International Journal of Computer Information Systems and Industrial Management Applications
ISSN 2150-7988 Volume 17 (2025) pp. 1-19

https://doi.org/10.70917/ijcisim-2025-0269
Article

# Research on Data Visualization in the Synergistic Development of Party Building and Civic Education in Colleges and Universities

**Hainan Li ***

College of Art & Design and Architecture, Zhuhai College of Science and Technology, Zhuhai, Guangdong, 519041, China; lhn10121@163.com

**Abstract:** Driven by the fundamental task of "making people moral" in the new era, the synergistic development of Party building and Civic and political education has become a key path to improve the quality of talent cultivation. In order to explore the interaction between party building and Civic and political education in colleges and universities, this paper, based on China's inter-provincial panel data from 2013-2022, utilizes correlation analysis, entropy method, coupling degree model, and spatial analysis method to explore the synergistic development between higher education and regional economic development in two dimensions of time and space. The results show that there is a positive correlation between Party building and Civic and political education in colleges and universities, and the coupling degree of coordination between Party building and Civic and political education in Chinese colleges and universities has increased to different degrees from 2013 to 2022. Among them, the top three provinces in terms of coupling coordination degree remain unchanged, namely Jiangsu, Beijing and Guangdong. The overall coupling coordination rank of Party building and Civic and political education development in Chinese universities is low, and the gap between the coupling coordination degrees of different regions is very significant. The coupling coordination degree of each region has obvious spatial clustering characteristics, with most provinces in the low-low clustering area, and the high-high clustering type provinces are mainly concentrated in the eastern region.

**Keywords:** party building in colleges and universities; ideological education; coupling coordination degree; entropy value method; spatial correlation

## 1. Introduction

Civic and political education and party building is an important educational content of colleges and universities, the core of both is "educating people", the purpose is to carry forward the main theme, spreading positive energy, guiding young college students to establish a correct outlook on the world, life and values, and promoting the healthy growth of young college students [1-4]. Therefore, constantly strengthening and promoting the synergistic development of ideological education and party building work can play an important role in improving the quality of education of the two and exerting the effectiveness of "educating people" [5-6].

Promote the synergistic development between the ideological education and party building work in institutions of higher education, is a prerequisite for the gradual development of the party, institutions of higher education is an important place to cultivate outstanding talents, do a good job of the ideological work of institutions of higher education is crucial, which is closely related to the overall quality of party members and cadres, the process of the ideological education in higher education should strengthen the ideological and political education of college students [7-11]. At the same time, the party building work is mainly carried out under the premise of the ideological and political education in institutions of higher education, which belongs to the in-depth education of college students, if there is no way to ensure the quality of the ideological and political education, the party building work will not be able to carry out

smoothly [12-14]. The synergistic development between the ideological and political education and party building work in institutions of higher education can break the phenomenon of students ignoring the ideological and political education. At the present stage, the utilitarian thinking of college students is very obvious in Chinese institutions of higher education, and under such influence, the motives of college students may not be simple [15-16]. The separation of party building work and ideological education in institutions of higher education has caused institutions of higher education to have no way of grasping the motivation of college students, and they can only start from the performance of college students, which is unscientific to a certain extent [17-19]. Ensure the synergistic development between the ideological education and party building work in institutions of higher education, can let the party organization comprehensively grasp the specific ideological situation of college students, and prevent the college students whose motives are not pure from mixing into the party organization [20-22]. With the development of information technology, its role in promoting the synergistic development of party building and civic education has become more and more obvious, especially data visualization plays an important role in the allocation of educational resources, promoting the further integration of party building and civic education, and evaluating the effect of collaborative teaching [23-25].

This paper selects 31 provinces and cities in China as the research object, based on the panel data from 2013-2022, comprehensively constructs the evaluation index system of Party building and Civic and political education in colleges and universities, employs entropy value method to assign weights to the indexes, and carries out correlation analysis of the two, measures the comprehensive development level of Party building and Civic and political education in colleges and universities through the comprehensive evaluation model, then measures and evaluates the level of coupled and coordinated development of Party building and Civic and political education in colleges and universities in China by means of the coupling degree of coordination model. Then the coupling coordination degree model is used to measure and evaluate the level of coupled and coordinated development of Party building and Civic and political education in Chinese universities, and to analyze the characteristics of the two in time and space. The main contribution of the study is to visualize the interaction between Party building and Civic and political education in colleges and universities, and to provide quantitative support for promoting the synergistic development of Party building and Civic and political education in colleges and universities.

## 2. Construction of an evaluation model for the coupled and coordinated development of Party building and Civic and Political education in higher education institutions

### *2.1. Construction of evaluation index system*

#### 2.1.1. Evaluation index system for party building work in colleges and universities

As an advanced performance management system, the Balanced Scorecard (BSC) has been widely used in the corporate world, public organizations, etc. The core idea of BSC is to show the strategic trajectory of the organization through the mutually driven causal relationship among the indicators of finance, customer, internal process, and learning and development, and to achieve the goals of performance appraisal, performance improvement, strategy implementation, and strategy revision.

In this paper, under the premise of keeping the core idea of BSC unchanged, according to the requirements of the party building work of college students in the new era, the four dimensions of "organizational leadership, education and training, development of party members, party member management, role play, and conditions and guarantee" are reasonably converted into the four dimensions of BSC to form the target layer of the evaluation index system of the party building work of college students. Specifically, we consider the following aspects:

(1) Conversion of financial and condition guarantee. The development of party building work for students in colleges and universities, first of all, should adhere to the leadership of the party, which requires strong organizational guarantee. Secondly, the development and improvement of the development of student party members and party education and management services work system. Finally, the funds for the activities of student party branches are put in place in accordance with the standards set by the higher-level party organizations not less than those set by the higher-level party organizations.

(2) Conversion of customers and role play. For the party building work of college students, it is necessary to assess whether the main role of the party organization is outstanding, whether the vanguard role of party members is sufficient, and how the masses are satisfied.

(3) Conversion of internal process and daily management. The operation process of college students' party building work is the development of party members and party member management, earnestly

implementing the procedures and requirements of cultivation, pre-screening, public announcement, conversation, approval, acceptance and transfer, and adhering to the system of "three meetings and one class", organizational life meeting, heart-to-heart conversation, democratic evaluation and so on.

(4) Conversion of learning and growth and education and training. The specific object of the party building work of students in colleges and universities is the ability of the majority of student party members. Need to strengthen the education of this team, and constantly improve the comprehensive quality and business capacity.

In this paper, the converted four dimensions are used as the first-level indicators for the evaluation of the party building work of students at the grass-roots level in colleges and universities, combined with the relevant requirements of party building work, to construct the evaluation index system of the party building work of students at the grass-roots level in colleges and universities, as shown in Table 1.

***Table 1.*** Evaluation index system for Party building work in colleges and universities.

| Criterion layer (A) | Evaluation index layer (B) |
|---|---|
| Condition guarantee (A1) | Organizational guarantee (B1) |
| | Institutional guarantee (B2) |
| | Financial guarantee (B3) |
| Play a role (A2) | The role of the Party organization has been brought into play (B4) |
| | The role of Party members is brought into play (B5) |
| Daily management (A3) | Develop Party members (B6) |
| | Party member management (B7) |
| Education and cultivation (A4) | An active applicant for Party membership (B8) |
| | Cultivation of development targets (B9) |
| | Education for probationary Party members (B10) |
| | Continuing education for Party members (B11) |
| | A carrier for Party member education (B12) |

## 2.1.2 Evaluation Indicator System for Civic and Political Education in Colleges and Universities

In the construction of the evaluation index system of ideological and political education in colleges and universities, the division of each field and the determination of indicators mainly follow the following two principles. The first is progressivity. The division of the indicator system follows the order from direct perception to rational cognition, from the surface to the inside, and the layers are progressive. The second is independence. The four fields involved in the indicator system are mutually exclusive and independent, and the cross-currents between their respective indicators should be avoided to ensure the accuracy and comprehensiveness of the indicator system.

The study mainly adopts the expert evaluation method and literature analysis method, combining policy documents and relevant literature on ideological and political education evaluation published in the past ten years to carry out qualitative analysis in order to extract the core elements, and after discussion and deliberation among experts, the evaluation index system of ideological and political education in colleges and universities is determined as shown in Table 2.

***Table 2.*** Evaluation indicators for ideological and political education.

| Criterion layer (X) | Evaluation index layer (Y) |
|---|---|
| Technical means (X1) | Information dissemination channels (Y1) |
| | Interactive communication tool (Y2) |
| | Ideological and political teaching model (Y3) |
| | Improve the prevention and control system (Y4) |
| | Classroom teaching software (Y5) |
| Educational environment (X2) | Equipment guarantee (Y6) |
| | Teacher-student relationship (Y7) |
| | Work system (Y8) |
| | Financial support (Y9) |
| | Classroom teaching (Y10) |
| Teaching link (X3) | Teaching objectives (Y11) |
| | Teaching content (Y12) |
| | Teaching methods (Y13) |

| | |
|---|---|
| | Teaching design (Y14) |
| | Teaching evaluation (Y15) |
| Value guidance (X4) | Identification ability (Y16) |
| | Thought and culture (Y17) |
| | Spread the spirit (Y18) |
| | Discourse norms (Y19) |
| | Behavioral habits (Y20) |

## *2.2. Data sources and determination of indicator weights*

### 2.2.1. Data sources

The sample period selected for this paper is 2013-2022. In order to ensure the consistency of the statistical standards of the data as well as the accessibility of the data, colleges and universities in 31 provinces, autonomous regions, and municipalities directly under the central government of China, except for Hong Kong, Macao, and Taiwan, are selected as the research sample. The raw data of the indicators involved in the evaluation of party building and ideological education in colleges and universities were collected from China Statistical Yearbook, China Education Statistical Yearbook, and statistical yearbooks of each province. At the same time, public data published on China Knowledge Network, relevant databases purchased by university libraries, and official websites such as the National Data Network and the National Bureau of Statistics were also utilized. The missing values of a few indicators are supplemented by mean interpolation and other methods according to the years before and after, and the data of individual indicators are obtained by simple calculation of basic indicators.

