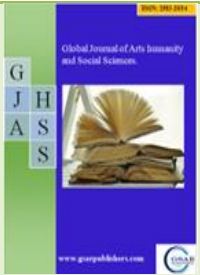
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Evaluation Index System for the Effectiveness of the Integrated Development of "Curriculum Ideology" and Ideological and Political Courses in Universities

By

Hou Yongmei

Department of Psychology, School of Humanities and Management, Guangdong Medical University, Dongguan, Guangdong



Abstract

To develop a tool for evaluating the effectiveness of the integrated development of "Curriculum Ideology" and ideological and political courses in universities. **Method:** Guided by the theories of developmental psychology and educational psychology, expert opinion method (Delphi method) and analytic hierarchy process (AHP) were used to construct an evaluation index system for the effectiveness of the integrated development of "Curriculum Ideology" and ideological and political courses in Universities. Firstly, based on the results of three semi-structured interviews with 22 experts and focus group discussions, as well as pre-surveys with other 22 experts, the basic content of the evaluation index system has been preliminarily formulated. Then, Delphi method was used to conduct two rounds of consultation with another 65 experts, and the AHP was used to construct an evaluation index system. Finally, a questionnaire survey was conducted on 461 college students to determine the reliability and effectiveness of the evaluation index system. **Results:** The effective recovery rates of the two rounds of expert consultation were both 100%, with authoritative coefficients of 0.8267 and 0.8513 ($P < 0.05$), and the coordination coefficients of expert opinions of 0.772 and 0.821, respectively. The coefficients of variation of each indicator were less than 0.15, and the full score rates were higher than 0.30. The final version of the constructed evaluation indicators includes 3 primary indicators, 11 secondary items, and 45 tertiary indicators. **Conclusion:** The construction method of the evaluation index system is scientific, the procedure is standardized, and the evaluation index system has good psychological measurement performance.

Keywords: "Curriculum Ideology", Ideological and political courses; Integrated development, Evaluation index system; Expert consultation method (Delphi method); Analytic Hierarchy Process (AHP)

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Corresponding author

Hou Yongmei

1. Introduction

There are significant differences and close connections between "ideological and political courses" and "Curriculum Ideology".

The difference between the two is mainly reflected in their concepts and the educational tasks they undertake. Firstly, conceptually speaking, "ideological and political courses" refer to the public compulsory courses specially offered by Chinese universities. They are a discipline system with socialist characteristics and Chinese style, mainly including courses such as "Introduction to the Basic Principles of Marxism", "Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics",

"Outline of Modern Chinese History", etc. They have clear ideological and political education objectives and teaching content, as well as clear course names and supporting textbooks [1]. "Curriculum Ideology" is a new form of education that advocates the concept of "all staff, all courses, and all aspects". It is one of the important ways for universities in the new era to implement the fundamental educational task of "cultivating virtue and nurturing people". Its main task is for teachers of all courses (including professional courses) to fully explore the ideological and political education elements contained in the courses, give full play to the educational advantages of each course, take socialist core values as the guide, and ideal and belief education as the core, and build a university education system that connects the disciplinary system,



teaching system, and management system. The aim is to form a "Big Ideological and Political" pattern of "three comprehensive" education, and through the combination of explicit and implicit education, mainly through implicit infiltration, enable students to receive ideological and political education [2]. Secondly, the specific tasks undertaken by the two in talent cultivation are different. The "ideological and political curriculum" undertakes the educational task of ideological and moral education, and through the explanation of textbooks, provides students with direct, explicit, and systematic education, enabling them to form correct outlooks on life, values, and the world. While "Curriculum Ideology" explores the "ideological and political education" elements of each course, integrate them into the teaching process, and allows students to receive implicit and indirect ideological and political education and subtle ideological influence in professional knowledge learning, achieving the educational effect of "moistening things silently" [1].

The commonality between the two lies in their educational objectives and political direction. Firstly, in terms of educational objectives, both "ideological and political courses" and "Curriculum Ideology" belong to the category of moral education. As highly related educational work in the higher education system, both are committed to "cultivating virtue and nurturing people", cultivating modern talents who are politically strong, loyal to the motherland, and loyal to the Party. Therefore, both parties should reach a consensus in areas related to national identity, road identity, political identity, cultural identity, etc., generate emotional and psychological convergence, adhere to the same teaching objectives and maintain a consistent pace in education, and promote each other. The concept of "Curriculum Ideology" should be deeply explored, and the principles and requirements of the "ideological and political courses" should be reflected in teaching and education at all times and places. Secondly, as the main battlefield of ideological and political education, "ideological and political courses" should focus on connotative development, providing more updated raw materials and broader and deeper theoretical support for "Curriculum Ideology" [3].

