International Journal of Humanities, Management and Social Science
p-ISSN: 2685-2330, e-ISSN: 2685-2322

Original Research Paper

Visualization Analysis of AI-Enabled Ideological and Political Education in Higher Education Based on CiteSpace

Qi Zhang[1], Yue Gong[2], Lei Wang[3*]

[1] *Business School, Xuzhou University of Technology. China.*
[2] *Faculty of Hospitality and Tourism, Shanxi Vocational University of Culture and Tourism. China.*
[2] *Faculty of Hospitality and Tourism, Xuzhou University of Technology. China.*

Article History
Received:
21.052025

Revised:
15.06.2025

Accepted:
24.06.2025

***Corresponding Author:**
Lei Wang
Email:
1136603668@qq.com

Abstract: This study adopts CiteSpace software to conduct a visualization analysis of artificial intelligence-enabled (AI-enabled) ideological and political educational literature obtained from the China National Knowledge Infrastructure (CNKI) database from 2018 to 2024. The results showed that the number of journal articles regarding AI-enabled ideological and political education exhibits a consistent upward trend. The main authors have not yet formed a scale effect and the degree of collaboration among them was limited. In addition, the research hotspots primarily focused on artificial intelligence-related technologies to improve ideological and political education scenarios and the reform paths of high-educational courses. The findings of this study suggest that future research should consider incorporating interdisciplinary collaboration, technological integration and innovation, and the construction of the curriculum system that contributes to AI-enabled ideological and political education.

Keywords: AI-Enabled Education, Bibliometric Analysis, CiteSpace Software, Higher Education, Ideological and Political Education.

International Journal of Humanities, Management and Social Sciences, vol. 8, no. 1, pp. 37-48, June 2025. **DOI: 10.36079/lamintang.ij-humass-0801.856**

1. Introduction

Chinese education occupies a unique position within the global education system [1]. The Chinese educational system incorporates ideological and political education throughout the entire educational process, influencing individuals' values, beliefs, and civic consciousness [2]. According to Liu [3], the community of density of the ideological and political curriculum is an organic body with a macrostructure, which is based on the fundamental principle of promoting the development of the educational theory discipline of the ideological and political curriculum and other members themselves, the common challenges to face, the common discourse basis, and certain value identification. More importantly, this education component plays an important role in facilitating the comprehensive development of students and contributing to social progress in harmony [1].

With the rapid development of informatization, ideological and political education is undergoing a profound digital transformation in the higher education system [4]. According to the Ministry of Education of the People's Republic of China [5], at the end of November 2022, China had over 61,900 massive open online courses (MOOCs), there were more than 402 million registered users and more than 979 million of people have studied using MOOCs. The number of MOOCs and the participation of learners rank first in the world [6]. Hence, the improvement of digital education infrastructure has provided a solid foundation for the application of AI technology in ideological and political education [7].

As a country with rich cultural traditions and global influence, ideological and political education holds an irreplaceable strategic position for China [8]. Nevertheless, with the continuous development of the Chinese economy, the vision of college and university students has become more open, and the channels for receiving information are becoming broader [3]. The ideological and political education of college and university students should be integrated into the context of the information age, focusing on solving the dilemma when students engage in network communication, thus promoting modernization and adaptation of the traditional ideological and political education, further enhancing the educational function of ideological and political education [4]. Hence, it has become an important topic to strengthen ideological and political education in China [9].

2. Literature review

2.1. Ideological and Political Education

The goal of ideological and political education is to inform college and university students about their ideological stances and circumstances [10, 11]. According to Li [12], ideology is the culmination of various forms of social consciousness, such as politics, philosophy, ethics, art, and law, and it reflects the social-economic basis. The concept of the domination of the ruling class demonstrated the social characteristics of the ideas of the ruling class and in the service of the corresponding economic base and the interests of the ruling class.

Different ideologies can influence people to hold the same opinions [13]. It was the social class and status that determined which ideology and status were prevalent in society, but the ideology of the ruling class was centralism, which was a response to the class characteristic of the ideology and also one of its fundamental characteristics. The fundamental role of ideology in the political education process also determined the ruling class's degree of value at the same time. It creates a certain economic foundation and serves the interests of the ruling class and that foundation. It also has an impact on the development of the social economy and the politics, culture, economy, and many other areas [12].

Furthermore, ideology in politics guides the development of political goals and ensures the system of linkage politics and the effective design, promulgation, and application of laws [14]. In the ideological research domain, ideology can assist the ruling class in reaching a consensus and strengthening internal cohesion and cohesiveness. Additionally, ideology can determine the dynamics of economic intervention, guarantee the direction of economic development, and establish a correlation between the economy and a healthy economy. Furthermore, ideology protects the status of mainstream values and directs the development of the country's mainstream culture [12]. As a result, ideology influences are present in many facets of social life and are crucial in identifying the party in power [15].

Young generations, such as college and university students, constitute a significant portion of a country's population and are essential to its social development and future [16, 17]. Higher education students are at a pivotal point in their lives during their time in college or university because this period can shape their perspectives on life, values, and the world [10]. Students can participate in

socialist modernization by becoming capable successors in terms of scientific literacy through ideological and political education [18].