### 2.2.2. Data standardization

Due to the different units of measurement of the initial data collected, before weight calculation and empirical research need to be according to eliminate the dimensional differences between the indicators and the positive and negative of the indicator attributes on the impact of the comparative analysis of the data, this paper chooses to carry out the polar deviation normalization of the original indicator data, also known as the dimensionless standardization process. In order to eliminate the influence of negative numbers and zeros, data leveling is performed at the same time. The range of values after standardization treatment is within the interval [0.0001, 1.0001]. The processing formula is as follows:

Positive Indicator:

$$Y_{\varepsilon ij} = \frac{X_{\varepsilon ij} - X_{j\min}}{X_{j\max} - X_{j\min}} + 0.0001, \left(i = 1,2,\ldots,m; j = 1,2,\ldots,n\right) \tag{1}$$

Negative indicators:

$$Y_{\varepsilon ij} = \frac{X_{j\max} - X_{\varepsilon ij}}{X_{j\max} - X_{j\min}} + 0.0001, \left(i = 1,2,\ldots,m; j = 1,2,\ldots,n\right) \tag{2}$$

Where: $\xi$ denotes the region, $i$ denotes the year, and $j$ denotes the indicator. $Y_{\varepsilon ij}$ denotes the normalized value. $X_{\varepsilon ij}$ denotes the raw value of the $j$ th indicator in the $i$ th year of the $\xi$ region. $X_{j\max}$, $X_{j\min}$ denote the maximum and minimum values of the $j$ th indicator in the $i$ th year in all regions, respectively. $m$ denotes the number of years. $n$ denotes the number of indicators.

### 2.2.3. Determination of indicator weights

At present, the commonly used objective assignment methods mainly include entropy value method, coefficient of variation method, gray correlation model, principal component analysis and so on. In this paper, the entropy value method [26] is used to carry out the calculation of the index weights of the two evaluation systems of party building and ideological education in colleges and universities. The specific steps and calculation formulas are as follows.

(1) Take the number of regions $\xi = 1$ as an example, calculate the weight of the $j$ th indicator in the $i$ th year of the target region as a proportion of the sum of the indicator $P_{ij}$:

$$P_{ij} = \frac{Y_{ij}}{\sum_{i=1}^{m} Y_{ij}} \tag{3}$$

(2) Calculate the entropy value $e_j$ for the $j$ th indicator:

$$e_j = -K \sum_{i=1}^{m} \left( P_{ij} \ln P_{ij} \right), K = \frac{1}{\ln m} \tag{4}$$

(3) Calculate the coefficient of variation, i.e., the entropy redundancy $g_j$ :

$$g_j = 1 - e_j \tag{5}$$

(4) Determine the weights $Z_{j'}$ :

$$Z_{j'} = g_j \Big/ \sum_{j=1}^{n} g_j, \left( j = 1,2,\ldots,n \right) \tag{6}$$

Where: $Y_{\varepsilon ij}$ denotes the normalized value of the $j$ th indicator in year $i$ of the target area, $m$ denotes the number of years, $K$ denotes the entropy coefficient, and $n$ denotes the number of indicators.

## *2.3. Research methodology*

### 2.3.1. Integrated evaluation model

After determining the weights of the indicators, the comprehensive evaluation model was used to measure the respective comprehensive development levels of party building and Civic and political education in colleges and universities respectively. Calculation formula:

$$S_j = \sum_{j=1}^{m} W_j \times X'_{\theta ij} \tag{7}$$

Where: $S_j$ denotes the comprehensive index of party building or ideological education in colleges and universities, $X'_{\theta ij}$ is the standardized value of the index, and $W_j$ denotes the weight.

### 2.3.2. Coupling model

Originally derived from physics, coupling degree represents the interaction between two or more systems that are related. The formula is as follows:

Let the variables $u_i (i = 1,2,\ldots,m)$ and $u_j (j = 1,2,\ldots,n)$ represent the $i$ system and $j$ system, respectively, and the coupling degree model for the interaction of multiple systems can be expressed as:

$$C_n = n \left[ \left( u_1 \times u_2 \times \ldots \times u_n \right) \Big/ \prod \left( u_i + u_j \right) \right]^{1/n} \tag{8}$$

Where: $C_n$ denotes the degree of coupling, $u_1$, $u_2$, $\ldots u_n$ is the level of integrated development of subsystems, $n$ is the number of subsystems, and the degree of coupling $C \in [0,1]$.

Drawing on the above model to construct the dual system coupling degree measurement model of party building and ideological education in colleges and universities:

$$C_2 = 2 \left[ (u_1 \times u_2) \Big/ (u_1 + u_2)^2 \right]^{1/2} \tag{9}$$

Where $u_1$ and $u_2$ are the comprehensive development level of party building and Civic and political education in colleges and universities, respectively.

This paper adopts the following criteria for the division of the coupling degree of party building and ideological education in colleges and universities: $0 < C \le 0.2$ , indicating a low level of coupling. $0.2 < C \le 0.5$ , indicating antagonistic stage. $0.5 < C \le 0.8$ , indicating the grinding stage. $0.8 < C \le 1$, indicates high level stage.

### 2.3.3. Coupling coherence model

The coupling degree can only reflect the degree of interaction between the two systems of party building and ideological education in colleges and universities, but it can't make a judgment on whether the level of development between the two systems is at a high level or a low level of interactions, so the coupling coordination degree model is introduced on the basis of the coupling degree [27]:

$$D = \sqrt{T \times C} \tag{10}$$

$$T = \alpha f(x) + \beta g(y) \tag{11}$$

Where: $D$ denotes the degree of coupling coordination, $T$ is the comprehensive evaluation index of Party building and Civic and political education in colleges and universities, $\alpha$ and $\beta$ are coefficients to be determined, and taking into account that the Party building system in colleges and universities is equally important as the system of Civic and political education, the value of $\alpha = \beta = 0.5$ is taken.

With reference to the results of previous research, the types of coupled and coordinated development of party building and ideological education in colleges and universities are graded: $D \in [0, 0.10)$, extremely dysfunctional. $D \in [0.10, 0.20)$, severely dysfunctional. $D \in [0.20, 0.30)$, moderately disordered. $D \in [0.30, 0.40)$, mild disorder. $D \in [0.40, 0.50)$, verging on dissonance. $D \in [0.50, 0.60)$, barely harmonized. $D \in [0.60, 0.70)$, elementary harmonization. $D \in [0.70, 0.80)$, intermediate coordination. $D \in [0.80, 0.90)$, good coordination. $D \in [0.90, 1.00]$, quality coordination.

In order to further study the difference between the high and low levels of development of the party building system and the Civic and Political Education system in colleges and universities, the relative development degree model is utilized to further specify the relative development level of the coupling and coordination of the two, with the formula:

$$\beta = \frac{u_1}{u_2} \tag{12}$$

In the formula, $\beta$ is the relative development degree, $U_1$, $U_2$ represent the comprehensive development level of party building and ideological education in colleges and universities, respectively, and after calculating the relative development degree of coupling and coordination, the relative development type is then divided into the following specific divisions: $0 < \beta \le 0.9$, party building lagging type. $0.9 < \beta \le 1.1$, the type of synergistic development of party building and civic education in colleges and universities. $\beta > 1.1$, Civic and political education lagging type.

## 3. Measurement and evaluation of the coupled and coordinated development of party building and ideological education in higher education institutions

On the basis of analyzing the correlation between the level of party building work and the effectiveness of Civic and Political Education in colleges and universities, this chapter measures and evaluates the level of coordinated development of the coupling of party building and Civic and Political Education in colleges and universities.

### *3.1. Analysis of the Relevance of Party Building and Civic and Political Education in Colleges and Universities*

In order to analyze the correlation between the level of party building in colleges and universities and the effectiveness of ideological and political education, this paper selects the number of students' party building media and students' ideological condition as the specific content of the questionnaire, and takes the students of the School of Computer Science of University H as the object of the survey, and selects 300 students as the sample through the method of random sampling. The questionnaire mainly includes two parts: the investigation of the number of student party building media and the students' ideological condition under the coordinated development of party building and ideological education in colleges and universities. Among them, the level of students' party building work is evaluated using the constructed index system, and the survey of students' ideological condition in colleges and universities includes students' ideological awareness, political consciousness, moral quality and other aspects. The

questionnaire was evaluated using the Likert 5-point scale, in which 1 means strongly disagree and 5 means strongly agree. The data were analyzed using SPSS statistical software, mainly using methods such as correlation analysis and regression analysis.

The survey results show that the number of official student party building media is 4, and the number of unofficial student party building media constructed by students on their own initiative is 3, totaling 7. The mean values of the scores of students' ideological awareness, political awareness and moral quality are 3.62, 3.45 and 3.81 respectively, which indicates that the overall level of students' ideological awareness, political awareness and moral quality is high.

The results of the correlation analysis between the number of student party media and the ideological condition of college students are shown in Table 3. Where ∗∗ indicates a significant correlation, $p<0.01$. It can be seen that there is a significant positive correlation between the number of student party media and the three variables of students' ideological awareness, political awareness and moral quality. This indicates that the increase in the number of media of the number of student party building media can improve the level of students' ideological quality and political awareness, which in turn indicates that there is a positive correlation between the level of party building work in colleges and universities and the effectiveness of civic and political education.

***Table 3.*** Results of correlation analysis.

| Variable | The number of student Party building media | Students' ideological awareness | Political awareness | Moral quality |
|---|---|---|---|---|
| The number of student Party building media | 1 | | | |
| Students' ideological awareness | 0.387** | 1 | | |
| Political awareness | 0.372** | 0.551** | 1 | |
| Moral quality | 0.353** | 0.456** | 0.422** | 1 |

The results of the regression analysis of the number of student party media and the ideological awareness, political consciousness and moral quality of college students are shown in Tables 4 to 6, respectively. Observation shows that the standardized coefficients are all greater than 0, indicating that the number of student party media has a significant positive effect on all three variables of students' ideological awareness, political awareness and moral quality. Among them, the number of student party building media has the most significant effect on students' ideology, with a regression coefficient of B=0.756, followed by the effect on political awareness (B=0.651), and the least effect on moral quality (B=0.598). This reveals that colleges and universities can influence students' ideology by reasonably increasing the number of student party media when carrying out party building work, and then improve the effectiveness of ideological education.