In summary, there is a close relationship between "ideological and political courses" and "Curriculum Ideology". "Curriculum Ideology" is a new form of education and teaching that has evolved and developed from "ideological and political courses" and has new characteristics of the times. It breaks through the original definition of teaching concepts, integrates professional course teaching with ideological and political education, highlights the core position of ideological and political education, and highlights the role of teaching and educating people. There is a close relationship between professional course teaching and ideological and political education, and the integration and development of the two have an inherent logic of "cultivating virtue and talent" value orientation, internal driving force, and external forcing force to promote collaboration, and dialectical unified thinking to promote collaboration [4]. Only through integrated development can the role of ideological and political education work be fully utilized [4-5]. However, over the long term, there have been varying degrees

of the phenomenon of "two skins" and their detachment from each other [5]. On one hand, traditional ideological and political education concepts in universities are outdated, with single and mechanical teaching methods that are disconnected from professional courses and real life. They are too theoretical but lack interest and practicality, and are difficult to understand, which is not conducive to cultivating practical literacy and fails to fully play the "nurturing function" of ideological and political education. On the other hand, the teaching of professional courses hardly involves ideological and political education, at least without clear requirements. Teachers only impart professional knowledge and skills, requiring students to apply them to their work as much as possible, which leads to students neglecting ideological and political cultivation, neglecting professional ethics, and easily leading to "materialism", "performance slavery", and "vicious competition", which is not conducive to the sustainable development of their profession and life. Therefore, the integration of ideological and political courses with "Curriculum Ideology" has become an inevitable way to solve the above problems and play the role that ideological and political education should play [6].

The value of integrated development of "ideological and political courses" and "Curriculum Ideology" is increasingly prominent. Some leading regions, such as Shanghai, Beijing, and Jilin, have already formed a mature, valuable, and promotable set of reform experiences, laying a solid foundation for the nationwide promotion of "Curriculum Ideology". Many universities have conducted seminars on "Curriculum Ideology" around the work of "Big Ideology and Politics", such as the "1144 model" of Capital Normal University and the "1233 model" of Changchun Normal University, which have effectively driven the entire transformation [7]. At the same time, under the guidance of the Party's education policies, universities have gradually strengthened their awareness of the integrated development of "ideological and political courses" and "Curriculum Ideology". Through a combination of explicit and implicit education, they actively explore ideological and political education resources, expand students' horizons, enhance the attractiveness of "ideological and political courses", and play a positive role in cultivating high-quality talents with comprehensive development [7-8]. Teachers fully exert their subjective initiative and actively explore collaborative education models in terms of course content, teaching methods, and teaching techniques [8]. Professional course teachers and "ideological and political course" teachers learn from each other, explore together, and form a good trend of integrated development [3].

The integrated development of "ideological and political courses" and "Curriculum Ideology" is a new phenomenon. How to effectively integrate and form a joint force is still in the exploratory stage, and there are many problems. For example: First, There is a lack of unified planning, inadequate development of ideological and political education resources for professional courses, and a lack of a sound teaching evaluation mechanism [7]. Second, there are collaborative difficulties in terms of subject, content, field, teaching methods, etc., teachers have cognitive biases, and the

assessment and evaluation system is not sound [8-9]. Third, there are overlaps in knowledge teaching, differences in moral education, and conflicts in practical education and teaching [10]. Fourth, due to the lack of system design, there are problems such as a lack of overall planning in organizational management mechanisms, a lack of correlation in curriculum construction mechanisms, a lack of synergy in teacher education mechanisms, and insufficient diversity in evaluation mechanisms [11]. Final, the shallow cognition of educational subjects, weak implementation capabilities, insufficient exploration of ideological and political education resources, imperfect top-level teaching design, and outdated evaluation methods have led to "fuzzy evaluation" [12]. Overall, it is a lack of top-level design and overall planning, insufficient integration of teaching resources, teaching methods, and teaching environment, incomplete evaluation mechanisms and tools for integration effects, and so on.

The effectiveness of talent cultivation is an important criterion for curriculum construction. The organic integration of "ideological and political education courses" and "Curriculum Ideology" is the focus of the systematic construction of "Curriculum Ideology", and the effectiveness evaluation is the most powerful measure to measure its educational effect [13-15]. Exploring the effectiveness evaluation of the integrated development of "ideology and politics courses" and "Curriculum Ideology" is an inevitable task to achieve the goal of "Curriculum Ideology" [16]. However, there is a lack of a complete and feasible evaluation index system for the integration effect of "ideological and political courses" and "Curriculum Ideology" in China.

