ideological and political education and social responsibility.
	Assessment indicators: basic situation and results of ideological and political education, effectiveness of cultivating social responsibility and participation in practical activities, etc.
dual innovation	Elemental content: Assessment of access to innovation and entrepreneurship awareness training, practical internship guidance and entrepreneurship support services for e-commerce talents.
	Assessment indicators: effectiveness of innovation and entrepreneurship awareness cultivation, quantity and quality of entrepreneurship practice projects, and availability of entrepreneurship support services.

2.3 Innovative and entrepreneurial talents of e-commerce majors in the context of the new liberal arts Quality Evaluation Indicators of Cultivation

Building upon the foundation of the "two-dimensional cultivation, four-party linkage, and multi-dimensional integration" model and key elements for cultivating innovative and entrepreneurial talents in the field of e-commerce, it is imperative to further establish a scientific and rational evaluation system for e-commerce talent cultivation.

In the construction process, first of all, based on the evaluation objectives, each judgement angle and its representative elements will be systematised and structured to ensure the clarity and systematisation of the evaluation objectives. Selecting indicators that can directly reflect the mastery of professional knowledge and skills of e-commerce talents, the selection of evaluation indicators will pay more attention to the assessment of the deep-level characteristics of talents, so as to comprehensively reflect the comprehensive quality and ability level of e-commerce talents. Through in-depth analysis of elements and screening of indicators, a comprehensive and precise indicator system is finally constructed, as shown in Table 2.

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Table 2: E-commerce Talent Cultivation Quality Evaluation Index System

E-commerce talent training quality evaluation index system		
Level 1 indicators	Secondary indicators	Tertiary indicators
Industry A	Corporate Co-operation A1	Number of business co-operation projects A11
		Number of industries covered by business co-operation projects A12
		Average number of years of business co-operation projects A13
	Innovative Technology Applications A2	Number of courses on new technology applications A21
		Number of scientific research projects on the application of new technologies A22
		Number of practical projects on the application of new technologies A23
	Practical training A3	Number of internship training bases A31
		Number of students participating in practical training programmes A32
		Internship training base level A33
Teaching B	Curriculum B1	Number of courses related to e-commerce technology development B11
		Number of courses related to e-commerce operations B12
		Syllabus update cycle B13
	Teaching method B2	Number of courses on application of innovative teaching methods B21
		Practical teaching ratio B22
		Utilisation of laboratory teaching resources B23
Research C	Scientific research project C1	Number of scientific research projects participated in C11
		Number of funds invested in research projects C12
		Number of scientific research results transformed C13
	Academic papers published C2	Number of academic publications C21
		Academic paper publication grade C22
		Number of citations to academic papers C23
	Transformation of scientific research results C3	Number of projects to transform scientific research results C31
		Assessment of the Effectiveness of Transformation of Scientific Research Achievements Grade C32
		Industrialisation rate of scientific research results C33
Civics D	Ideological and Political Education D1	Number of Civic and Political Education Programmes D11
		Participation rate of students in Civic Education D12
	Social responsibility development D2	Number of social practice activities D21
		Participation rate in social welfare programmes D22
		Awarded Grade D23 for social welfare projects
Professional E	Professionalism E1	Expertise in e-commerce E11
		Professionalism Assessment Level E12
	Interdisciplinary competence E2	Number of students participating in interdisciplinary programmes E21
		Proportion of interdisciplinary programme offerings E22
		Number of students in interdisciplinary employment E23
	Practical skills E3	Number of participation in practical projects E31
		Practical Project Outcome Level E32
Double Creation F	Creative Entrepreneurship Awareness F1	Number of innovative entrepreneurship education programmes F11
		Number of participation in innovation and entrepreneurship competitions F12
	Entrepreneurial Practice F2	Number of entrepreneurial practice programmes F21
		Entrepreneurial practice success rate F22
		Estimated Benefits of Entrepreneurial Practices F23
	Entrepreneurship Support Services F3	Number of business incubator services F31
		Number of students mentored by business mentors F32
		Number of funds for entrepreneurial support F33