***Table 4.*** Regression analysis results (Students' ideological awareness).

| | Non-standardized coefficient | | Standardization coefficient | t | p | $R^2$ | Adjusted $R^2$ |
|---|---|---|---|---|---|---|---|
| | B | Standard error | Beta | | | | |
| Constant | 0.875 | 0.120 | | 7.944 | 0.000 | 0.487 | 0.487 |
| The number of student Party building media | 0.756 | 0.034 | 0.705 | 26.213 | 0.000 | | |
| Dependent variable: Students' ideological awareness | | | | | | | |
| D-W value: 1.768 | | | | | | | |
| *p<0.05, **p<0.01 | | | | | | | |

***Table 5.*** Regression analysis results (Students' political awareness).

| | Non-standardized coefficient | | Standardization coefficient | t | p | $R^2$ | Adjusted $R^2$ |
|---|---|---|---|---|---|---|---|
| | B | Standard error | Beta | | | | |
| Constant | 1.186 | 0.147 | | 8.859 | 0.000 | 0.334 | 0.335 |
| The number of student Party building media | 0.651 | 0.041 | 0.583 | 19.26 | 0.000 | | |
| Dependent variable: Political awareness | | | | | | | |
| D-W value: 1.826 | | | | | | | |
| *p<0.05, **p<0.01 | | | | | | | |

***Table 6.*** Regression analysis results (Students' moral quality).

| | Non-standardized coefficient | | Standardization coefficient | t | p | $R^2$ | Adjusted $R^2$ |
|---|---|---|---|---|---|---|---|
| | B | Standard error | Beta | | | | |
| Constant | 1.563 | 0.125 | | 13.014 | 0.000 | 0.358 | 0.357 |
| The number of student Party building media | 0.598 | 0.036 | 0.601 | 20.173 | 0.000 | | |
| Dependent variable: Moral quality | | | | | | | |
| D-W value: 1.834 | | | | | | | |
| *p<0.05, **p<0.01 | | | | | | | |

## *3.2. Comprehensive Evaluation Analysis of Party Building and Civic and Political Education in Colleges and Universities*

### 3.2.1. Comprehensive evaluation analysis of party building in higher education institutions

The results of the weights of the indicators of higher education calculated by entropy value method are shown in Table 7. It can be seen that among the 12 first-level indicators for the evaluation of party building work in higher education, the weights occupied are, in descending order: condition guarantee A1 (0.337), education and cultivation A4 (0.311), role play A2 (0.190), and daily management A1 (0.162). Conditional guarantee and education and cultivation occupy a larger weight, and have a greater relevance to the development of party building in colleges and universities. Specifically, the top five indicators in terms of weight are: organizational guarantee B1 (0.123), institutional guarantee B2 (0.111), financial guarantee B3 (0.103), the role of party organizations in play B4 (0.097), and the role of party members in play B5 (0.093), which should be focused on when carrying out the work of party building in colleges and universities.

***Table 7.*** The weights of various indicators in the Party building system.

| Criterion layer | Weight | Evaluation index layer | Weight | Ranking |
|---|---|---|---|---|
| A1 | 0.337 | B1 | 0.123 | 1 |
| | | B2 | 0.111 | 2 |
| | | B3 | 0.103 | 3 |
| A2 | 0.190 | B4 | 0.097 | 4 |
| | | B5 | 0.093 | 5 |
| A3 | 0.162 | B6 | 0.088 | 6 |
| | | B7 | 0.074 | 9 |
| A4 | 0.311 | B8 | 0.083 | 7 |
| | | B9 | 0.080 | 8 |
| | | B10 | 0.039 | 12 |
| | | B11 | 0.064 | 10 |
| | | B12 | 0.045 | 11 |

The comprehensive evaluation index of party building development in colleges and universities is calculated through the comprehensive evaluation model as shown in Table 8.The value of the comprehensive evaluation index of party building in Chinese colleges and universities shows a fluctuating upward trend from 2013 to 2022, and the average value of the comprehensive evaluation

index of party building in colleges and universities rises from 0.3183 in 2013 to 0.3398 in 2022, with a slower rate of growth. Sub-regionally, due to the significant differences between different regions of China in terms of higher education investment, development stage, development environment, etc., which led to a significant imbalance in the development of party building in colleges and universities in each region. Among them, the development of party building in colleges and universities in Beijing is in good condition, and the comprehensive evaluation index of party building in colleges and universities always ranks first in the study period, with an average index value of 0.7717. This is due to the fact that Beijing has many famous colleges and universities in China, and as the capital city, it has a strong political atmosphere, which has a certain role in promoting the development of party building in colleges and universities. Jiangsu, Guangdong, Shandong, Hubei and other regions are also at the forefront of China's development of Party building in colleges and universities, with average indexes of 0.7214, 0.6218, 0.5797 and 0.5440 respectively, still a certain gap with Beijing. The comprehensive evaluation indices of party building in colleges and universities in the rest of the regions are all at a lower level. In terms of the eastern, central and western regions, the development level of party building in Chinese universities is similar to the economic development of China, showing a development trend of high in the east, low in the west, and middle in the center.

***Table 8.*** Comprehensive evaluation index for the development of Party building

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beijing | 0.7942 | 0.7605 | 0.7629 | 0.7659 | 0.7698 | 0.7653 | 0.7723 | 0.7766 | 0.7731 | 0.7759 | 0.7717 |
| Tianjin | 0.2634 | 0.2616 | 0.2776 | 0.2736 | 0.2912 | 0.2602 | 0.2595 | 0.2789 | 0.2926 | 0.2941 | 0.2753 |
| Hebei | 0.3357 | 0.3525 | 0.3639 | 0.4088 | 0.3896 | 0.3724 | 0.3515 | 0.3585 | 0.3729 | 0.3748 | 0.3681 |
| Shanxi | 0.2001 | 0.2016 | 0.2026 | 0.2252 | 0.2298 | 0.2037 | 0.2146 | 0.2416 | 0.2296 | 0.2062 | 0.2155 |
| Inner Mongolia | 0.1328 | 0.1644 | 0.1842 | 0.1486 | 0.1556 | 0.1822 | 0.1789 | 0.1779 | 0.1569 | 0.1601 | 0.1642 |
| Liaoning | 0.4145 | 0.4231 | 0.4293 | 0.4273 | 0.4566 | 0.4209 | 0.3995 | 0.4128 | 0.3615 | 0.3625 | 0.4108 |
| Jilin | 0.2692 | 0.2522 | 0.2779 | 0.2471 | 0.2174 | 0.2247 | 0.2453 | 0.2448 | 0.2577 | 0.2492 | 0.2486 |
| Heilongjiang | 0.3495 | 0.3028 | 0.3191 | 0.3304 | 0.3153 | 0.3042 | 0.3226 | 0.2998 | 0.2611 | 0.2532 | 0.3058 |
| Shanghai | 0.4902 | 0.4684 | 0.4698 | 0.4643 | 0.4989 | 0.5042 | 0.5002 | 0.4747 | 0.4951 | 0.5049 | 0.4871 |
| Jiangsu | 0.7344 | 0.7542 | 0.7176 | 0.7431 | 0.7261 | 0.7135 | 0.6956 | 0.7243 | 0.6970 | 0.7085 | 0.7214 |
| Zhejiang | 0.4376 | 0.4491 | 0.3979 | 0.3999 | 0.4428 | 0.4598 | 0.4106 | 0.4279 | 0.4205 | 0.4538 | 0.4300 |
| Anhui | 0.3038 | 0.325 | 0.3497 | 0.3585 | 0.3443 | 0.3179 | 0.3490 | 0.3204 | 0.3592 | 0.3296 | 0.3357 |
| Fujian | 0.2801 | 0.2976 | 0.2878 | 0.2952 | 0.2887 | 0.3012 | 0.2949 | 0.2822 | 0.3175 | 0.3141 | 0.2959 |
| Jiangxi | 0.2726 | 0.2899 | 0.2826 | 0.2965 | 0.2841 | 0.2754 | 0.2859 | 0.2850 | 0.2844 | 0.2936 | 0.2850 |
| Shandong | 0.5670 | 0.5609 | 0.6237 | 0.5992 | 0.5813 | 0.5534 | 0.5772 | 0.5856 | 0.5754 | 0.5736 | 0.5797 |
| Henan | 0.4025 | 0.4284 | 0.4580 | 0.4644 | 0.4495 | 0.4845 | 0.4727 | 0.4814 | 0.5268 | 0.5238 | 0.4692 |
| Hubei | 0.5555 | 0.5468 | 0.5523 | 0.5683 | 0.5641 | 0.5317 | 0.5432 | 0.5478 | 0.525 | 0.5052 | 0.5440 |
| Hunan | 0.4058 | 0.3795 | 0.3830 | 0.4157 | 0.4082 | 0.3803 | 0.3669 | 0.3861 | 0.3751 | 0.3724 | 0.3873 |
| Guangdong | 0.6327 | 0.5943 | 0.5936 | 0.6022 | 0.5952 | 0.5960 | 0.6035 | 0.6550 | 0.6632 | 0.6821 | 0.6218 |
| Guangxi | 0.1800 | 0.2138 | 0.1926 | 0.2117 | 0.1947 | 0.2151 | 0.2119 | 0.2466 | 0.2468 | 0.2358 | 0.2149 |
| Hainan | 0.0366 | 0.0681 | 0.0651 | 0.0679 | 0.077 | 0.0633 | 0.0855 | 0.0706 | 0.0866 | 0.0940 | 0.0715 |
| Chongqing | 0.2523 | 0.2417 | 0.2779 | 0.2640 | 0.2708 | 0.2656 | 0.2579 | 0.2836 | 0.2628 | 0.2742 | 0.2651 |
| Sichuan | 0.4379 | 0.4647 | 0.4413 | 0.4575 | 0.4939 | 0.4765 | 0.4736 | 0.4702 | 0.4714 | 0.4721 | 0.4659 |
| Guizhou | 0.1196 | 0.1276 | 0.1168 | 0.1223 | 0.1412 | 0.1420 | 0.1727 | 0.1778 | 0.2439 | 0.2362 | 0.1600 |
| Yunnan | 0.1778 | 0.1842 | 0.1955 | 0.2562 | 0.1953 | 0.2234 | 0.2232 | 0.2099 | 0.2114 | 0.2201 | 0.2097 |
| Tibet | 0.0623 | 0.0582 | 0.0511 | 0.0538 | 0.1076 | 0.0444 | 0.0854 | 0.0774 | 0.0605 | 0.1230 | 0.0724 |
| Shaanxi | 0.4253 | 0.4239 | 0.4388 | 0.4487 | 0.4615 | 0.4394 | 0.4258 | 0.4248 | 0.4108 | 0.4281 | 0.4327 |
| Gansu | 0.1425 | 0.136 | 0.1495 | 0.1493 | 0.1560 | 0.1466 | 0.1776 | 0.1676 | 0.1765 | 0.1870 | 0.1589 |
| Qinghai | 0.0384 | 0.0518 | 0.0754 | 0.0503 | 0.0282 | 0.0662 | 0.0855 | 0.0976 | 0.0659 | 0.1238 | 0.0683 |
| Ningxia | 0.0571 | 0.0597 | 0.0834 | 0.0847 | 0.0576 | 0.0638 | 0.0947 | 0.0764 | 0.0903 | 0.0732 | 0.0741 |
| Xinjiang | 0.0954 | 0.1445 | 0.1040 | 0.1167 | 0.1100 | 0.1141 | 0.1215 | 0.1193 | 0.1186 | 0.1281 | 0.1172 |
| Mean | 0.3183 | 0.3222 | 0.3266 | 0.3328 | 0.3323 | 0.3262 | 0.3309 | 0.3349 | 0.3352 | 0.3398 | 0.3299 |