2.2. AI-Enabled Ideological and Political Education

The primary method of ideological and political education for college and university students is traditional education in the classroom [19]. Currently, there is little educational impact and a low level of interest in classroom teaching among many college and university students [19]. It is necessary to improve the timeliness and acceptability of ideological and political education [20, 21], helping university and college students develop a positive ideological and political outlook and integrate with other disciplines in an organic way [22].

AI is a branch of computer science that focuses on creating intelligent products by investigating the fundamentals of intelligence through a sequence of computational processes [23]. The use of AI-enabled techniques in ideological and political education has advanced significantly with the rapid growth of AI, and higher education institutions have confirmed its effectiveness.

AI-enabled education as defined in educational literature is the theory and practice of using intelligent tools to automatically analyze students, teachers, teaching materials, teaching media, and the educational environment based on technologies like intelligent perception, teaching algorithms, and data decision-making. AI-enabled education allows for the implementation of precise interventions, supports individualized learning and scaled instruction, creates an intelligent educational ecology, develops students' intelligent literacy, and helps students perform well in college and university [7] [24].

In recent years, AI has developed into a new type of science integrating many knowledge and technologies such as computer science, statistics, information theory, and mathematics. The unique intelligent functions have helped human society steadily move into the era of AI [25]. The exploration of AI-related education in China is getting increasingly fervent, and the application of AI technology in the teaching of various disciplines is also more frequent. Nevertheless, the exploration of intelligent education in universities and colleges ideological and political is still in a low development stage [7].

3. Methodology

CiteSpace is a Java application designed for the analysis and visualization of co-citation networks [26]. The primary objective of CiteSpace is to enable the examination of emerging trends within a knowledge domain, allowing users to capture a series of snapshots over time and thus integrate snapshots effectively [27]. The current study therefore adopts CiteSpace 6.3.R1 software to perform literature analysis because CiteSpace software has unique advantages in time series analysis [28].

The current study attempts to explore the innovative route of AI in improving ideological and political education in higher education institutions. Thus, this study focuses on the theme of "artificial intelligence" and "ideological and political education" as keywords to retrieve relevant literature from 2018 to 2024 based on the CNKI database.

Initially, there were 1,014 studies were obtained, after manual screening to eliminate literature review, book review, reports, and weak relevant studies, a total of 741 valid studies were finally retained for further data analysis. All 741 studies focus on the theoretical expansion or practical innovation of ideological and political education in higher education systems which were driven by AI technology.

The specific operation process is as follows:

(1) During the data pre-processing stage, the screened literature was imported into the software in Refworks format, the Time Slicing was set from 2018 to 2024, and the span of a single slice was set as one year;
(2) During the parameter configuration process, the Node Types were selected as "Keyword" and "Author", the Cosine coefficient was adopted for the network association strength algorithm with a threshold of k = 20 accompanying the Pruning strategies of "Pathfinder" and "Pruning sliced networks" to optimize the network structure;
(3) Highly cited publications in each period were extracted through the "Top N = 50" as the standard.

International Journal of Humanities, Management and Social Sciences, vol. 8, no. 1, pp. 37-48, June 2025. **DOI: 10.36079/lamintang.ij-humass-0801.856**

Accordingly, the distribution of research hotspots, the characteristics of academic cooperation, and the development trends of the research area was systematically analyzed based on the co-occurrence of keywords, the author cooperation network, and the evolution map of emergent words.