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3. Evaluation of Innovative and Entrepreneurial Talent Cultivation for E-Commerce Majors in the Context of New Liberal Arts

3.1 Overview of Analytic Hierarchy Process

In the evaluation of e-commerce talent training, the application of AHP (Analytic Hierarchy Process) is particularly noteworthy, which is a kind of multi-objective decision-making analysis method that combines qualitative analysis and quantitative analysis, and by breaking down the complex problem into multiple constituent factors and comparing them two-by-two, it can accurately measure the relative importance of each factor, so as to arrive at the advantages and disadvantages of different programmes or objects. In the applied research of e-commerce talent training programme, AHP analysis can be used to evaluate the formulation of talent training programme, the implementation effect and the quality of training and other aspects.

One of the core steps of the Analytic Hierarchy Process is to construct a judgement matrix, which is used to compare the importance of different factors and provide a basis for the subsequent weight calculation. The specific scoring criteria refer to the relative importance scale of the judgement matrix (Table 3).

Table 3: Scale of judgement matrices

Indicator degreea_{ij}	Meaning of comparative indicators	specific value
9	Absolutely important.	Factor i compared to factor j
7	very important	Factor i compared to factor j
5	important	Factor i compared to factor j
3	more important	Factor i compared to factor j
1	equal importance	Factor i compared to factor j
2, 4, 6, 8	Median value of neighbouring scales	Factor i compared to factor j
1/3	less important	Factor i compared to factor j
1/5	Very unimportant.	Factor i compared to factor j
1/7	Very unimportant.	Factor i compared to factor j
1/9	Absolutely nothing.	Factor i compared to factor j
1/2, 1/4, 1/6, 1/8	Median value of neighbouring scales	Factor i compared to factor j

Calculating the weight vector is an important step in decision making using Analytic Hierarchy Process. After constructing the judgement matrix, the weight vector of each factor needs to be calculated using the eigenvector method after constructing the judgement matrix. The basic idea of this method is to mathematically analyse the judgement matrix to derive an eigenvector, and then to find the weights of the factors at each level.

Suppose the judgement matrix is A and the weight vector is *w. The* weight vector is calculated as follows:

(1) Normalise the judgement matrix by columns (i.e. column elements sum to 1):

$$b_{ij} = \frac{a_{ij}}{\sum a_{ij}}$$

(2) Sum the normalised matrix by rows:

$$c_i = \sum b_{ij} (i = 1, 2, 3, ..., n)$$

(3) Normalise c_i ; obtain the feature vector

$$W = (w_1, w_2, ..., w_n)^T$$

Among them:

$$w_i = \frac{c_i}{\sum c_i}$$

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w is the approximation of the eigenvector, i.e., the weight vector. By such a calculation method, the weight vector of each factor can be obtained for subsequent comprehensive evaluation and decision analysis.

Afterwards, the reasonableness and consistency of the matrix is judged by the consistency test, and the consistency ratio *CR* is the ratio of the consistency index to the random consistency index, which reflects whether the matrix is reasonable or not, and its calculation formula is:

$$\lambda_{\max} = \frac{1}{n}\sum_{i}\frac{Aw_i}{w_i}$$

$$CI = \frac{\lambda_{\max} - n}{n-1}$$

$$CR = \frac{CI}{RI}$$

Where λ_{max} is the maximum eigenvalue of the judgement matrix, n is the order of the judgement matrix; *CI* is the consistency index and *RI* is the random consistency index. When *CR* is less than 0.1, the judgement matrix is considered reasonable.

Before performing the consistency test, the consistency indicator *CI* and the random consistency indicator *RI* of the judgement matrix need to be calculated.The random consistency indicator *RI* is the value of the average consistency indicator *CI in a* randomly constructed random consistency matrix of order *n with* eigenvalues of $\lambda_{.max}$

The correspondence between the consistency indicator *RI* and the N-order matrix is shown in Table 4:

Table 4: Correspondence between the consistency indicator RI and the N-order matrix

N	1	2	3	4	5	6	7	8	9	10
RI	0	0	0.58	0.90	1.12	1.24	1.32	1.41	1.45	1.49

3.2 Construction and weighting of judgement matrices

This article combines the opinions and scoring data of several experts, takes the average result, and constructs a judgement matrix as shown in Table 5.