### 3.2.2. Comprehensive Evaluation Analysis of Civic and Political Education in Colleges and Universities

The results of using entropy value method to calculate the weights of evaluation indicators of Civic and Political Education in colleges and universities are shown in Table 9. Among all the evaluation indexes of Civic and Political Education, the top five weights are, in order, Teaching Design Y14 (0.180),

Teaching Methods Y13 (0.147), Teaching Contents Y12 (0.111), Classroom Teaching Software Y5 (0.109), and Teaching Objectives Y11 (0.091). Overall, the weights occupied by the four subsystems of technical means X1, nurturing environment X2, teaching link X3, and value leadership X4 are 0.228, 0.064, 0.589, and 0.119, respectively, which suggests that the level of development of Civic and Political Education in colleges and universities in various regions of China is more correlated with the teaching link, and that the nurturing environment of Civic and Political Education has a relatively small impact on the level of development of Civic and Political Education.

***Table 9.*** The weight of evaluation indicators for ideological and political education.

| Criterion layer | Weight | Evaluation index layer | Weight | Ranking |
|---|---|---|---|---|
| X1 | 0.228 | Y1 | 0.059 | 7 |
| | | Y2 | 0.020 | 15 |
| | | Y3 | 0.030 | 9 |
| | | Y4 | 0.010 | 16 |
| | | Y5 | 0.109 | 4 |
| X2 | 0.064 | Y6 | 0.004 | 20 |
| | | Y7 | 0.007 | 18 |
| | | Y8 | 0.007 | 18 |
| | | Y9 | 0.023 | 13 |
| | | Y10 | 0.023 | 13 |
| X3 | 0.589 | Y11 | 0.091 | 5 |
| | | Y12 | 0.111 | 3 |
| | | Y13 | 0.147 | 2 |
| | | Y14 | 0.180 | 1 |
| | | Y15 | 0.060 | 6 |
| X4 | 0.119 | Y16 | 0.010 | 16 |
| | | Y17 | 0.025 | 12 |
| | | Y18 | 0.026 | 11 |
| | | Y19 | 0.027 | 10 |
| | | Y20 | 0.031 | 8 |

The comprehensive evaluation index of Civic and political education in Chinese universities in each region is calculated through the comprehensive evaluation model as shown in Table 10.

On the whole, the value of the comprehensive evaluation index of Civic and political education in Chinese colleges and universities from 2013 to 2022 shows an upward trend, and the average value of the comprehensive evaluation index of Civic and political education rises from 0.2864 in 2013 to 0.2942 in 2022, with a relatively small increase. Specifically, the value of the comprehensive evaluation index of Civic and political education in different regions of China showed a linear upward trend from 2013 to 2017, while it began to decline after 2017 and slowly stabilized. However, there are significant differences in the development structure, development stage and development environment of Civic and political education in different regions of China, leading to significant imbalances in the development of Civic and political education in different regions. Among them, the comprehensive evaluation index value of Civic and political education in Guangdong Province universities from 2013 to 2022 has always been in the first place, with an average index of 0.7472, and the development level of Civic and political education is relatively high, which is inseparable from the rapid economic take-off of Guangdong Province in recent years. On the other hand, the average value of the comprehensive evaluation index of civic and political education in Tibet, Gansu, Qinghai and Ningxia is lower than 0.1, and the overall development of civic and political education is more backward.

***Table 10.*** Comprehensive evaluation index of ideological and political education.

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beijing | 0.6165 | 0.6211 | 0.6421 | 0.6350 | 0.6312 | 0.6474 | 0.6673 | 0.6277 | 0.6507 | 0.6417 | 0.6381 |
| Tianjin | 0.3379 | 0.3622 | 0.3733 | 0.4083 | 0.4437 | 0.4301 | 0.4026 | 0.4195 | 0.3820 | 0.3560 | 0.3916 |
| Hebei | 0.2774 | 0.3008 | 0.2997 | 0.3154 | 0.3169 | 0.2817 | 0.2857 | 0.2580 | 0.2637 | 0.2509 | 0.2850 |
| Shanxi | 0.1728 | 0.1974 | 0.1905 | 0.2079 | 0.1957 | 0.1461 | 0.1539 | 0.1480 | 0.1538 | 0.1644 | 0.1731 |
| Inner Mongolia | 0.2477 | 0.2858 | 0.2971 | 0.2867 | 0.3072 | 0.2965 | 0.2817 | 0.2527 | 0.2231 | 0.2365 | 0.2715 |
| Liaoning | 0.3344 | 0.3333 | 0.3811 | 0.3797 | 0.3861 | 0.3859 | 0.3080 | 0.2621 | 0.2272 | 0.2595 | 0.3257 |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Jilin | 0.1712 | 0.1808 | 0.203 | 0.2021 | 0.2031 | 0.1787 | 0.1769 | 0.1509 | 0.1747 | 0.1480 | 0.1789 |
| Heilongjiang | 0.1850 | 0.1727 | 0.1781 | 0.2110 | 0.2065 | 0.1777 | 0.1794 | 0.1637 | 0.1544 | 0.1490 | 0.1778 |
| Shanghai | 0.6996 | 0.6619 | 0.6899 | 0.6575 | 0.6376 | 0.6382 | 0.6436 | 0.6332 | 0.6300 | 0.6453 | 0.6537 |
| Jiangsu | 0.6768 | 0.7374 | 0.7364 | 0.7732 | 0.7572 | 0.7531 | 0.7456 | 0.7507 | 0.7345 | 0.7285 | 0.7393 |
| Zhejiang | 0.5876 | 0.6359 | 0.6343 | 0.5999 | 0.5985 | 0.6090 | 0.5991 | 0.6027 | 0.5982 | 0.5993 | 0.6065 |
| Anhui | 0.2055 | 0.1964 | 0.2361 | 0.2259 | 0.2351 | 0.2253 | 0.2335 | 0.2397 | 0.2318 | 0.2468 | 0.2276 |
| Fujian | 0.3168 | 0.3270 | 0.3299 | 0.3529 | 0.3882 | 0.3442 | 0.3350 | 0.3472 | 0.3421 | 0.3436 | 0.3427 |
| Jiangxi | 0.1401 | 0.1797 | 0.1816 | 0.1808 | 0.1945 | 0.1802 | 0.1826 | 0.1690 | 0.1801 | 0.1972 | 0.1786 |
| Shandong | 0.5413 | 0.554 | 0.5545 | 0.5945 | 0.5968 | 0.5748 | 0.5551 | 0.5531 | 0.5177 | 0.5238 | 0.5566 |
| Henan | 0.3100 | 0.3114 | 0.3159 | 0.3116 | 0.3093 | 0.3044 | 0.2948 | 0.2914 | 0.2969 | 0.3051 | 0.3051 |
| Hubei | 0.2415 | 0.2567 | 0.2641 | 0.2978 | 0.2983 | 0.3059 | 0.3279 | 0.3108 | 0.3018 | 0.3252 | 0.2930 |
| Hunan | 0.2509 | 0.2622 | 0.2769 | 0.2842 | 0.3102 | 0.3007 | 0.2944 | 0.2881 | 0.3089 | 0.2919 | 0.2868 |
| Guangdong | 0.7591 | 0.7553 | 0.7652 | 0.7531 | 0.7647 | 0.7436 | 0.7301 | 0.7431 | 0.7231 | 0.7349 | 0.7472 |
| Guangxi | 0.1857 | 0.2325 | 0.2072 | 0.2261 | 0.2218 | 0.2279 | 0.2128 | 0.2674 | 0.2663 | 0.2515 | 0.2299 |
| Hainan | 0.2350 | 0.2498 | 0.2710 | 0.2662 | 0.2777 | 0.2670 | 0.302 | 0.2775 | 0.2885 | 0.3045 | 0.2739 |
| Chongqing | 0.2764 | 0.2769 | 0.2901 | 0.2776 | 0.2996 | 0.2917 | 0.2608 | 0.3036 | 0.2880 | 0.3097 | 0.2874 |
| Sichuan | 0.2719 | 0.2891 | 0.2891 | 0.2928 | 0.3194 | 0.2953 | 0.2853 | 0.2895 | 0.3014 | 0.3048 | 0.2939 |
| Guizhou | 0.1027 | 0.1066 | 0.1305 | 0.1372 | 0.1152 | 0.1166 | 0.1191 | 0.1010 | 0.1150 | 0.1236 | 0.1168 |
| Yunnan | 0.1569 | 0.1515 | 0.1708 | 0.1747 | 0.1768 | 0.1526 | 0.1447 | 0.1458 | 0.1434 | 0.1312 | 0.1548 |
| Tibet | 0.0913 | 0.0682 | 0.0425 | 0.0794 | 0.0670 | 0.0422 | 0.0403 | 0.0538 | 0.0624 | 0.0246 | 0.0572 |
| Shaanxi | 0.1588 | 0.1988 | 0.2135 | 0.1961 | 0.2350 | 0.2129 | 0.1769 | 0.2105 | 0.1948 | 0.1932 | 0.1991 |
| Gansu | 0.0817 | 0.0714 | 0.0815 | 0.0943 | 0.0951 | 0.0821 | 0.0866 | 0.1057 | 0.0751 | 0.0719 | 0.0845 |
| Qinghai | 0.0652 | 0.0628 | 0.0569 | 0.0626 | 0.0741 | 0.0865 | 0.0913 | 0.0581 | 0.0617 | 0.0795 | 0.0699 |
| Ningxia | 0.0841 | 0.1004 | 0.0967 | 0.1074 | 0.1112 | 0.0745 | 0.0868 | 0.0841 | 0.0829 | 0.0647 | 0.0893 |
| Xinjiang | 0.0975 | 0.1175 | 0.1272 | 0.1480 | 0.1533 | 0.1263 | 0.1306 | 0.1258 | 0.1286 | 0.1128 | 0.1268 |
| Mean | 0.2864 | 0.2986 | 0.3073 | 0.3142 | 0.3202 | 0.3064 | 0.3011 | 0.2979 | 0.2936 | 0.2942 | 0.3020 |