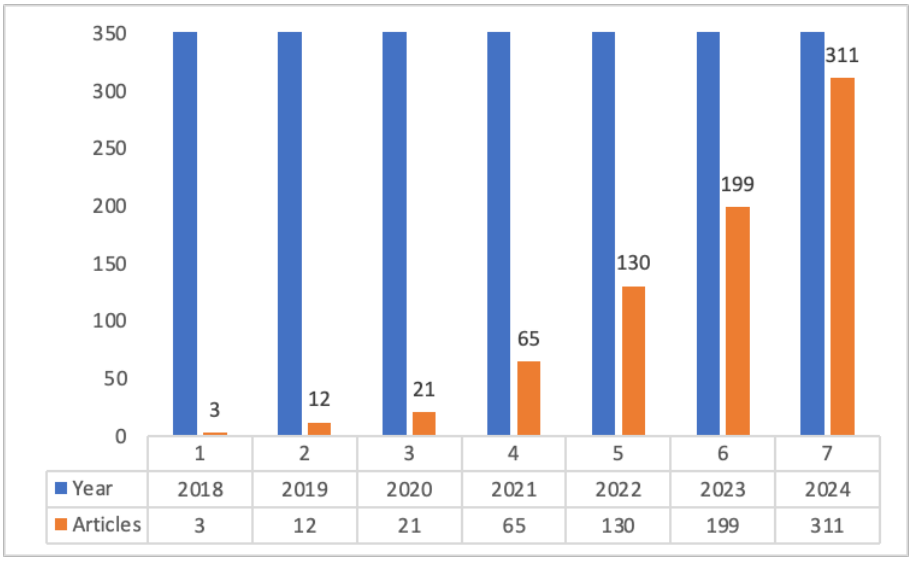
4. Finding and Discussion

4.1. Findings

4.1.1. Publication Volume Analysis

According to McKay [29], publication volume is an important indicator of scientific research because it can measure scientific research activities in a particular research field and its growth trend can objectively reflect the knowledge productive efficiency of a specific discipline. Figure 1 shows that there were 3 papers have been published in the cross-disciplinary research on AI and ideological and political education in 2018. There is a rapid growth rate in 2020 in this cross-research domain since the average annual growth rate was 64.9%. In 2022, there were more than 100 studies in AI, ideological and political education research areas have been published and there were 199 studies in this particular research domain have been published. Moreover, a total of 311 papers have been published within half of 2024.

The high growth trend indicates that AI-enabled ideological and political education has become an interdisciplinary research hotspot for both educational technology and ideological and political education. Meanwhile, the high rapid growth trend is in line with certain education policies advocated and published by Chinese governments such as “the next generation AI development plan” and “the guiding outline for the construction of ideological and political education in college courses”.



Note: a total of 311 articles published within a half of 2024.

Figure 1. Annual scientific publication (2018-2024)

4.1.2. Author Productivity Analysis

The current study adopts Price’s Law to evaluate the productivity of publications in the field of AI-enabled ideological and political education. The formula for detecting lead authors is: $M = 0.749 * \sqrt{Nmax}$, where M represents the minimum publication threshold for lead authors, Nmax represents the publication count of the most prolific authors, and Nmax = 4 in this study. After calculation, $M \approx 1.5$, and thus, we determined that the minimum number of published articles for lead authors is 2.

Table 1 shows the top ten authors who have published the most articles on AI-enabled ideological and political education from 2018 to 2024. The results showed that there were 42 lead authors met the criteria, with a total of 92 articles published, accounting for 12.4% of the total of 741 articles in this research field. This below the standard of “lead authors contribute rate ≥ 50%” was stipulated in

Price's Law [30], indicating that the high-productivity scholar group has not formed a scale effect in this research field.

Table 1. Top 10 Lead Authors In AI-Enabled Ideological and Political Education.

Number	Top Lead Author	Articles
1	Yaotian Zhang	4
2	Jun Zhao	4
3	Dewei Dai	3
4	Juhua Cao	3
5	Jingang Pan	3
6	Xiaoteng Shen	3
7	Wenbo He	2
8	Lijuan Liu	2
9	Xiulian Liu	2
10	Hong Liu	2

4.1.3. Collaboration Network Analysis

The author's co-occurrence map reveals the distribution of published articles and the degree of cooperation intensity among researchers in this research domain. The radius of nodes should be positively correlated with the number of papers published by authors while the connection density between nodes reflects the degree of cooperation intensity. Figure 2 shows that the co-occurrence graph of author cooperation contains 175 nodes (i.e., authors) and 41 cooperation connections.