2. Objects and Methods

2.1 Objects

2.1.1 Consulting experts

A stratified random sampling method was used to select 109 consulting experts, including 20 experts representatives in the field of higher education, 20 representatives of ideological and political education staff in universities, 20 representatives of professional course teachers in universities, and 49 college students. Inclusion criteria: (1) Expert representatives in the field of higher education: Assistant senior or above professional title, master's degree or above, engaged in higher education research or management for 15 years or more. (2) Representatives of university teachers of ideological and political courses: Vice senior or higher professional title or above, bachelor's degree or above, engaged in university ideological and political for 15 years or more. (3) University teacher representatives of professional courses: Holds a vice senior or higher professional title, a master's degree or above, and has been engaged in frontline teaching in higher professional education for more than 15 years. (4) Representatives of undergraduate students: currently enrolled undergraduate students.

From the above representatives, 22 representatives (including 5 experts in the field of higher education, 5 ideological and political education staff in universities, 5 professional course teachers in universities, and 7 undergraduate students) were randomly selected as experts for semi-structured interviews; 22 representatives

(including 5 experts in the field of higher education, 5 ideological and political education staff from universities, 5 professional course teachers from universities, and 7 undergraduate students) were selected as pre-survey experts. The remaining 65 Representatives (including 10 experts in the field of higher education, 10 university ideological and political education staff, 10 university professional course teachers, and 35 undergraduate students) served as inquiry experts.

2.1.2 Respondents

Four hundred and sixty-one undergraduate students were selected by stratified random sampling [17] from 7 universities in Guangdong Province (i.e. South China University of Technology, Guangzhou Medical University, Zhongkai College of Agricultural Engineering, Guangdong Second Normal University, Shenzhen University, Xinghai Conservatory of Music, Guangzhou Sport University).

2.2 Methods

2.2.1 Preliminary construction of indicator system

First, the researchers thoroughly studied relevant literature both domestically and internationally to understand the current research status and development trends. On this basis, the researchers conducted three rounds of semi-structured interviews [18] with 22 interview experts to understand their evaluations and expectations of the integration of "ideological and political courses" and "Curriculum Ideology" in colleges and universities from multiple perspectives and aspects. Combined with the results of literature analysis and interviews, a preliminary item pool of evaluation indicators for the integrated development of "ideological and political courses" and "Curriculum Ideology" in universities is proposed, and the draft questionnaire of the evaluation indicator system of is formed. Taking the "Draft Survey Questionnaire on the Evaluation Index System of the Integrated Development of Ideological and Political Curriculum and 'Curriculum Ideology' in Colleges and Universities" as the core content, combined with the results of focus group discussion [19], an "Expert Consultation Questionnaire Draft on the Evaluation Index System of the Integrated Development of Ideology and Politics Course" and "Curriculum Ideology" in Colleges and Universities (ECQD)" has been formed. A preliminary survey was conducted on other 22 representatives (using the same screening criteria as the representatives selected for semi-structured interviews, except for those who participated in the interviews) to review the ECQD. Based on the results of the pre-survey, modifications were made to ensure that the questionnaire meets the requirements of psychometrics, and then the core content of the "Expert Consultation Questionnaire on the Evaluation Index System of the Integrated Development Effect of 'Ideology and Politics Courses' and 'Curriculum Ideology' in Colleges and Universities (ECQ)" was determined, which includes 3 primary indicators, 11 secondary indicators, and 55 tertiary indicators.

2.2.2 Selection of Indicators

Preliminary screening and evaluation indicators were conducted using the Delphi method. Firstly, and two rounds of surveys were

conducted on 65 inquiry experts (using the same screening criteria as those selected for semi-structured interviews and pre-surveys, except for those participating in semi-structured interviews and pre-surveys) through letters or emails. Subsequently, their opinions and suggestions on the ECQ were collected, the connotation of the evaluation indicators were determined, qualitative analysis of the role of all indicators were conducted, and the indicators were screened, modified, and supplemented. And then, the Analytic Hierarchy Process (AHP) is used to assign specific weights to each indicator, ultimately forming a relatively scientific evaluation index system for the integrated development effect of "ideological and political courses" and "Curriculum Ideology" in colleges and universities.