## *3.3. Analysis of the Coupling Coordination Time Dimension*

### 3.3.1. Timing perspective analysis

According to the calculation formula, the results of the coupled coordination degree of the development of Party building and Civic and political education in Chinese universities in 31 provinces and regions from 2013 to 2022 are shown in Table 11.

It can be seen that the average value of the coupling coordination degree of party building and Civic and political education development in 31 provincial colleges and universities was 0.4130 in 2013, the average value of the coupling coordination degree was the smallest in 2016, with a value of 0.3539, and the average value of the coupling coordination degree was generally higher than that of the other years in the past after 2016 until the average value of the coupling coordination degree rose to the maximum in 2022, with a value of 0.5246. The overall small mean value of the coupling coordination degree also indicates that the degree of coordination between the development of Party building and Civic and political education in Chinese colleges and universities is still at a relatively low level in general, and there is still much room for improvement. Overall, the chronological change of the coupling and coordination relationship between Party building and Civic and political education development in Chinese colleges and universities from 2013 to 2022 is characterized by a “first decline, then rise”, which shows a “U” shape on the whole. The value of the system coupling coordination degree gradually rises, and the coordination level also develops from low to high level.

From a regional perspective, the provinces with consistently higher coupling and coordination degrees of Party building and Civic and political education development in Chinese universities from 2013-2022 are Jiangsu, Beijing, Guangdong and Shanghai, which have higher levels of economic development and higher education development, and also focus on the synchronized development of Party building and Civic and political education in universities. The coupling coordination degree is always lower in Qinghai, Ningxia and Gansu, which are still at the back of the 31 provinces, although they have improved after a decade of development. Compared with 2013, in 2022, the values of the coupling and coordination degree of the development of Party building and Civic and political education in colleges and universities in all provinces and regions have increased to different degrees, of which the largest increase is in Qinghai, with the coupling and coordination degree increasing by 0.1805. The smallest increase was in Liaoning, where the coupling coordination value grew from 0.5050 to 0.5447, an increase of only 0.0397. At the same time, the degree of coupling and coordination between Party building and Civic and political education in Chinese universities is extremely unbalanced, and the gap

between the coupling and coordination degrees of different provinces is very significant. 2013, the region with the highest degree of coupling and coordination is Beijing (0.7441), the region with the lowest degree of coupling and coordination degree is Qinghai (0.1091), and the gap between them is 0.6350. 2022, the region with the highest degree of coupling and coordination degree will still be Beijing (0.8407), the region with the lowest degree of coupling coordination is Tibet (0.2602), and the gap between the two is 0.5805. Although this gap seems to be decreasing over time, the gap is still very large. Sub-regionally, the coupling coordination degree of party building and ideological education development in colleges and universities in the eastern region is significantly better than that in the central and western regions, and the gap between the east and west is more significant.

***Table 11.*** Empirical results of coupling coordination degree.

| | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | Mean |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Beijing | 0.7441 | 0.6848 | 0.6724 | 0.6441 | 0.6919 | 0.7390 | 0.7737 | 0.8083 | 0.8081 | 0.8407 | 0.7407 |
| Tianjin | 0.4496 | 0.4291 | 0.3998 | 0.3956 | 0.4485 | 0.4611 | 0.5117 | 0.5496 | 0.5650 | 0.5727 | 0.4783 |
| Hebei | 0.4656 | 0.4280 | 0.4139 | 0.4019 | 0.4350 | 0.4650 | 0.4987 | 0.5293 | 0.5313 | 0.5575 | 0.4726 |
| Shanxi | 0.3348 | 0.3205 | 0.2977 | 0.2733 | 0.3029 | 0.3387 | 0.3925 | 0.3934 | 0.3935 | 0.4291 | 0.3476 |
| Inner Mongolia | 0.3330 | 0.3229 | 0.3265 | 0.3007 | 0.3321 | 0.3724 | 0.4075 | 0.4289 | 0.4179 | 0.4180 | 0.3660 |
| Liaoning | 0.5050 | 0.4733 | 0.4807 | 0.4522 | 0.4962 | 0.5385 | 0.5588 | 0.5178 | 0.5345 | 0.5447 | 0.5102 |
| Jilin | 0.3524 | 0.3266 | 0.3287 | 0.2953 | 0.3243 | 0.3549 | 0.4143 | 0.4287 | 0.4192 | 0.4136 | 0.3658 |
| Heilongjiang | 0.3935 | 0.3846 | 0.3705 | 0.3403 | 0.3417 | 0.3994 | 0.3978 | 0.4448 | 0.435 | 0.4368 | 0.3944 |
| Shanghai | 0.6472 | 0.6209 | 0.6087 | 0.5793 | 0.6056 | 0.6564 | 0.6909 | 0.7194 | 0.7278 | 0.7585 | 0.6615 |
| Jiangsu | 0.7435 | 0.7280 | 0.7086 | 0.6899 | 0.7249 | 0.7460 | 0.8052 | 0.8113 | 0.8367 | 0.8349 | 0.7629 |
| Zhejiang | 0.6280 | 0.5761 | 0.5563 | 0.5188 | 0.5617 | 0.6149 | 0.6517 | 0.6803 | 0.6882 | 0.7188 | 0.6195 |
| Anhui | 0.3941 | 0.3773 | 0.3982 | 0.3597 | 0.4031 | 0.4302 | 0.4746 | 0.4796 | 0.5159 | 0.5238 | 0.4357 |
| Fujian | 0.4387 | 0.4159 | 0.4041 | 0.3814 | 0.4213 | 0.4460 | 0.4809 | 0.5363 | 0.5395 | 0.5555 | 0.4620 |
| Jiangxi | 0.3595 | 0.3313 | 0.3298 | 0.2998 | 0.3533 | 0.3732 | 0.4230 | 0.4432 | 0.4342 | 0.4785 | 0.3826 |
| Shandong | 0.6509 | 0.6192 | 0.6005 | 0.5869 | 0.6089 | 0.6687 | 0.6856 | 0.7103 | 0.7159 | 0.7345 | 0.6581 |
| Henan | 0.4766 | 0.4718 | 0.4442 | 0.4329 | 0.4871 | 0.5290 | 0.5621 | 0.5808 | 0.5985 | 0.6420 | 0.5225 |
| Hubei | 0.4887 | 0.4848 | 0.4933 | 0.4482 | 0.5045 | 0.5406 | 0.5689 | 0.6153 | 0.6043 | 0.6315 | 0.5380 |
| Hunan | 0.4592 | 0.4238 | 0.4299 | 0.4001 | 0.4540 | 0.4646 | 0.5110 | 0.5432 | 0.5511 | 0.5897 | 0.4827 |
| Guangdong | 0.7382 | 0.6991 | 0.6830 | 0.6466 | 0.6612 | 0.7320 | 0.7769 | 0.8016 | 0.8369 | 0.8280 | 0.7404 |
| Guangxi | 0.3213 | 0.2884 | 0.2891 | 0.2637 | 0.3023 | 0.3306 | 0.3729 | 0.3911 | 0.4191 | 0.4221 | 0.3401 |
| Hainan | 0.1453 | 0.1357 | 0.1407 | 0.1223 | 0.1668 | 0.1727 | 0.2524 | 0.2585 | 0.2968 | 0.3064 | 0.1998 |
| Chongqing | 0.3614 | 0.3265 | 0.3424 | 0.3206 | 0.3641 | 0.3967 | 0.4266 | 0.4680 | 0.4937 | 0.4852 | 0.3985 |
| Sichuan | 0.4999 | 0.4639 | 0.4450 | 0.4186 | 0.4677 | 0.5089 | 0.5586 | 0.5669 | 0.5986 | 0.6045 | 0.5133 |
| Guizhou | 0.2376 | 0.2093 | 0.2118 | 0.1748 | 0.2272 | 0.2460 | 0.3064 | 0.3485 | 0.3910 | 0.4157 | 0.2768 |
| Yunnan | 0.3167 | 0.2865 | 0.2687 | 0.2934 | 0.2989 | 0.3154 | 0.3516 | 0.3883 | 0.4033 | 0.4289 | 0.3352 |
| Tibet | 0.1661 | 0.1474 | 0.1095 | 0.0504 | 0.1360 | 0.1332 | 0.1950 | 0.2057 | 0.2392 | 0.2602 | 0.1643 |
| Shaanxi | 0.4229 | 0.4242 | 0.4269 | 0.3921 | 0.4385 | 0.4303 | 0.4839 | 0.5079 | 0.5049 | 0.5444 | 0.4576 |
| Gansu | 0.2247 | 0.1852 | 0.1757 | 0.1503 | 0.2042 | 0.2463 | 0.2734 | 0.2940 | 0.3196 | 0.3409 | 0.2414 |
| Qinghai | 0.1091 | 0.1002 | 0.0948 | 0.0498 | 0.0749 | 0.1464 | 0.2219 | 0.2523 | 0.2697 | 0.2896 | 0.1609 |
| Ningxia | 0.1664 | 0.1358 | 0.1705 | 0.1163 | 0.1426 | 0.1824 | 0.2482 | 0.2513 | 0.2704 | 0.2897 | 0.1974 |
| Xinjiang | 0.2296 | 0.2222 | 0.2325 | 0.1723 | 0.2387 | 0.2513 | 0.3259 | 0.3176 | 0.3198 | 0.3673 | 0.2677 |
| Mean | 0.4130 | 0.3885 | 0.3824 | 0.3539 | 0.3942 | 0.4268 | 0.4711 | 0.4927 | 0.5058 | 0.5246 | 0.4353 |