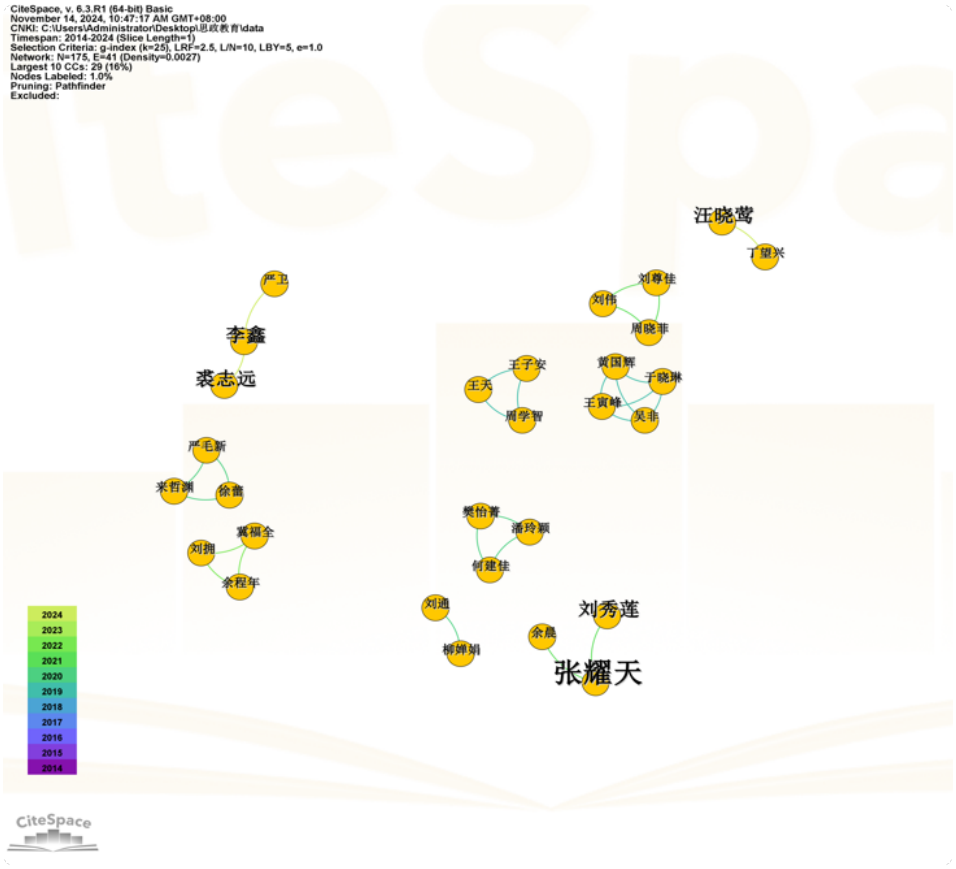


Figure 2. Co-Occurrence Network of Authors of Published Articles

International Journal of Humanities, Management and Social Sciences, vol. 8, no. 1, pp. 37-48, June 2025. **DOI: 10.36079/lamintang.ij-humass-0801.856**

Nevertheless, the results showed that the network density was 0.0027, indicating that the author's collaboration network diagram was relatively low, the connections between the nodes were relatively sparse. In other words, the degree of author collaboration is low, and most authors are independent in doing research in this field. Hence, the development of AI-enabled ideological and political education is still in its initial stage because the lead author group in this research field has not been formally formed.

4.1.4. Keywords Co-occurrence Analysis

Keywords are highly condensed form of an article, reflecting the main content and enabling readers and researchers to identify research hotspots in their respective fields. Figure 3 shows that the co-occurrence knowledge graph of keywords contains 286 nodes (N = 286), 348 connections (E = 348), and the network density is 0.0085, indicating that the characteristics of this research field are multi-center and weak coupling.

The centrality index in keywords co-occurrence analysis is used to evaluate the importance of keywords in the entire research field, reflecting the importance of nodes in the network. Besides, the co-occurrence frequency of keywords determines the intensity of hotspots. Table 2 shows the high frequency and high centrality of keywords in the AI-enabled ideological and political education field. According to the results of the high frequency and centrality of keywords, AI (frequency = 403, centrality = 0.76) and universities (frequency = 65, centrality = 0.68) constitute the core dual hubs. Besides, the big data (frequency = 20, centrality = 0.54) and ideological and political education in courses (frequency = 130, centrality = 0.49) are the secondary central nodes.

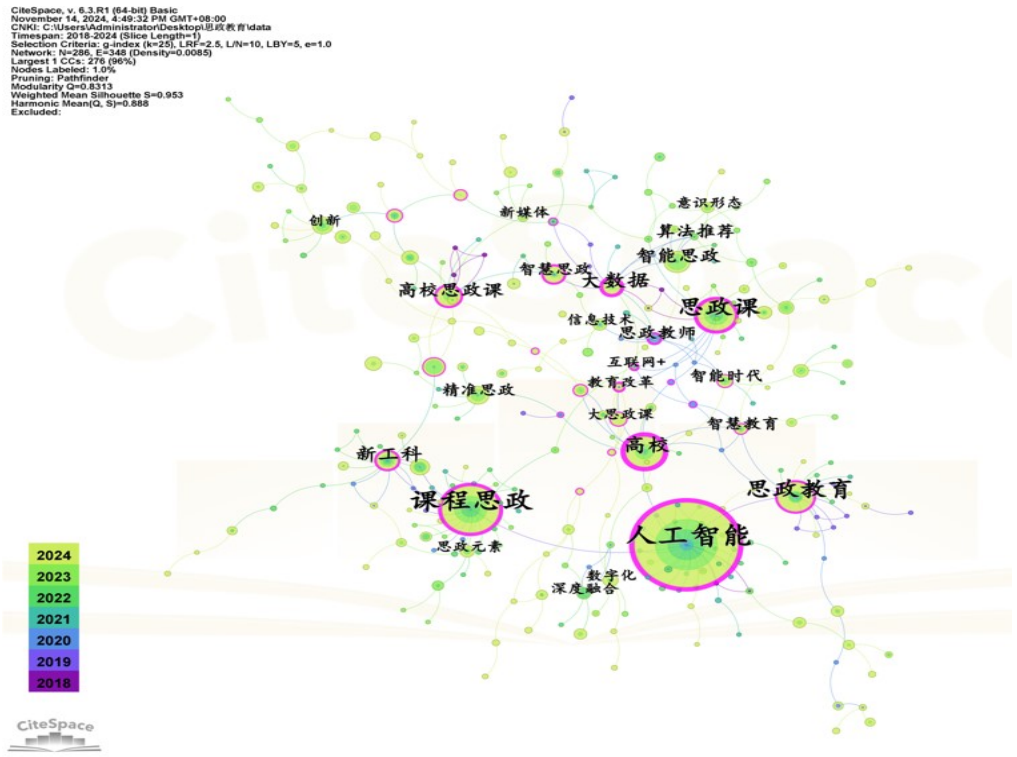
Table 2. High Frequency and High Centrality of Keywords