The ECQ consists of introduction and main text. The introduction provides a brief referral to the research background, purpose, and significance of this study to the experts, and explain the requirements for filling out the questionnaire. The main text consists of three parts: The first part is the expert consultation form for the evaluation index system of the integrated development of "ideology and politics course" and "Curriculum Ideology" (i.e. the ECQD). The second part is the basic personal information table of experts, and the third part is the expert's familiarity with the survey content and the basis for judgment. The first part requires experts to determine the importance of the dimensions and items in the evaluation index system for the integrated development effect of "ideological and political courses" and "Curriculum Ideology" in colleges and universities. The Likert 5-point rating method is used to classify the scores into five levels: very important, important, average, unimportant, and very unimportant, with scores of 5, 4, 3, 2, and 1 respectively. There are also columns for modification opinions and items that need to be supplemented. Experts can modify, supplement, and delete dimensions and items. The second part covers the general personal information of experts. The third part divides familiarity into five levels: very unfamiliar, not very familiar, unclear, familiar, and very familiar, and assigns different coefficients (0.2, 0.4, 0.6, 0.8, and 1.0); The judgment criteria are divided into four categories: work experience, theoretical analysis, reference literature, and intuitive selection, and the degree of influence is divided into three levels: large, medium, and small, each assigned different scores. The selection criteria are based on an importance allocation $\text{mean} > 3.5$ and a coefficient of variation < 0.2 [20, 22].

In the first round of inquiry, experts provided their opinions on 55 indicators. In the second round of inquiry, experts provided their own opinion indicators for 49. Based on expert opinions and focus group discussions, three primary indicators were selected, including "leadership mechanism (LM)", "teaching process (TP)", and "guarantee mechanism (GM)", followed by 11 secondary indicators, namely School leading body (SLB), school of Marxism (SM), Secondary school (SS), academic department (AD), functional departments (FD), Teaching objectives (TO), content of courses (CC), teaching method (TM), assessment method (AM), construction of teaching staff (CTS), and incentive system (IS). In addition, there are 45 tertiary indicators.

2.2.3 Questionnaire survey

From May 2024 to August 2024, a survey was conducted on 461 undergraduate students using an initial questionnaire developed based on the evaluation index system. Foremost, the investigators received unified training and conducted consistency checks ($\text{kappa} = 0.81 \sim 0.90$) on the investigation process and evaluation criteria to meet the testing requirements. Then, the questionnaires are sent via email or letter, using the same introduction to illustrate the purpose, significance, and precautions of the research.

Questionnaires with a missing answer rate exceeding 50% were excluded, and the missing values of valid questionnaires were estimated based on the average. Epidata3.0 software was used for data input. Two researchers independently inputted the same data and conducted a unified logical check to ensure its accuracy. A total of 500 stratified questionnaires were distributed, with 461 valid questionnaires and an effective response rate of 92.2%. There were 247 males and 114 females; The age ranged from 17 to 27 years old, with an average of (22.58 ± 1.85) years. 93 students from South China University of Technology, 69 from Guangzhou Medical University, 58 from Zhongkai College of Agricultural Engineering, 55 from Guangdong Second Normal University, 88 from Shenzhen University, 47 from Xinghai Conservatory of Music, 51 from Guangzhou Sport University.

In order to evaluate the test-retest reliability of the questionnaire, 60 students were randomly selected from the sample.

2.2.4 Statistics and Analysis

The data were exported from epidata3.0 to SPSS 20.0 for statistical analysis. Pearson correlation analysis, exploratory factor analysis, internal consistency coefficient, test-retest reliability, content validity, and other statistical methods were used to evaluate the measurement performance of the evaluation index system.

3. Results

3.1 Enthusiasm, authority coefficient, and coordination coefficient of participating experts

In the first and second rounds of inquiry, 65 questionnaires were sent out and 65 returned respectively, so the enthusiasm of experts in the first and second round were both 100%. The expert enthusiasm and coordination coefficient are shown in Table 1.

Table 1 The expert enthusiasm and coordination coefficient

Round	Experts' enthusiasm (%)	Experts' coordination coefficient(W)	P
1	100	0.772	0.038
2	100	0.821	0.040

3.2 Authority coefficient of experts

The degree of expert authority refers to the degree of authority that an expert has over a certain issue or direction, and its value has a significant impact on the reliability of the evaluation. Therefore, it is necessary to quantify the degree of expert authority. The

authority level of experts is represented by the expert authority coefficient (Cr), which comes from their self-evaluation and is determined by two factors: the expert's judgment criteria on the problem and the expert's familiarity with the problem. The judgment criteria coefficient is represented by Ca and quantified into four levels: practical experience (0.8), theoretical foundation (0.6), reference to domestic and foreign literature (0.4), and intuition (0.2). Familiarity is expressed in Cs and quantified into 5 levels: very unfamiliar, not very familiar, unclear, familiar, and very familiar, with different coefficients assigned (0.2, 0.4, 0.6, 0.8, and 1.0). Therefore, expert authority coefficient $Cr=(Ca+Cs)/2$. It is generally believed that the expert authority coefficient $Cr \geq 0.7$ indicates that the research results are reliable.