### 3.3.2. Cross-sectional perspective analysis

In order to be able to better evaluate the current coupling and coordination between Party building and Civic and political education development in colleges and universities in various regions of China, this paper selects the comprehensive evaluation index, the coupling degree of the system, the coupling coordination degree of the two systems of Party building and Civic and political education development in colleges and universities in 31 provinces and regions in 2022, and derives the coupling coordination grade and coupling coordination type of each region according to the evaluation standard of coupling coordination degree, and the coupling coordination situation is as shown in Table 12 is shown, where Type I, II, III indicate the lagging type of party building in colleges and universities, the synergistic development type of party building in colleges and universities and Civic and political education, and the lagging type of Civic and political education, respectively.

From the value of the coupling degree, in 2022, the Party building and Civic and political education

systems of colleges and universities in 31 provinces and regions of China were at a high coupling level, with obvious interaction and mutual influence, but from the value of the coupling coordination degree, it can be seen that the two systems of Party building and Civic and political education of colleges and universities in most regions in 2022 had a general degree of coordination, which indicates that although the relationship between Party building and Civic and political education in colleges and universities is close, the relationship between the two systems in most regions have not been able to form a virtuous cycle of mutual promotion.

In terms of the overall distribution of the coupling coordination degree, the coupling coordination degree of the development of Party building and Civic and political education in Chinese colleges and universities in 2022 ranges from 0.2602 to 0.8407, and involves a total of 7 types of coupling coordination, which are good coordination, intermediate coordination, primary coordination, reluctant coordination, on the verge of dysfunction, mild dysfunction, and moderate dysfunction, with about half of the provinces located in the 4 categories of good coordination, intermediate coordination, primary coordination, and reluctant coordination, with about half of the provinces located in the 4 categories of good coordination, intermediate coordination, primary coordination, and reluctant coordination. Coordination, Intermediate Coordination, Elementary Coordination, and Barely Coordinated, and there are only three provinces whose coupling coordination level reaches Good Coordination, indicating that the level of coordinated development between the two in China's provinces and regions is still basically at a lower level, and that there is still a certain amount of room for improvement.

From the viewpoint of the type of coupling coordination, there are 20 provinces with lagging development of Civic and political education, which indicates that for most regions, the lagging development of Civic and political education behind the development of Party building in colleges and universities is the main reason for the general degree of coupling coordination. There are only five provinces in which the development of party building and Civic and political education in colleges and universities is synergistic, namely Jiangsu, Fujian, Shandong, Guangdong and Guangxi. The remaining six provinces belong to the type of lagging development of party building in colleges and universities.

***Table 12.*** Coupling and coordination situation.

| | $U_1$ | $U_1$ | $C$ | $D$ | $\beta$ | Coupling coordination level | Type |
|---|---|---|---|---|---|---|---|
| Beijing | 0.7759 | 0.6417 | 0.8903 | 0.8407 | 1.2091 | Good coordination | III |
| Tianjin | 0.2941 | 0.3560 | 0.8879 | 0.5727 | 0.8261 | Barely coordinating | I |
| Hebei | 0.3748 | 0.2509 | 0.8746 | 0.5575 | 1.4938 | Barely coordinating | III |
| Shanxi | 0.2062 | 0.1644 | 0.8898 | 0.4291 | 1.2543 | On the verge of imbalance | III |
| Inner Mongolia | 0.1601 | 0.2365 | 0.8842 | 0.4180 | 0.6770 | On the verge of imbalance | I |
| Liaoning | 0.3625 | 0.2595 | 0.8930 | 0.5447 | 1.3969 | Barely coordinating | III |
| Jilin | 0.2492 | 0.1480 | 0.8655 | 0.4136 | 1.6838 | On the verge of imbalance | III |
| Heilongjiang | 0.2532 | 0.1490 | 0.8643 | 0.4368 | 1.6993 | On the verge of imbalance | III |
| Shanghai | 0.5049 | 0.6453 | 0.8975 | 0.7585 | 0.7824 | Intermediate coordination | I |
| Jiangsu | 0.7085 | 0.7285 | 0.9016 | 0.8349 | 0.9726 | Good coordination | II |
| Zhejiang | 0.4538 | 0.5993 | 0.8722 | 0.7188 | 0.7572 | Intermediate coordination | I |
| Anhui | 0.3296 | 0.2468 | 0.8797 | 0.5238 | 1.3355 | Barely coordinating | III |
| Fujian | 0.3141 | 0.3436 | 0.8933 | 0.5555 | 0.9141 | Barely coordinating | II |
| Jiangxi | 0.2936 | 0.1972 | 0.8779 | 0.4785 | 1.4888 | On the verge of imbalance | III |
| Shandong | 0.5736 | 0.5238 | 0.9097 | 0.7345 | 1.0951 | Intermediate coordination | II |
| Henan | 0.5238 | 0.3051 | 0.8684 | 0.6420 | 1.7168 | Primary coordination | III |
| Hubei | 0.5052 | 0.3252 | 0.8826 | 0.6315 | 1.5535 | Primary coordination | III |
| Hunan | 0.3724 | 0.2919 | 0.8911 | 0.5897 | 1.2758 | Barely coordinating | III |
| Guangdong | 0.6821 | 0.7349 | 0.8899 | 0.8280 | 0.9282 | Good coordination | II |
| Guangxi | 0.2358 | 0.2515 | 0.8737 | 0.4221 | 0.9376 | On the verge of imbalance | II |
| Hainan | 0.0940 | 0.3045 | 0.9045 | 0.3064 | 0.3087 | Mild imbalance | I |
| Chongqing | 0.2742 | 0.3097 | 0.8911 | 0.4852 | 0.8854 | On the verge of imbalance | I |
| Sichuan | 0.4721 | 0.3048 | 0.8854 | 0.6045 | 1.5489 | Primary coordination | III |
| Guizhou | 0.2362 | 0.1236 | 0.8593 | 0.4157 | 1.9110 | On the verge of imbalance | III |
| Yunnan | 0.2201 | 0.1312 | 0.8962 | 0.4289 | 1.6776 | On the verge of imbalance | III |
| Tibet | 0.1230 | 0.0246 | 0.8576 | 0.2602 | 5.0000 | Moderate imbalance | III |
| Shaanxi | 0.4281 | 0.1932 | 0.8327 | 0.5444 | 2.2158 | Barely coordinating | III |
| Gansu | 0.1870 | 0.0719 | 0.8436 | 0.3409 | 2.6008 | Mild imbalance | III |
| Qinghai | 0.1238 | 0.0795 | 0.8672 | 0.2896 | 1.5572 | Moderate imbalance | III |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Ningxia | 0.0732 | 0.0647 | 0.9032 | 0.2897 | 1.1314 | Moderate imbalance | III |
| Xinjiang | 0.1281 | 0.1128 | 0.8922 | 0.3673 | 1.1356 | Mild imbalance | III |

## *3.4. Exploratory spatial analysis*

### 3.4.1. Global spatial autocorrelation analysis

For the possible spatial effect of the coupling coordination degree of party building and ideological education development in colleges and universities, the global Moran's I is used to analyze its spatial correlation. The Moran's I of the coupling coordination degree is shown in Table 13, and the Moran's I of the coupling coordination degree from 2013 to 2022 are all positive, with their values ranging between 0.163-0.212, and all of them are significantly positive at the 5% significance level, which indicates that the coupling coordination degree of the development of party building and Civic and political education in colleges and universities has significant spatial correlation and the existence of spatial aggregation effect.

***Table 13.*** Moran's I on coupling coordination degree.

| Year | Moran's I | *Z* | *P* |
|---|---|---|---|
| 2013 | 0.195 | 2.718 | 0.004 |
| 2014 | 0.195 | 2.523 | 0.004 |
| 2015 | 0.191 | 2.488 | 0.004 |
| 2016 | 0.190 | 2.424 | 0.003 |
| 2017 | 0.212 | 2.579 | 0.003 |
| 2018 | 0.179 | 2.387 | 0.009 |
| 2019 | 0.170 | 2.196 | 0.012 |
| 2020 | 0.163 | 2.203 | 0.014 |
| 2021 | 0.164 | 2.282 | 0.013 |
| 2022 | 0.183 | 2.399 | 0.008 |

### 3.4.2. Local spatial autocorrelation analysis

In order to further reveal the clustering and heterogeneity of the coupled coordination degree of party building and civic education development in colleges and universities, the coupled coordination degree of party building and civic education development in colleges and universities in 2013, 2018 and 2022 were selected to draw the corresponding local Moran scatter plots as shown in Figs. 1~3, respectively. Among them, 1~31 denote Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia, Liaoning, Jilin, Heilongjiang, Shanghai, Jiangsu, Zhejiang, Anhui, Fujian, Jiangxi, Shandong, Henan, Hubei, Hunan, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, respectively.