No	Keywords	Frequency	Keywords	Centrality
1	人工智能 (AI)	403	人工智能 (AI)	0.76
2	课程思政 (Ideological and political education in courses)	130	高校 (Universities)	0.68
3	高校 (Universities)	65	大数据 (Big data)	0.54
4	思政课 (Ideological and political courses)	58	课程思政 (Ideological and political education in courses)	0.49
5	思政教育 (Ideological and political education)	55	思政课 (Ideological and political courses)	0.42
6	高校思政课 (Ideological and political courses in university)	25	教育改革 (Educational reform)	0.40
7	新工科 (New engineering education)	22	思政教育 (Ideological and political education)	0.32
8	教学改革 (Educational reform)	21	新工科 (New engineering education)	0.31
9	大数据 (Big data)	20	互联网+ (Internet+)	0.25
10	智慧思政 (Innovative ideological and political education)	15	高校思政课 (Ideological and political courses in university)	0.24

The keyword of AI was dominated in the AI-enabled ideological and political education research area since frequency was 403 and centrality was 0.76. Figure 3 shows that there is a strong correlation between AI, ideological and political education in courses and universities. This means that

researchers are highly encouraged that the application of AI-related technologies needs to be incorporated into ideological and political education courses in universities.

Moreover, although the frequency of big data was 20, its centrality was 0.54 which ranked third among all keywords. This shows that the data-driven method played an important role in the AI-enabled ideological and political education research field. In addition, the frequency of ideological and political education in courses is 130 which ranked second, but the centrality was 0.49. This shows that the current research focuses on theoretical expansion but lacks in-depth interaction with AI technology.



Note: 人工智能 (AI). 课程思政 (Ideological and Political Education in Courses). 高校 (Universities)

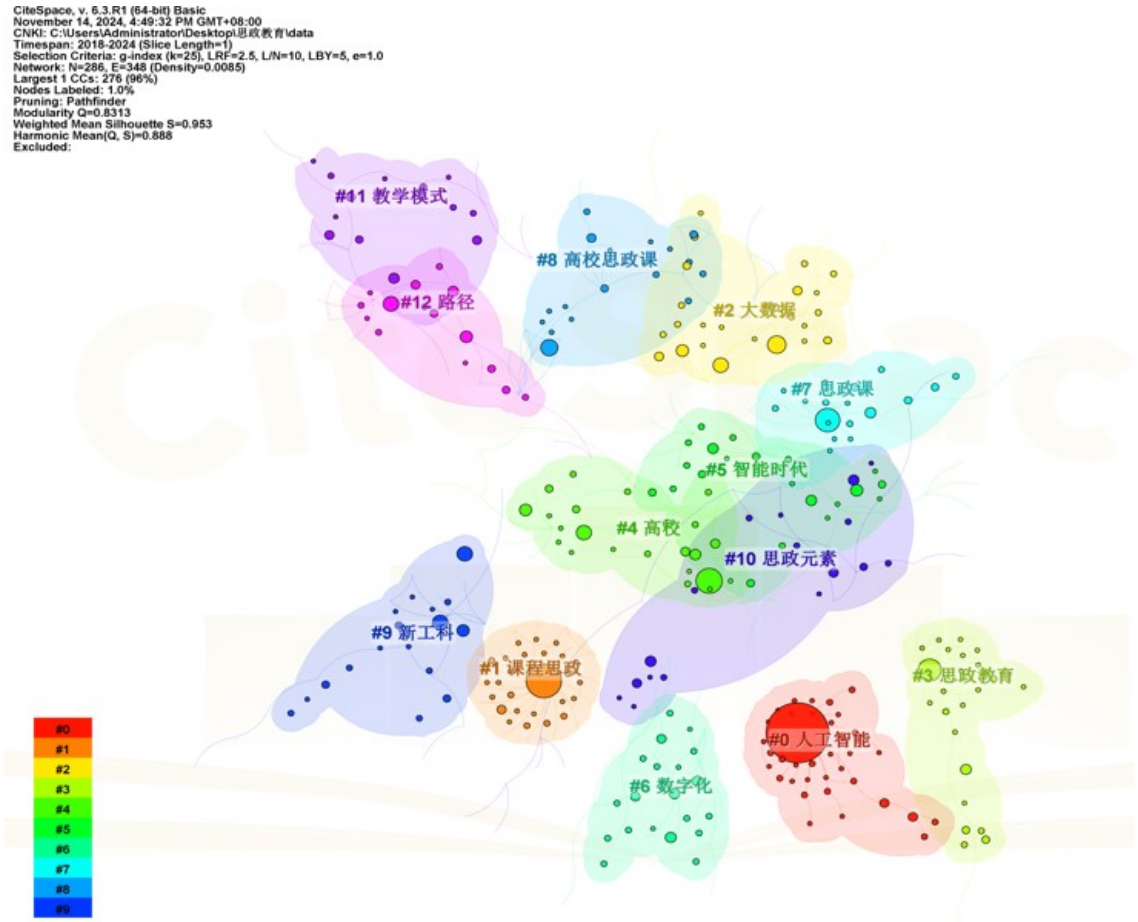
Figure 3. Co-Occurrence Knowledge Graph of Keywords

4.1.5. Cluster Keywords Extraction Analysis

This study adopts the keyword co-occurrence network analysis method to construct a topic clustering graph to disclose the correlation between characteristics of research hotspots in the AI-enabled ideological and political education research field. According to the clustering validity criterion, a modularity (Q value) greater than 0.3 indicates that the community classification has significant statistical significance ($p < 0.05$), and a contour value (S value) higher than 0.7 reflects the high-reliability feature of the clustering structure.