In two rounds of inquiry, the authority coefficients of the four primary indicators were all higher than 0.7, and the results are shown in Table 2.

Table 2: Expert authority coefficients of four primary indicators in two rounds of inquiry

Indicators in grade 1	The first round			The second round		
	Ca	Cs	Cr	Ca	Cs	Cr
LM	0.728	0.889	0.810	0.759	0.920	0.840
TP		0.796	0.915	0.856	0.822	0.934
GM		0.754	0.873	0.814	0.779	0.892

3.3 Concentration degree and Variation Coefficient of expert opinions

The concentration degree of expert opinions is represented by the average of importance coefficient, coefficient of variation, and full score ratio. As shown in Tables 3 and 4, the average scores of experts for both primary and secondary indicators are above 4.00, indicating high scores; The coefficients of variation for both primary and secondary indicators is less than 0.15, indicating a normal score; The full scores ratio of both primary and secondary indicators is higher than 0.30, indicating a high degree of concentration of expert opinions.

Table 3 Concentration, variation coefficient, and full score ratio of expert opinions on primary indicators

Indicator	M±SD	Variation coefficient	Full score ratio
LM	4.62±0.73	0.114	0.41
TP	4.29±0.99	0.139	0.33
GM	4.67±0.84	0.109	0.43

Table 4. Concentration, variation coefficient, and full score ratio of expert opinions on secondary indicators

Indicator	M±SD	Variation coefficient	Full score ratio
SLB	4.70±0.62	0.114	0.41
SM	4.64±0.66	0.139	0.33
SS	4.67±0.84	0.129	0.43
AD	4.53±0.74	0.133	0.40
FD	4.07±0.88	0.146	0.38
TO	4.80±0.54	0.098	0.54
TC	4.76±0.61	0.108	0.57
TM	4.40±0.68	0.142	0.35
AM	4.28±0.81	0.144	0.31
CTS	4.59±0.78	0.137	0.45
IS	4.62±0.50	0.101	0.63

3.4 Reliability of evaluation indicator system

3.4.1 Internal consistency reliability

The Cronbach's α coefficient of the entire evaluation index system is 0.885. The Cronbach's α coefficients of the three primary indicators are 0.857, 0.809, and 0.781, respectively. The Cronbach's α coefficients of the eleven secondary indicators are 0.846, 0.838, 0.805, 0.780, 0.802, 0.903, 0.758, 0.764, 0.823, 0.735, and 0.749, respectively.

3.4.2 Test-retest reliability

The test-retest reliability coefficients of the entire evaluation index system is 0.859, with test-retest reliability coefficients of 0.829, 0.812, and 0.784 for the three primary indicators, and 0.855, 0.869, 0.785, 0.753, 0.845, 0.741, 0.791, 0.764, 0.823, 0.807, and 0.834 for the eleven secondary indicators, respectively.

3.5 Validity of evaluation indicator system

3.5.1 Content Validity Index (CVI)

CVI is calculated based on relevant formulas (Hong et al., 2004), with CVI ranging from 0.819 to 1.00 for each indicator and an average CVI of 0.927 for the entire indicator system.

There are various methods for calculating CVI, such as expert evaluation method, repetition method, test-retest method, empirical method, regression equation method, etc. The regression equation method was used in this study, where the scores of each evaluation indicator were used as predictor variables (represented as $X_1, X_2, X_3, \dots, X_{45}$), and the total score of the entire indicator system was used as a calibration variable (represented as Y). Therefore, a multiple regression equation was established, and the coefficient of each predictor variable (indicator) was the content validity index (CVI) of that indicator.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k + \epsilon$$

The $\beta_1, \beta_2, \dots,$ and β_k in the formula are the content validity indices of indicators X_1, X_2, \dots and X_k .

3.5.2 Structural validity

(1) Convergent validity and discriminant validity

There are significant pairwise positive correlations ($r=0.245-0.436$, all $P<0.01$) among the three primary indicators, and significant

positive correlations ($r=0.595\sim 0.761$, all $P<0.01$) between each primary indicator and the total score of the indicator system; The correlation coefficients between the 11 secondary indicators are all greater than 0.3 (all $P<0.01$); The correlation coefficients between each secondary indicator and its corresponding primary indicator, as well as between each tertiary indicator and its corresponding secondary indicator, are all higher than 0.4 (all $P<0.01$); The correlation coefficients between each secondary indicator and its corresponding primary indicator, as well as between each tertiary indicator and its corresponding secondary indicator, are higher than the correlation coefficients between that secondary indicator and other primary indicators, and between that tertiary indicator and other secondary indicators.