Observation shows that most provinces are located in the first and third quadrants during the study period, indicating that there is a significant positive spatial correlation between the degree of coupling and coordination of the development of Party building and Civic and political education in colleges and universities in each province, and the spatial clustering is also relatively stable.

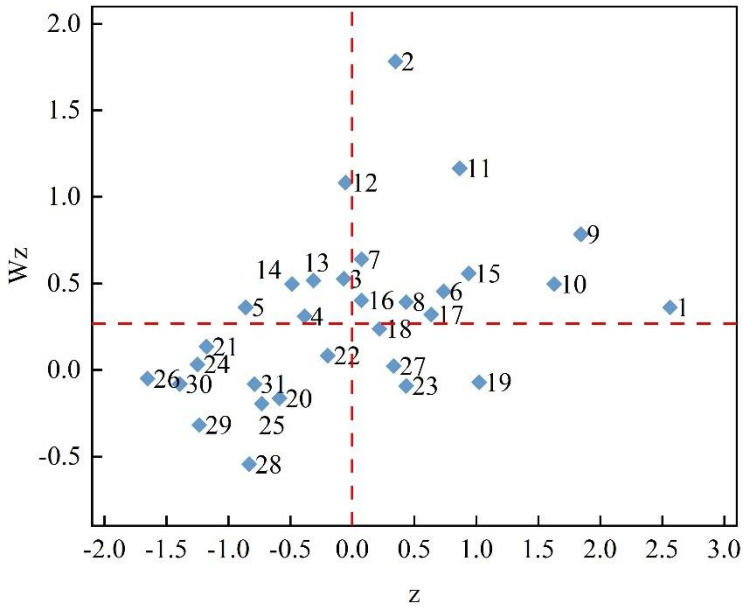


***Figure 1.*** Moran scatterplot in 2013.

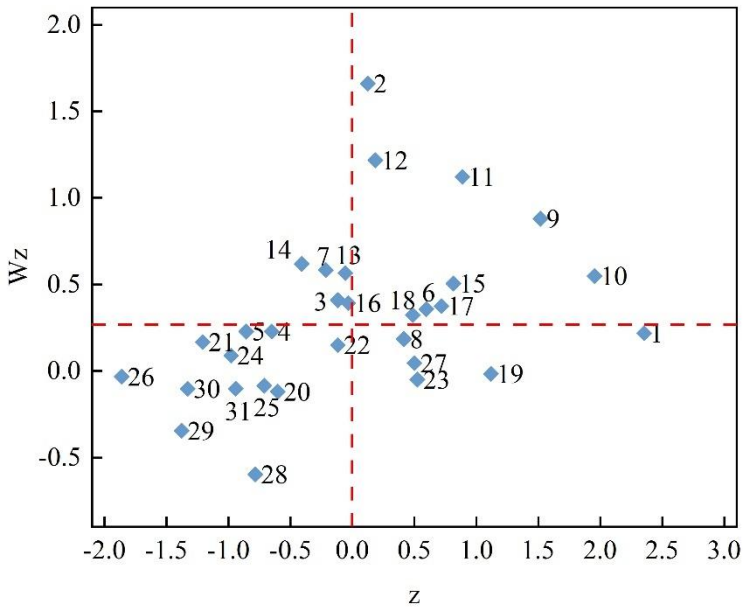


***Figure 2.*** Moran scatterplot in 2018.

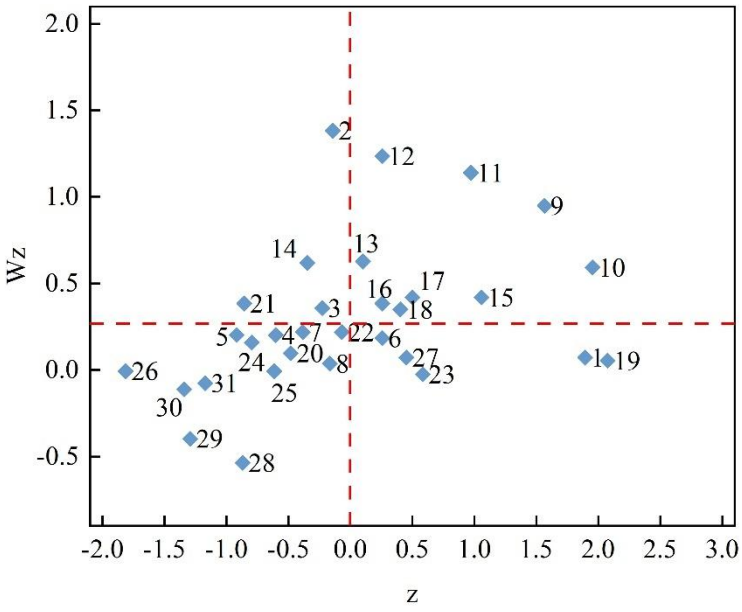


***Figure 3.*** Moran scatterplot in 2022.

The spatial clustering results based on the Moran scatter plot are shown in Table 14. It can be seen that at the beginning of the period, the high and high agglomerations were mainly concentrated in the eastern and northeastern regions, and with the passage of time, the northeastern provinces gradually withdrew from the high and high agglomerations, some central provinces entered the high and high agglomerations, and the low and low agglomerations were mainly distributed in the western region.

Among them, the high-high agglomeration area shows high stability and strong radiation effect:

(1) Shanghai, Jiangsu, Zhejiang and Shandong located in the eastern region have always remained in the high-high agglomeration area, these provinces have a high level of Civic and political education and a high degree of aggregation of party building resources in colleges and universities, and have further consolidated the results of the coupled and coordinated development of party building and Civic and political education in colleges and universities through the regional coordination and linkage mechanism.

(2) There is a tendency for the high and high agglomeration area to extend to the central geographic spreading area in recent years, such as Anhui, Henan and other provinces in the central region have entered the high and high agglomeration area. Under the radiation influence of the highly coupled and coordinated provinces in the eastern region, it helps these provinces to play a latecomer's advantage and draw on the eastern model to promote the realization of efficient interactive support for the development of Party building and Civic and political education in colleges and universities.

The low-low catchment area shows high stability and assimilation effects:

(1) Guangxi, Chongqing, Guizhou and other nine western provinces always remain in the low-low agglomeration area. These provinces are either relatively short of resources for party building in colleges and universities or lag behind in the level of ideological education, and the synergistic development of party building and ideological education in colleges and universities is based on a weak foundation, which makes it easy to fall into the trap of “low-level equalization”.

(2) The assimilation effect on neighboring provinces is manifested in the fact that due to the lack of collaborative governance with neighboring low-level provinces, high-low agglomeration provinces are also prone to become low-level provinces and fall into the low-low agglomeration zone. For example, Heilongjiang belonged to the high-high agglomeration zone in 2013, and after falling into the high-low agglomeration zone in 2018, it fell into the low-low agglomeration zone in 2022 due to the lack of collaborative governance.

The above characteristics highlight that it is easier to “lead the point with the face” and more difficult to “lead the face with the point”, and the synergistic development of party building and ideological education in colleges and universities needs to be regionally linked and synergistically promoted, and it cannot be "fought alone! ".

***Table 14.*** Spatial clustering of coupling coordination degree.

| Year | 2013 | 2018 | 2022 |
|---|---|---|---|
| HH | Beijing, Tianjin, Liaoning, | Tianjin, Liaoning, Shanghai, | Shanghai, Jiangsu, Zhejiang, |

| | | | |
|---|---|---|---|
| type | Jilin, Heilongjiang, Shanghai, Jiangsu, Zhejiang, Shandong, Henan, Hubei | Jiangsu, Zhejiang, Anhui, Shandong, Hubei, Hunan | Anhui, Fujian, Shandong, Henan, Hubei, Hunan |
| LH type | Hebei, Inner Mongolia, Fujian, Jiangxi, Anhui, Shanxi | Hebei, Jilin, Fujian, Jiangxi, Henan | Tianjin, Hebei, Jiangxi, Hainan |
| LL type | Guangxi, Hainan, Chongqing, Guizhou, Yunnan, Tibet, Gansu, Qinghai, Ningxia, Xinjiang | Shanxi, Inner Mongolia, Guangxi, Hainan, Chongqing, Guizhou, Yunnan, Tibet, Gansu, Qinghai, Ningxia, Xinjiang | Shanxi, Inner Mongolia, Heilongjiang, Guangxi, Chongqing, Guizhou, Yunnan, Tibet, Gansu, Qinghai, Ningxia, Xinjiang, Jilin |
| HL type | Guangdong, Sichuan, Shaanxi, Hunan | Heilongjiang, Guangdong, Sichuan, Shaanxi, Beijing | Beijing, Liaoning, Guangdong, Sichuan, Shaanxi |

### 3.4.3. Space-time leap analysis

The types of spatial and temporal leaps in the degree of coordination of the coupling of party building and civic education development in colleges and universities from 2013 to 2022 are shown in Table 15. It can be seen that the provinces that leap type IV are the most, followed by leap type II and type I. On the whole, in the two study periods of 2013-2018 and 2018-2022, 23 and 24 provinces belong to type IV, with spatial cohesion degrees of 0.753 and 0.785, respectively, and the spatial pattern of the degree of coordination of the coupling of party building and Civic and political education development in colleges and universities has a significant path dependence and spatial pattern locking characteristics. Specifically:

(1) In Leap Type I, during 2013-2018, Jilin and Henan jumped from HH to LH type due to the lack of collaboration with neighboring provinces, which resulted in the obstruction of the coupling coordination degree increase. Anhui, however, was driven by neighboring provinces with high coupling coordination levels, successfully leaping from LH to HH type.Between 2018-2022, Fujian and Heilongjiang were also influenced by neighboring provinces, leaping from LH and HL to HH and LL types, respectively, and Henan was able to leap to HH type by highlighting the enhancement of party building in colleges and universities and accelerating the transformation of the results of party building into the effectiveness of Civic and Political Education, while Tianjin was Tianjin, on the other hand, is constrained by the slow development of ideological and political education, the effectiveness of education is not high, and fails to maintain synergy with the coupled and coordinated development of neighboring provinces, and leaps from the HH type to the LH type.