The results showed that the modularity of the graph network (Modularity Q = 0.8313) is significantly higher than the 0.3 discrimination threshold, indicating that the clustering structure has a strong modular feature. The Silhouette value (Silhouette S = 0.953) exceeded the significance criterion of 0.7, verifying the internal consistency of the clustering results.

Figure 4 shows that the keywords of AI-enabled ideological and political education research in China have formed 13 major clusters. The clusters are arranged as follows: #0 AI, #1 Ideological and political education in courses, #2 Big data, #3 Ideological and political education, #4 Universities, #5 Intelligent era, #6 Digitalization, #7 Ideological and political courses, #8 Ideological and political courses in universities, #9 New engineering education, #10 Ideological and political elements, #11 Teaching models, #12 Paths.



Note: #0 人工智能 (AI). #1 课程思政 (Ideological and political education in courses). #2 大数据 (Big data). #3 思政教育 (Ideological and political education). #4 高校 (Universities). #5 智能时代 (Intelligent era). #6 数字化 (Digitalisation). #7 思政课 (Ideological and political courses). #8 高校思政课 (Ideological and political courses in universities). #9 新工科 (New engineering education). #10 思政元素 (Ideological and political elements). #11 教学模式 (Teaching models). #12 路径 (Paths).

Figure 4. Cluster Keywords Extraction Results

According to the findings of cluster keywords extraction analysis, the published articles can be divided into three sections: first section – technology improvement section (#0 AI, #2 Big data, #5 Intelligent era, and #6 Digitalisation). These studies focused on the theoretical and empirical development of the innovation of ideological and political education driven by digital technologies.

The second section is the teaching innovation section (#4 Universities, #7 Ideological and political courses, #8 Ideological and political courses in universities, #9 New engineering education, #11 teaching models, and #12 Paths). These published papers focused on how to explore the paths and methods of ideological and political course reform in colleges and universities, such as blended teaching models and methods, and the design of new engineering integration courses.

The last section is the value integration section (#1 Ideological and political education in courses, #3 Ideological and political education, and #10 Ideological and political elements) which focuses on the deep integration of professional teaching modules and ideological and political elements.

4.1.6. Keywords Emergence Analysis

Last, this study performed emergency analysis of keywords to obtain the emergence map of keywords which can reveal the certain academic keywords that suddenly or frequently appear and are concentrated in a short period within a specific time range, thus identifying and grasping the cutting-edge trend of related research in this field.

International Journal of Humanities, Management and Social Sciences, vol. 8, no. 1, pp. 37-48, June 2025. **DOI: 10.36079/lamintang.ij-humass-0801.856**

Table 3 shows that the emergence of keywords can be divided into three evolution stages based on the characteristics ranging from 2018 to 2024. First stage – the technical period (2018 – 2020), the concept and definition of big data were first introduced in this research area and those studies provided a basic theoretical background and understanding of applying AI in ideological and political education.

The second stage – the education period (2020 – 2022), the concept and definition of ideological and political became the most prominent node in terms of intensity, indicating that the research has shifted to ideological and political teaching.

The third stage – the deep learning and algorithm stage (2022 – 2024). In this stage, the migration of the application of AI in ideological and political education to certain cutting-edge research areas such as cognitive computing, which is different from the earlier technological applications.

Table 3. Emergence of Keywords (2018-2024)

No	Keywords	Year	Strength	Begin	End	2018 – 2024
1	Big Data	2018	1.55	2018	2019	
2	Craftsmanship Spirit	2019	1.26	2019	2020	
3	New Era	2019	1.10	2019	2022	
4	Big Data Era	2019	1.08	2019	2021	
5	Ideological and Political Educational Lecturers	2020	2.25	2020	2021	
6	Teaching Methods	2020	1.16	2020	2022	
7	Teaching Materials	2020	1.16	2020	2022	
8	Ideological And Political Courses	2020	1.12	2020	2021	
9	Network Ideological and Political Education	2021	1.11	2021	2022	
10	Deep Learning	2022	1.61	2022	2024	
11	Algorithm	2022	1.34	2022	2024	

4.2. Discussion

The current study utilizes the CiteSpace software to perform a visualization analysis of AI-enabled ideological and political education obtained from the China National Knowledge Infrastructure (CNKI) database from 2018 to 2024. First, there was a remarkable rise in the publication rate in 2020 within the realm of AI-enabled ideological and political education research, with an average annual growth rate of 64.9%.