Table 5: Judgement Matrix for Objective Level - Tier 1 Indicator Level

Level 1 indicators	Industry A	Teaching B	Research C	Civics D	Professional E	Double Creation F
Industry A	1	2	1	2	2	1/2
Teaching B	1/2	1	1/2	2	1	1/3
Research C	1	2	1	1/2	1	1
Civics D	1/2	1/2	2	1	2	1/3
Professional E	1/2	1	1	1/2	1	1/3
Double Creation F	2	3	1	3	3	1

Table 6: Judgement Matrix for Normative Objective Tier - Tier 1 Indicator Tier

Level 1 indicators	Industry A	Teaching B	Research C	Civics D	Professional E	Double Creation F
Industry A	0.1818	0.2105	0.1538	0.2222	0.2000	0.1429
Teaching B	0.0909	0.1053	0.0769	0.2222	0.1000	0.0952
Research C	0.1818	0.2105	0.1538	0.0556	0.1000	0.2857
Civics D	0.0909	0.0526	0.3077	0.1111	0.2000	0.0952
Professional E	0.0909	0.1053	0.1538	0.0556	0.1000	0.0952
Double Creation F	0.3636	0.3158	0.1538	0.3333	0.3000	0.2857

The judgment matrix undergoes normalization, wherein each element of the matrix is divided by the

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sum of the elements in its respective column. This process yields the normalized judgment matrix as illustrated in Table 6.

After that, the cumulative value of each row of the normalisation matrix is calculated and normalised to obtain the eigenvector $W = (0.1852, 0.1151, 0.1646, 0.1429, 0.1001, 0.2921)^T$, which is the weight of the first-level indicator layer with respect to the target layer.

After determining the weights, a consistency test is performed to determine the feasibility of the weights. The original matrix *U is* multiplied with the eigenvector *W* to obtain *UW*:

$$UW = \begin{bmatrix} 1 & 2 & 1 & 2 & 2 & 1/2 \\ 1/2 & 1 & 1/2 & 2 & 1 & 1/3 \\ 1 & 2 & 1 & 1/2 & 1 & 1 \\ 1/2 & 1/2 & 2 & 1 & 2 & 1/3 \\ 1/2 & 1 & 1 & 1/2 & 1 & 1/3 \\ 2 & 3 & 1 & 3 & 3 & 1 \end{bmatrix} \begin{bmatrix} 0.1852 \\ 0.1151 \\ 0.1646 \\ 0.1429 \\ 0.1001 \\ 0.2921 \end{bmatrix} = \begin{bmatrix} 1.2121 \\ 0.7733 \\ 1.0436 \\ 0.9199 \\ 0.6412 \\ 1.9015 \end{bmatrix}$$

The maximum eigenvalue $\lambda_{max} = 6.4925$ is obtained, which in turn leads to the consistency index *CI* and consistency ratio *CR*.

$$CI=(\lambda_{max}-n)/(n-1)=0.0985,\ CR=CI/RI=0.0985/1.24=0.0794<0.1$$

After the test, *the CR* value is less than 0.1, indicating that the degree of consistency deviation of the judgement matrix is acceptable and the effect of the judgement matrix is feasible. Similarly, according to the basic steps and methods of Analytic Hierarchy Process, the consistency test of each secondary and tertiary indicator is carried out, and the results meet the requirements.

3.3 Overall ranking of indicator weights

After calculating the indicator weights for each level of the indicator layer, in order to better compare the magnitude of importance of each indicator layer, it is necessary to calculate its global weight, i.e., multiply each last level of the indicator layer by the weight of its corresponding upper level of the indicator layer, with the following formula:

$$\overline{W_{U_{ij}}} = W \times W_{U_i} \times W_{U_{ij}}$$

The weights and ranking results of the final evaluation index system are shown in Table 7.