(2) Exploratory factor analysis

The exploratory factor analysis was used for the 45 three-grade indicators. As $KMO=0.907$ and Bartlett's sphericity test value of $\chi^2=9388.445$ ($P<0.01$), the third-level indicators are suitable for exploratory factor analysis. In this way, principal component analysis was used to extract common factors, with eigenvalues >1 as the criterion for screening factors. Eleven common factors were extracted, which cumulatively explained 86.800% of the total variation. Furthermore, factor analysis was conducted on 11 secondary indicators. As $KMO=0.923$ and Bartlett's sphericity test value of $\chi^2=5044.149$ ($P<0.01$), secondary indicators are suitable for exploratory factor analysis. In this way, principal component analysis was used to extract common factors, with eigenvalues >1

as the criterion for screening factors. Three common factors were extracted, which cumulatively explained 60.117% of the total variation. It can be seen that the structure of principal component extraction in factor analysis is basically consistent with the theoretical concept of the indicator system. The results of principal component extraction are shown in Table 5, and the factor loadings are shown in Tables 6, 7, and 8.

Table 5. Factor analysis results of 11 secondary indicators

Indicators of grade 1	Indicators of grade2	Eigenvalue	Contribution rate (%)	
			Cumulative contribution rate (%)	
LM	SLB	7.385	8.155	8.155
	SM	5.229	6.006	14.161
	SS	6.883	7.686	21.847
	AD	7.899	9.451	32.298
	FD	3.250	4.103	35.401
TP	TO	4.665	5.789	41.190
	TC	12.337	13.109	54.299
	TM	10.407	11.826	66.125
	AM	7.411	8.752	74.877
GM	CTS	6.108	7.317	82.194
IM		3.244	4.606	86.800

Table 6. Principal Component Analysis and Factor loadings for 45 entries (Factor loadings >0.5)

SLB (A)	SM (B)	SS (C)	AD (D)	FD (E)					
Item	Factor load	Item	Factor load	Item	Factor load	Item	Factor load	Item	Factor load
A1	0.738	B1	0.635	C1	0.709	D1	0.742	E1	0.707
A2	0.767	B2	0.574	C2	0.616	D2	0.581	E2	0.749
A3	0.564	B3	0.523	C3	0.546	D3	0.599	E3	0.716
				D4	0.673	E4	0.654		
				D5	0.785	E5	0.679		
				D6	0.604				

Table 7. Principal Component Analysis and Factor loadings for 45 entries (Factor loadings >0.5)

TO (F)	TC (G)	TM (H)	AM (I)				
Item	Factor load	Item	Factor load	Item	Factor load	Item	Factor load
F1	0.725	G1	0.783	H1	0.792	I1	0.769
F2	0.703	G2	0.746	H2	0.760	I2	0.743
		G3	0.755	H3	0.546	I3	0.751
		G4	0.724	H4	0.677	I4	0.729
				I5	0.696		

Table 8. Principal Component Analysis and Factor loadings for 45 entries (Factor loadings >0.5)



CTS (J)		IM (K)	
Item	Factor load	Item	Factor load
J1	0.725	K1	0.764
J2	0.703	K2	0.790
J3	0.758	K3	0.685
J4	0.682	K4	0.659
J5	0.767	K5	0.572

3.6 Establishment of indicator system

Finally, the evaluation index system for the integrated development effect of “ideological and political courses” and “Curriculum Ideology” in colleges and universities has been established, including 3 primary indicators, 11 secondary indicators, and 45 tertiary indicators.

Table 9 Evaluation index system for the effectiveness of the integration and development of ideological and political courses in universities

Table 9. The evaluation index system for the integrated development effect of “ideological and political courses” and “Curriculum Ideology” in colleges and universities