Second, although 42 of the top authors published 92 articles between 2018 and 2024, the "lead authors contribute rate ≥ 50%" requirement set by Price's Law was not met. This means that the high-productivity scholar group has not established a scale effect in the field of AI-enabled ideological and political education.

Third, the density of the author's cooperation network was only 0.0027. This indicates that the authors had a comparatively small network of collaborators and connections. The dispersion of research forces was a major issue, and the academic community has not been established.

Fourth, the results of this study showed an asymmetric correlation between technological improvement and educational courses. For example, the results showed that the AI node appeared at a high frequency of 403 times, but the interaction intensity of AI with ideological and political education in courses was relatively weak. This means that research on AI improving ideological and political education is still staying at the theoretical level and has not reached a high degree of integration with curriculum-based ideological and political education.

Furthermore, the results of this study showed an initial research system has been established. For example, there was a strong correlation between AI and ideological and political education in courses and universities. In particular, AI or big data played the most important role in determining each aspect of ideological and political education. Some practical issues such as technological ethical risks and the effectiveness of teaching modules have not been discovered. This means that the development of AI-enabled ideological and political education is still in its preliminary stage.

Therefore, it is necessary to integrate teaching resources from multiple disciplines, such as education and information science to build a deep collaborative platform like AI+ideological and political education [31]. Meanwhile, a dynamic assessment mechanism should be established to encourage teachers to integrate intelligent technologies into the process of ideological and political education, including curriculum design, teaching implementation, teaching evaluation [32], algorithmic ethical review, thus building a new ecosystem of collaborative innovation in ideological and political education.

In addition, ideological and political education is playing an important role in the higher education system, and AI-enabled ideological and political education is showing a promising role in improving ideological and political education performance. Universities should exchange their positive teaching experiences and practices with other higher educational institutions. For example, some universities may conduct AI-enabled ideological and political education symposiums to provide a place for teachers to exchange their teaching experiences and feedback.

Certain limitations can be concluded. The current study only recruited data from the CNKI database. Future research may consider recruiting more databases to understand AI-enabled ideological and political education because some Chinese journals were also indexed in other journal rank lists such as Scopus and Web of Science. Second, this study only adopted Chinese-language articles, ignoring other language articles. Future studies should consider recruiting other language articles that are published in another language such as English written journals.

5. Conclusion

This study systematically analyzed the structural characteristics of AI in improving ideological and political education in colleges and universities. The results of this study showed that the scale of research in this field has shown significant growth with an average annual growth rate of 64.9% since 2020. The results also showed rapid penetration of AI technology from theoretical development to educational practice in this research field. The results suggest that systematic training and workshops will benefit teachers' application ability of AI technology, and enable them to proficiently use AI-related tools to undertake teaching design, classroom interaction, as well as teaching-feedback analysis.

Acknowledgement

This work was supported by 2024 Xuzhou University of Technology's educational science research project (No. YGJ2464).

References

[1] S. Ouyang, W. Zhang, J. Xu, A. M. Rashid, S. P. How, and A. B. Hassan, "Unmasking the challenges in ideological and political education in China: A thematic review," *Heliyon,* vol. 10, no. 8, p. e29176, 2024/04/30/ 2024.

[2] M. Svensson, "Chinese youth and the communist party of China: Cultivating a loyal generation through ideological and political education," *China: An International Journal,* vol. 21, no. 2, pp. 72-91, 2023.

[3] G. Liu, "The ways and methods of ideological and political education for postgraduates," *Advances in Educational Technology and Psychology,* vol. 5, pp. 80-87, 2021.

[4] Z. Hu and J. Li, "Innovative methods for ideological and political education of college students," *Educational Sciences: Theory & Practice,* vol. 18, no. 5, pp. 2069-2078, 2018.

[5] Ministry of Education of the People's Republic of China. In the past ten years, MOOCs have achieved the world's leading position in terms of both the number of courses built and the scale of application [Online] Available: http://www.moe.gov.cn/jyb_xwfb/xw_zt/moe_357/2023/2023_zt01/mtbd/202302/t20230212_1043924.html. [Accessed: April 2025].

[6] L. Wang, Q. Zhang, and Y. Gong, "Determinants of university students' attitudes and intentions toward artificial intelligence education," *International Journal of Education, Science, Technology, and Engineering,* vol. 7, no. 2, pp. 87-97, 2024.

[7] T. Zhang, X. Lu, X. Zhu, and J. Zhang, "The contributions of AI in the development of ideological and political perspectives in education," *Heliyon,* vol. 9, no. 3, p. e13403, 2023/03/01/ 2023.

[8] N. Wang, "Ideological and political education recommendation system based on AHP and improved collaborative filtering algorithm," *Scientific Programming,* vol. 2021, no. 1, p. 2648352, 2021/01/01 2021.

[9] Y. Li and W. Dan, "The realization of ideological and political education in college English based on cultural confidence," *Creative Education,* vol. 11, no. 11, pp. 2193-2198, 2020.