(2) In leap type II, between 2013 and 2018, Beijing and Heilongjiang, and Shanxi and Inner Mongolia jumped from HH and LH to HL and LL, respectively, due to the decrease in the coupling and coordination of neighboring provinces, and Hunan jumped from HL to HH due to the significant increase in the coupling and coordination of neighboring provinces. During 2018-2022, Liaoning and Jilin leapfrog from HH and LH to HL and LL, respectively, and Hainan leaps from LL to LH.

(3) During the sample period, no province has experienced a leap of type III.

(4) In the leap type IV, there are 10 and 11 LL-type provinces during 2013-2018 and 2018-2022, respectively, and nine LL-type provinces in the western region, such as Guangxi, Chongqing, Guizhou, etc., have never occurred a leap, which has become a key province that currently restricts the overall degree of coupling and coordination between Party building and Civic and political education development in colleges and universities from leaping to a high level of coupling and coordination.

***Table 15.*** The spatiotemporal transition type of coupling coordination degree.

| Transition type | Time division | |
|---|---|---|
| | 2013-2018 | 2018-2022 |
| Type I | HH→LH: Jilin, Henan. LH→HH: Anhui. | HH→LH: Tianjin. LH→HH: Fujian, Henan. HL→LL: Heilongjiang. |
| Type II | HH→HL: Beijing, Heilongjiang. LH→LL: Shanxi, Inner Mongolia. HL→HH: Hunan. | HH→HL: Liaoning. LH→LL: Jilin. LL→LH: Hainan. |
| Type III | - | - |

| | | |
|---|---|---|
| Type IV | Tianjin, Hebei, Liaoning, Shanghai, Jiangsu, Zhejiang, Fujian, Jiangxi, Shandong, Guangdong, Guangdong, Guangxi, Hainan, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Hubei | Hebei, Shanghai, Jiangsu, Zhejiang, Anhui, Jiangxi, Shandong, Hubei, Hunan, Guangdong, Guangxi, Chongqing, Sichuan, Guizhou, Yunnan, Tibet, Shaanxi, Gansu, Qinghai, Ningxia, Xinjiang, Inner Mongolia. Shanxi, Beijing |

## 4. Conclusion

On the basis of analyzing the relevance of party building and ideological education in colleges and universities, this paper carries out an empirical analysis by calculating the coupling coordination degree to explore their synergistic development from the spatio-temporal dimension. The research results show that:

(1) There is a positive correlation between the level of party building in colleges and universities and the effectiveness of civic and political education, and the increase in the number of media of the number of media of student party building can improve the level of students' ideological quality and political awareness.

(2) The values of the comprehensive evaluation index of party building and ideological education in Chinese colleges and universities from 2013 to 2022 are generally on an upward trend. Divided into East, Central and West regions, the level of Party building and the development of Civic and Political Education in Chinese universities are similar, showing a development trend of high in the East, low in the West, and in the middle of the Central region, with a significant imbalance in the development of Civic and Political Education between regions.

(3) From 2013 to 2022, the values of the coupling and coordination degree of the development of Party building and Civic and political education in Chinese colleges and universities have all risen to varying degrees, but the level of coordinated development of the two in China's provinces and districts is still basically at a low level, and there is still some room for improvement. Among them, the gap between the east and the west is relatively significant, and the coupling coordination degree is better in the east than in the center than in the west.

(4) There is significant spatial autocorrelation in the coupling and coordination degree of party building and ideological education development in colleges and universities. The spatial pattern has significant path dependence and spatial pattern locking characteristics, most provinces are in the low-low agglomeration area, and the high-high agglomeration type provinces are mainly concentrated in the eastern region.

This paper strengthens the theoretical cognition of the interactive coupling relationship between Party building and Civic and political education development in colleges and universities, broadens the research content and methodological framework of this field, and lays the foundation for further exploring the synergistic relationship between Party building and Civic and political education in colleges and universities in the future through the data visualization study of the coupling and coordination relationship between Party building and Civic and political education development in colleges and universities. However, this study only explores the coupled and coordinated relationship between party building and civic and political education development in colleges and universities between provinces, and the coupled and coordinated relationship between the two between colleges and universities can be further explored in the future.

**References**


1. Jiang, S., & Yu, F. (2025). Integrating Ideological and Political Education Across Educational Levels: A Social Integration Approach. Journal of Integrated Social Sciences and Humanities, 1-15.
2. Xue-mei, L. I., Li, Z. H. A. N. G., & Zheng, L. I. A. N. G. (2017). Exploring a New Model in Primary-Level Party Building Work of College Students in the New Period—Take “Concentrating the Party Building Culture of Students” for Example. Journal of University of Electronic Science and Technology of China (SOCIAL SCIENCES EDITION), 19(3), 101-103.
3. Wu, Y. (2025). Research on the Integration of Ideological and Political Education in Primary and Secondary Schools. Educational and Humanities, 1(2), 54-62.
4. Lan, B., & Hu, H. (2021). Thinking on the Construction of Model Party Branch in Colleges and Universities. Frontiers, 2(12).
5. Liying, Z. (2024). Research on the generation path of ideology and politics in auditing courses from the perspective of" Three-Dimensional Holistic Education". Global Academic Frontiers, 2(4), 60-70.
6. Huang, J. (2025). The Relationship between Ideological and Political Education and Students' Social Responsibility. Education as Change, 29(1), 1-21.
7. Sirivunnabood, P. (2016). Political education: The role of political parties in educating civil society on politics.

Humanities, Arts and Social Sciences Studies, 157-194.
8. Chen, L. (2020). Research on Party Spirit Personality of Ideological and Political Educators in Colleges and Universities. Academic Journal of Humanities & Social Sciences, 3(4), 102-109.
9. Chen, H., & Zhang, Y. (2024). Exploration of the value of current ideological and political education in the context of great ideological and political views. Journal of Art, Culture and Philosophical Studies, 1(1), 1-7.
10. Canova, R., & Ma'rof, A. A. (2023). Empowering Students With Ideological and Political Education and Bridging the Gap in Modern Democracies' Ideological Division. In Social Psychology Theories and Methods in Education (pp. 159-181). IGI Global.
11. Li, J. (2022). application research on the integrated development of party building and education management in colleges and universities in the cultivation of students'personality psychology. Psychiatria Danubina, 34(suppl 4), 787-787.
12. Han, Z. (2015). Party building in urban business districts: organizational adaptation of the Chinese Communist Party. Journal of Contemporary China, 24(94), 644-664.
13. Mo, H. (2024, July). Research on the Development Problems and Methods of Smart Party Building in Private Vocational Colleges from the Perspective of "Internet plus". In 2024 9th International Conference on Social Sciences and Economic Development (ICSSED 2024) (pp. 91-99). Atlantis Press.
14. Xiao, H., & Han, Y. (2022). A study on the influence of party building and ideological and political education on college students'learning anxiety. Psychiatria Danubina, 34(suppl 4), 371-371.
15. Cekić, N. N. (2018). Utilitarianism and the Idea of University. Filozofija i društvo, 29(1), 73-87.
16. Bunting, B. (2012). Beyond Utilitarianism: A New Paradigm for Orientation. Journal of College Orientation, Transition, and Retention, 20(1).
17. Wen, Z., & Qi, K. (2022, December). Research on the Integration of Red Culture and Party Building in Colleges and Universities Under the New Media. In 2022 6th International Seminar on Education, Management and Social Sciences (ISEMSS 2022) (pp. 2673-2680). Atlantis Press.
18. Dai, J., & Zhang, H. (2023). Investigation on the application of physical mental health education in the exploration of ideological and political education of Party building. Revista de Psicología del Deporte (Journal of Sport Psychology), 32(2), 287-296.
19. Yang, L. (2023). Enhancing the Ideological and Political Qualities of Rural Young Teachers Through Party Branch Construction: Value and Pathway. Journal of Research in Social Science and Humanities, 2(8), 68-76.
20. Dong, Y. (2025). Exploration on the Synergistic Development Path of College Student Party Building and Ideological and Political Education. Lecture Notes in Education, Arts, Management and Social Science, 3(6), 69-74.
21. Han, X., Guo, J., & Yuan, H. (2022, December). Research on the Collaborative Education of Party Building and Ideological and Political Education in Colleges and Universities. In 2022 5th International Conference on Humanities Education and Social Sciences (ICHESS 2022) (pp. 355-362). Atlantis Press.
22. Yuting, W. (2023). Study on the Synergistic Fusion of Work of Party Building and Ideological and Political Work in Local Colleges and Universities form the Perspective of "Three-wide Education". Academic Journal of Humanities & Social Sciences, 6(8), 45-50.
23. Yang, F., Wang, F., & Wei, Z. (2024). Research on Curriculum Ideological and Political Reform of Data Visualization under Background of New Engineering. Frontiers in Educational Research, 7(4), 75-80.
24. Henshaw, A. L., & Meinke, S. R. (2018). Data analysis and data visualization as active learning in political science. Journal of Political Science Education, 14(4), 423-439.
25. Zheng, G. (2024). Construction of ideological and political education in universities based on intelligent digital education. Advances in Educational Technology and Psychology, 8(1), 45-54.
26. Ruize Cai, Jie You & Minho Kim. (2025). Unlocking Carbon Emissions and Total Factor Productivity Nexus: Causal Moderation of Ownership Structures via Entropy Methods in Chinese Enterprises. Entropy,27(10),1048-1048.https://doi.org/10.3390/E27101048.
27. Ziqi Pan, Yuyan Luo, Yue Wang, Jiali Ji & Bin Lai.(2025).Coupling coordination and driving mechanism between tourism development, ecological conservation and digital economy: insights from Chinese 278 cities. Scientific Reports,15(1),37445-37445. https://doi.org/10.1038/S41598-025-21169-1.