Table 7: E-commerce Talent Cultivation Quality Evaluation Indicator System Hierarchical Ranking

E-commerce talent training quality evaluation index system								
Level 1 indicators	weights	Secondary indicators	weights	global weight	Tertiary indicators	weights	global weight	arrange in order
Industry A	0.1852	Corporate Co-operation A1	0.1638	0.0303	A11	0.2973	0.0090	35
					A12	0.5390	0.0163	26
					A13	0.1638	0.0050	40
		Innovative Technology Applications A2	0.5390	0.0998	A21	0.2000	0.0200	23
					A22	0.4000	0.0399	6
					A23	0.4000	0.0399	6
		Practical training A3	0.2973	0.0551	A31	0.1638	0.0090	34
					A32	0.2973	0.0164	25
					A33	0.5390	0.0297	12
Teaching B	0.1151	Curriculum B1	0.3333	0.0384	B11	0.2973	0.0114	32
					B12	0.5390	0.0207	21
					B13	0.1638	0.0063	37
		Teaching method B2	0.6667	0.0767	B21	0.3338	0.0256	15
					B22	0.5907	0.0453	3
					B23	0.0755	0.0058	39
Research C	0.1646	Scientific research project C1	0.2299	0.0378	C11	0.3333	0.0126	29
					C12	0.3333	0.0126	29
					C13	0.3333	0.0126	29

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		Academic papers published C2	0.1222	0.0201	C21	0.1638	0.0033	42
					C22	0.5390	0.0108	33
					C23	0.2973	0.0060	38
		Transformation of scientific research results C3	0.6479	0.1066	C31	0.1976	0.0211	18
					C32	0.4905	0.0523	2
					C33	0.3119	0.0333	11
Civics D	0.1429	Ideological and Political Education D1	0.5000	0.0715	D11	0.5000	0.0357	9
					D12	0.5000	0.0357	9
		Social responsibility development D2	0.5000	0.0715	D21	0.4000	0.0286	13
					D22	0.4000	0.0286	13
					D23	0.2000	0.0143	27
Professional E	0.1001	Professionalism E1	0.2648	0.0265	E11	0.7500	0.0199	24
					E12	0.2500	0.0066	36
		Interdisciplinary competence E2	0.0796	0.0080	E21	0.1976	0.0016	44
					E22	0.4905	0.0039	41
					E23	0.3119	0.0025	43
		Practical skills E3	0.6555	0.0656	E31	0.3333	0.0219	17
					E32	0.6667	0.0438	5
Double Creation F	0.2921	Creative Entrepreneurship Awareness F1	0.1429	0.0417	F11	0.5000	0.0209	19
					F12	0.5000	0.0209	19
		Entrepreneurial Practice F2	0.5714	0.1669	F21	0.1222	0.0204	22
					F22	0.6479	0.1081	1
					F23	0.2299	0.0384	8
		Entrepreneurship Support Services F3	0.2857	0.0834	F31	0.5390	0.0450	4
					F32	0.1638	0.0137	28
					F33	0.2973	0.0248	16

4. Example and Result Analysis of Quality Evaluation of Innovative and Entrepreneurial Talents of E-commerce Majors in the Context of New Liberal Arts

4.1 Example Evaluation of E-commerce Innovation and Entrepreneurship Talent Cultivation in Shan University of Finance and Economics

4.1.1 Overview of talent development

The e-commerce program at Shandong University of Finance and Economics focuses on cultivating versatile professionals. Students are expected not only to possess a solid theoretical foundation in economics and management but also to excel in e-commerce operation theories and internet information technology. The curriculum comprises compulsory courses in e-commerce theories and practices, along with specialized courses in e-commerce operation management and development technology, providing students with a comprehensive learning framework to build a strong foundation for their future careers.