Indications in grade 1 (weigh)	Indications in grade 2 (weigh)	Indications in grade 3 (weigh)
LM (0.2378)	SLB (0.0305)	A1: Take on the main responsibility of education, integrate moral education into the school's development plan, and organize and implement the entire process.. (0.01346)
		A2: Adhere to the ideological front and promote the development of ideological and political education in universities. (0.00825)
		A3: Timely identify key points of ideological and political education, formulate targeted "integration" construction plans, and guidance opinions. (0.00879)
	SM (0.0438)	B1: Provide effective explanations and advocacy for the "integration" plan of the school's party and government leadership. (0.00741)
		B2: Collaborate with school functional departments to carry out teacher "integration" literacy training activities. (0.02180)
		B3: Strengthen the theoretical research on ideological and political education, in order to Provide a systematic and vivid theoretical basis for "integration" (0.01459)
SS (0.0529)	C1: Implement the ideological and political work plan of the school's party and government team, and allocate the "integration work" to the teaching and research department. (0.0195)	
		C2: Conduct specialized teaching seminars, teaching salons, and lectures to explore practical aspects of "integration". (0.0277)
		C3: Cultivate and leverage the exemplary role of "integrated" teaching models, teaching backbones, teaching experts, and teaching masters. (0.0057)
AD (0.0717)	D1: Responsible for specific promotion work, promoting consensus among professional course teachers on curriculum ideological and political construction. (0.0082)	
		D2: Establish and improve the "integrated" centralized lesson preparation system in the teaching and research department. (0.0228)
		D3: Create an integrated demonstration classroom. (0.0158)
		D4: Create a "fusion" demonstration course. (0.0129)
		D5: Build a curriculum system that covers a wide range, has diverse types, and is mutually supportive of ideological and political education and the collaborative optimization of ideological and political education courses. (0.0136)
		D6: Actively build an excellent teaching team for ideological and political courses. (0.0066)
FD (0.0389)	E1: Organize teachers to learn about laws, regulations, and documents related to the construction	



		of "integration".	(0.0057)
	E2:	Allocate special funds for "integration".	(0.0117)
	E3:	Establish a dedicated project for "integrated" educational reform.	(0.0082)
	E4:	Conduct "integrated" teaching competitions, demonstration open classes, centralized lesson evaluations, on-site teaching observations, teaching seminars, and teaching training.	(0.0069)
	E5:	Provide timely and sufficient technical and material equipment.	(0.0064)
TP (0.4711)	TO (0.0282)	F1: Ideological and political courses share the same political and educational direction as "curriculum ideology".	(0.0179)
	F2:	Ideological and political courses is explicit education, while "Curriculum Ideology" is implicit education, with consistent and complementary steps.	(0.0103)
TC (0.1781)	G1:	Under the guidance of the ideological and political education, "curriculum ideology" aims to explore, transform, and present the elements of ideological and political education in professional courses.	(0.0437)
	G2:	The scattered ideological and political elements of professional courses are organized based on the logical sequence of the systematic value knowledge of ideological and political courses, which enables the integration of ideological and political courses with the "curriculum ideological and political" ideological and political education elements and has strong coherence and cohesion.	(0.0616)
	G3:	Seeking commonalities with ideological and political education based on disciplinary characteristics and values (starting from a complete professional training system and knowledge system, based on the actual value of the discipline, guiding students' values in terms of patriotism, rational spirit, and innovative spirit), achieving the integration of knowledge and logic.	(0.0553)
	G4:	Moderate difficulty can stimulate students' enthusiasm, unleash their potential, and promote their comprehensive development.	(0.0175)
TM (0.2045)	H1:	Innovation and mutual learning of teaching methods, reflecting the systematic and theoretical height of ideological and political elements in professional courses, the rationality and knowledge of ideological and political course content, the diversity of teaching methods, and the subjectivity of students.	(0.0745)
	H2:	Correctly understand and grasp students' value needs, value confusion, and value misconceptions, and scientifically guide students' values.	(0.0521)
	H3:	The two not only focus on the preset and implementation of classroom processes but also pay attention to the organic integration of ideological and political elements.	(0.0329)
	H4:	The organic combination of the first and second classrooms, expanding the scope of collaborative education of ideological and political courses and "Curriculum Ideology" through the second classroom, and clarifying practical direction and improve practical effectiveness with the first classroom.	(0.045)
AM (0.0603)	I1:	Incorporate the assessment of ideological and political education into the entire process of professional teaching, emphasizing basic, formative, value-added, and summative evaluation, combining quantitative with qualitative evaluation, and combining diagnostic with developmental evaluation.	(0.0233)
	I2:	Multi-subject (subject teachers, counselors, classmates, students themselves, education experts, learning platforms, employers) evaluation is organically combined.	(0.0141)
	I3:	Multi-dimensional (professional knowledge, value guidance, moral sentiment, personality traits, professional ethics) evaluation is organically combined.	(0.0182)
	I4:	Design appropriate assessment tasks based on different teaching stages.	(0.0078)
	I5:	Establish a two-way feedback mechanism to examine classroom satisfaction, students' recognition of teachers, students' internalization of ideological and political consciousness, and value identification.	(0.0047)
GM (0.2611)	CTS (0.1516)	J1: Select teachers with strong ideological and professional qualities.	(0.0494)
	J2:	Enable teachers to establish a belief in "curriculum ideology and politics" and the correct implementation of ideological and political courses.	(0.0280)