[10] F. Chen, "Study on ideological and political education," in *The 2nd International Conference on Education, Management and Information Technology*, Jinan, China, 2015, vol. 35: Atlantis Press, pp. 243-247, 2015.

[11] Z. Lv, C. Zhou, and C. Zhou, "Design and implementation of ideological and political education evaluation system," *Journal of Physics: Conference Series,* vol. 1176, p. 042067, 2019.

[12] L. Li, "Teaching of ideological and political education for college students from the perspective of culture," in *The 3rd International Conference on Social Science, Management and Economics*, Guangzhou, China, 2017, pp. 656-661.

[13] J. Wang, "Analysis of challenges and countermeasures of ideological and political education in colleges and universities in the new era," *Journal of Higher Education Research,* vol. 2, no. 6, pp. 371-374, 2021.

[14] X. Ruan and X. Yang, "Integrating ideological and political education into curriculum development in the new era: Perspectives from English as a foreign language teaching in universities of China," *Open Journal of Modern Linguistics,* vol. 14, no. 3, pp. 344-352, 2024.

[15] G. Zheng, "Construction of ideological and political education in universities based on intelligent digital education," *Advances in Educational Technology and Psychology,* vol. 8, no. 1, pp. 45-54, 2024.

[16] L. Wang, Q. Zhang, M.-J. Ye, P. P. W. Wong, and Y. Gong, "Green hotels visit intention among young adults: Integrating the familiarity, novelty, trust, perceived risk, and theory of planned behaviour," *Humanities and Social Sciences Communications,* vol. 11, no. 1, p. 1390, 2024/10/19 2024.

[17] L. Wang, X.-F. Tan, Z.-X. Wang, and P. P. W. Wong, "Factors influencing students' cheating behaviours: An empirical evidence from China," *International Journal of Education, Science, Technology, and Engineering,* vol. 6, no. 1, pp. 10-20, 2023.

[18] Z. Rui, "Research on evaluation system of ideological and political education of college students based on decision system," *Soft Computing,* vol. 26, no. 20, pp. 10805-10812, 2022/10/01 2022.

[19] Y. Yu, "On the ideological and political education of college students in the new media era," *Open Journal of Social Sciences,* vol. 10, pp. 1-14, 2022.

[20] M. Gong and L. Zuo, "Research on college students' ideological and political education in the new media era," *Creative Education,* vol. 11, pp. 881-884, 2020.

[21] H. Zhang and C. Yuan, "Research on university students' ideological and political education in the new era," *Open Journal of Social Sciences,* vol. 8, pp. 217-221, 2020.

[22] T. Chen, "Research on the dilemma and breakthrough path of ideological and political education in colleges and universities in the era of big data," *Journal of Higher Education Research,* vol. 3, no. 2, pp. 203-206, 2022.

[23] Y. K. Dwivedi *et al.*, "Artificial intelligence (AI): Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy," *International Journal of Information Management,* vol. 57, p. 101994, 2021/04/01/ 2021.

[24] Z. Chen and X. Xia, "The top-level design strategy of “curriculum civics” in the new era of universities based on machine learning under the perspective of communication science," *Security and Communication Networks,* vol. 2022, no. 1, p. 4879361, 2022/01/01 2022.

[25] H. Ye, "A review on the application of virtual reality technology in ideological and political teaching," in *The 2nd International Conference on Artificial Intelligence and Education*, Dali, China, 2021, pp. 712-715.

[26] C. Chen, "Searching for intellectual turning points: Progressive knowledge domain visualization," *Proceedings of the National Academy of Sciences,* vol. 101, no. suppl_1, pp. 5303-5310, 2004.

[27] C. Chen, "CiteSpace II: Detecting and visualizing emerging trends and transient patterns in scientific literature," *Journal of the American Society for Information Science and Technology,* vol. 57, no. 3, pp. 359-377, 2006.

[28] Y. Gao, Y. Xu, Y. Zhu, and J. Zhang, "An analysis of the hotspot and frontier of mine eco-environment restoration based on big data visualization of VOSviewer and CiteSpace," *Geological Bulletin of China,* vol. 37, no. 12, pp. 2144-2153, 2018.

[29] S. McKay, "Social policy excellence – Peer review or metrics? Analyzing the 2008 research assessment exercise in social work and social policy and administration," *Social Policy & Administration,* vol. 46, no. 5, pp. 526-543, 2012.

[30] P. T. Nicholls, "Price's square root law: Empirical validity and relation to Lotka's law," *Information Processing & Management,* vol. 24, no. 4, pp. 469-477, 1988/01/01/ 1988.

[31] A. G. Özkil, L. S. Jensen, and C. A. Hansen, "What difference does an academic makerspace make? A case study on the effect and outreach of DTU Skylab," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing,* vol. 34, no. 3, pp. 327-340, 2020.

[32] W. Liu and C. He, "Curriculum-based ideological and political education: Research focuses and evolution," *International Education Studies,* vol. 15, no. 5, pp. 28-35, 2022, doi: 10.5539/ies.v15n5p28.