4.2 Analysis of results

By analyzing the various indicators and data from the talent cultivation report of the School of Management Science and Engineering at Shandong University of Finance and Economics in 2023, the following conclusions are drawn: innovation and entrepreneurship ability (Double Creation F) is in the first place, which highlights the urgent demand of the e-commerce industry for talents with innovation awareness and practical ability. The interface with industry (Industry A), the cultivation of scientific research ability (Research C) and ideological and political education (Civics D) are also valued as first-level indicators. However, in terms of teaching (Teaching B) and professional competence (Professional E), the weights are relatively low, which may reflect a certain disconnect between the current teaching content and market demand, as well as the fact that the teaching of professional competence in e-commerce has not yet been fully adapted to the fast-changing industry and the high standard requirements. An overall analysis of the evaluation results shows that:

1) Industrial co-operation and practice links are indispensable to the training of e-commerce talents,

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and particular attention should be paid to the application of innovative technologies in the process of industrial co-operation and practice, in order to help the relevant talents adapt to the rapid development and changes in the industry.

2) Entrepreneurial success, on the other hand, is crucial for measuring the quality of talent training, and the construction of a comprehensive and advanced business incubator to provide students with adequate innovation and entrepreneurship support services is necessary.

3) The results in terms of teaching quality show that practical teaching is the key to improving students' problem-solving skills and that teaching should not be detached from the real industrial development process.

4) In terms of professional competence, practical competence is emphasised as an important training objective, and other indicators have a lower weighting, indicating that under the current training mode, there is a great lack of professional competence, which can no longer be used as an important indicator of training quality.

5) The cultivation of e-commerce talents' scientific research ability and the improvement of their academic level are also crucial to the development of the industry, especially the ability to transform scientific research results into practical applications.

6) Civic education and social responsibility cultivation are also considered to be important links in the process of e-commerce personnel training.

4.3 Suggestions

1) Precise Positioning: A Core Strategy for Personalised Development and Innovative Entrepreneurship

Deep cultivation of students' market research skills is imperative, alongside an integration of innovation and entrepreneurship throughout professional education. This necessitates curriculum optimization, increased content pertinent to innovation and entrepreneurship, and the stimulation of students' innovative thinking and entrepreneurial spirit[5]. Cultivating personalized skills is not only essential for adapting to industry changes but also vital for enhancing students' overall competitiveness and meeting the diverse needs of industry development.

2) Deepening the integration of industry, academia and research: an optimal path for combining theory and practice in education

Through robust integration of resources from industry, academia, and educational institutions, more practical opportunities can be provided for students, bridging theoretical knowledge with real-world scenarios. This integration can be facilitated through project collaboration, internship programs, and other avenues, bolstering students' comprehensive abilities and innovative acumen. Collaborative efforts among industry, academia, and research enable students to better tackle challenges and enhance their problem-solving skills, thereby cultivating high-quality talent aligned with the evolving needs of the e-commerce industry.

3) Comprehensive Assessment and Faculty Enhancement: A Key Initiative for Talent Training Quality Improvement

This assessment framework not only objectively reflects students' learning outcomes but also provides targeted guidance for talent development. Concurrently, enhancing the teaching team is pivotal for improving training quality. Strengthening teacher selection, training, and professional development efforts will furnish students with superior educational resources, further advancing training quality in e-commerce. These complementary endeavors collectively underpin the enhancement of talent training quality in e-commerce.

5. Conclusion

This article focuses on the evaluation research of the quality of e-commerce professional innovative and entrepreneurial talent training in the context of new liberal arts. The results show that the AHP hierarchical analysis method used in this study has high accuracy and practicability in the evaluation of the quality of e-commerce professional innovative and entrepreneurial talent training, can objectively measure the actual situation of the current quality of e-commerce professional talent training, and is

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highly compatible with the new demand for innovative and entrepreneurial talent training in the context of the new liberal arts and sciences, and provides targeted talent training strategy suggestions for colleges and universities and enterprises. This study not only enriches the theoretical system of e-commerce talent cultivation evaluation, but also provides an important reference for e-commerce talent cultivation in practice and will continue to improve the evaluation system in the future.

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