- J3: Implement the Education and Ability Enhancement Plan for Ideological and Political Education Teachers. (0.0257)
- J4: Support ideological and political education teachers to engage in research. (0.0209)
- J5: Enhance the "curriculum ideology" ability of professional course teachers. (0.0276)
- IM (0.1095) K1: Incorporate the ability of "integration" into the evaluation of teaching quality and as a necessary condition for teacher promotion. (0.0391)
- K2: Use the workload of promoting "integration" construction as an indicator for performance evaluation. (0.0265)
- K3: Commend and reward teachers and students who have achieved outstanding results in "integrated" development. (0.0101)
- K4: Establish a "fusion" sharing and mutual assistance mechanism between ideological and political education teachers and professional course teachers. (0.0199)
- K5: Cultivate a scientific teaching culture and eliminate conflicts between scientific research and humanistic research, knowledge teaching, and value teaching. (0.0139)

4. Discussion

In this study, 65 representative inquiry experts were selected. The enthusiasm coefficient of experts is 100%, and 78.5% of experts have provided constructive suggestions, which fully reflects their attention and support. The average authority coefficient of experts is 0.8390 (0.8267 for the first round of inquiries and 0.8513 for the second round), which is higher than the acceptable lower limit of 0.70 and also higher than the lower limit more recognized by experts [20, 22], indicating that experts have high authority and can ensure the reliability of this research. The overall coordination coefficients in the two rounds of consultation were 0.772 and 0.821, respectively, significantly higher than the acceptable lower limit of 0.70. At the same time, experts scored high on both primary and secondary indicators, exceeding 4.00, which is considered a high score. A coefficient of variation less than 0.15 is considered a normal score, and the full score rates are all greater than 0.30, indicating a relatively concentrated score. This suggests that expert opinions tend to be consistent, coordination is good, and the evaluation system is reasonable [20, 22].

On the other hand, the results of the questionnaire survey indicate that the evaluation index system has good psychometric performance. Firstly, the internal consistency coefficient and test-retest reliability coefficient of the total scale and each primary and secondary indicator are both above 0.70, indicating that the evaluation indicator system has good internal consistency and good cross-time stability.

Secondly, the CVI of each indicator ranges from 0.819 to 1.00, and the average CVI of the entire indicator system is 0.927, indicating that the indicator surprise has good content validity. There are significant pairwise positive correlations ($r=0.245\sim 0.436$, all $P<0.01$) among the three primary indicators, and significant positive correlations ($r=0.595\sim 0.761$, all $P<0.01$) between each primary indicator and the total score of the indicator system; The correlation coefficients between the 11 secondary indicators are all greater than 0.3 (all $P<0.01$); The correlation coefficients between each secondary indicator and its corresponding primary indicator,

as well as between each tertiary indicator and its corresponding secondary indicator, are all higher than 0.4 (all $P<0.01$); The correlation coefficients between each secondary indicator and its corresponding primary indicator, as well as between each tertiary indicator and its corresponding secondary indicator, are higher than the correlation coefficients between the same secondary indicator and other primary indicators, and between the tertiary indicator and other secondary indicators. Therefore, this evaluation index system has good convergent validity and discriminant validity.

Exploratory factor analysis was Performed on 45 tertiary indicators. A total of 11 common factors were extracted, which can explain 86.800% of the total variance. In addition, exploratory factor analysis was conducted on 11 secondary indicators, extracting 3 common factors that can explain 60.117% of the total variance. It can be seen that the principal component structure is basically consistent with the theoretical concept of the indicator system, confirming that the evaluation indicator system has good structural validity.

5. Conclusion

109 consulting experts were selected through stratified random sampling, followed by 22 semi-structured interview experts, 22 survey experts, and 65 inquiry experts using stratified random sampling. Through three rounds of semi-structured interviews, focus group discussions, and two rounds of Delphi expert consultations, an evaluation index system for the integration and development of ideological and political courses in colleges and universities was constructed, indicating that the construction method of the index system is reasonable and the construction procedure is standardized. Through a survey of 461 randomly selected undergraduate students, it was demonstrated that the construction process has good reliability and validity. The three content modules of the evaluation index system ("leadership mechanism", "teaching process", and "guarantee mechanism") can fully reflect the connotation and needs of the integration and development of ideological and political courses in colleges and universities. At the same time, the results of this study also indicate

that the integration and development of ideological and political courses in colleges and universities is necessary, feasible, and its effectiveness can be quantitatively evaluated.

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