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Network Ideological and Political Education System for College Students Based on Multimedia Service Architecture

Liangzhou Wu, Chongqing College of Electronic Engineering, China*
Haley Tancredi, Queensland University of Technology, Australia

ABSTRACT

Today, the network society has become an integral part of human society, and the network life marked by digitization, informatization and networking has become a new state of existence; a new society marked by interactivity, virtuality and innovation A mode of operation has been created. A network, in simple terms, is to connect, and can be called a computer network. Such highest degree of social informatization in my country. It is a new idea designed by making full use of computer networks, multimedia technology and modern communication technology and closely combining the cognitive hotspots of contemporary college students. way of political education. In response to the above problems, this article uses deep learning technology to develop an intelligent education system based on detection technology. The system takes identifying whether the standard is met as the main goal, and gives comprehensive evaluation and improvement suggestions for the quality of action completion. It gets rid of the constraints of the venue.

KEYWORDS

Colleges and Universities, Network Ideological and Political Education, System

INTRODUCTION

Digital technology has become the driving force behind the industrial revolution, scientific and technological advancements, and profound changes in social governance, lifestyle, and production. It is integrated into all spheres of human social development, introducing new ideas, formats, and models (Ma, 2020). To develop a strong nation in education, accelerate the modernization of education systems, and ensure high-quality education for all, it is imperative to aggressively promote the digitization of education (Hao, 2020). The frontier for contemporary wide-area information resources, empowered by big data, is driving innovation and development in various areas of daily life (Ding, 2020).

Educational big data is a pivotal field within the realm of big data research and application (Yanhong, 2021). Since August 2015, when big data in education was listed as a key focus area, initiatives have been proposed to use big data for transforming educational methods, promoting fairness in education, and improving educational quality (Ma, 2020). In recent years, the Chinese

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government has introduced various policy documents, including the 13th Five-Year Plan for National Education Development, the Education Informatization 2.0 Action Plan, and the China Education Modernization 2035, among others. These initiatives aim to construct educational big data systems and guide their application, positioning educational big data as a powerful tool to drive educational reforms, improve educational quality, and achieve educational equity (Ding et al., 2019).

With the rapid development of Internet technology and the rapid advancement of terminal equipment, there has been a significant expansion in the scope of carriers for ideological and political education among college students (Yang et al., 2022). Ideological and political education on the Internet is of great significance in today's information-exploding network era. It plays a significant role in enhancing students' information literacy and media literacy, enabling them to effectively discern the authenticity of information and understand the positions and purposes behind it, thereby facilitating informed decision-making and judgment. Moreover, this education can also cultivate students' innovative spirit and proficiency in information technology, including skills in information searching, organizing, creation, and dissemination, setting a solid foundation for their future use in academic and professional domains (Hu & Li, 2018).

Based on the new era context, daily ideological and political education for college students should focus on new goals, grasp emerging requirements, and constantly explore innovative ideas, paths, and methods. This proactive approach is essential to enhance the pertinence and effectiveness of ideological and political education and effectively address the challenges prevalent in contemporary society (Li, 2021). Using new media and technology to strengthen ideological and political education in colleges and universities is paramount. By doing so, educational institutions can ensure their efforts are contemporary, targeted, and effective, thereby meeting the evolving needs of students and society at large (Si, 2022).

As the main front for cultivating innovative talent, colleges and universities will play crucial roles as key participants, facilitators, and promoters in the wave of big data (Wang, 2020). Big data, with its wealth of information technology, range of information resources, advanced information processing technologies, and new ways of thinking, injects immediacy, precision, forward-looking, and individuality into the daily ideological and political education of college students (Yu, 2022).

Deep learning, characterized by its advanced pattern recognition algorithms, can mine valuable knowledge from massive datasets, providing support for decision-making (Zhong, 2021). In the context of colleges and universities, the intelligent education systems for ideological and political education have stored massive data resources through years of operation as an online learning platform (Wang, 2022). Therefore, the integration of deep learning technology holds significance, as it makes full use of these operating resources, improving the intelligence and automation of Internet+ education. Moreover, it facilitates the realization of the differentiation and personalization of education (Yu, 2021).

To address the multiple problems related to traditional online education, such as the lack of interactivity, limited personalized learning, assessment difficulties, insufficient practical and hands-on training, and technical requirements, it is imperative to implement innovative solutions. This involves the integration of interactive online teaching platforms and personalized learning systems, along with the adoption of hands-on teaching methodologies. Additionally, there is a need to strengthen students' comprehensive literacy and skills through diversified learning opportunities and resource support.

Continuous research and practical exploration are also needed to further improve the teaching modes and educational systems of online education. This development aims to meet students' individualized learning needs, improve the quality of education, and make a positive contribution to students' comprehensive development and the evolving needs of society (Gao & Ai, 2021).

In this study, a deep learning-based political and ideological smart teaching system for colleges is developed using deep learning technology. The system's primary goal is to determine whether the standard has been reached and provide a thorough assessment and recommendations for improvement to the caliber of educational practices.

This thesis proposes a networked ideological and political education system based on multimedia service architecture. By integrating multimedia and network technologies, this system provides comprehensive and multi-level support and guidance for ideological and political education in colleges and universities. The architecture boasts rich learning resources and diverse learning modes, satisfying the students' various learning needs.

This work has developed an intelligent education system for political and ideological instruction at colleges and universities by using deep learning technology against the backdrop of the Internet+ framework. The system's primary objective is to determine whether educational standards are met and to provide a thorough assessment and recommendations for improving the quality of instructional activities. Through this approach, this study aims to achieve automation and intelligence in auxiliary teaching processes.

LITERATURE REVIEW

Studies have shown the vital role of multimedia service architecture in educational systems, enhancing learning outcomes and improving the delivery of educational content. In addition, advances in technology have facilitated the integration of various multimedia tools, such as virtual reality and big data analytics, into educational systems. This integration can personalize learning experiences, making them more engaging and interactive, ultimately improving student retention.

In recent years, there has been increased attention on using technology for ideological and political education. Gang (2013) proposed an SN network resource service model for ideological and political education based on the SOA framework, offering a useful tool to improve the efficiency and effectiveness of political education initiatives. Meanwhile, Zhige (2014) focused on the dynamic management mode of student organizations, emphasizing the role of ideological education in enhancing students' cultural development. On the other hand, social media platforms like WeChat have also been used for ideological and political education in colleges and universities. Li and Teng (2017) highlighted the platform's advantages and discussed strategies to improve its effectiveness.

The evaluation of ideological and political education in universities has been another significant topic of research. Rong et al. (2021) proposed basic principles for constructing evaluation models for university students' ideological and political education, aiming to address the shortcomings of current evaluation systems by advocating for more comprehensive evaluation objectives, diverse evaluation methods, relevant evaluation indicators, and objective evaluation standards. Additionally, multimedia teaching systems have been designed to enhance the learning experience of students. Juan et al. (2020) presented a multimedia teaching system that leverages the B/S network model and MVC design pattern for college English reading teaching. Besides, Zhang et al. (2021) designed a new network ideological and political education system in Chinese colleges and universities by integrating two architectural models within a software architecture framework.

Gang (2013) studied online resources service systems based on the SN-network service model and SOA framework, proposing an SN network resource service model of ideological and political education. With the rapid development of network technology, there is growing attention on Web-based applications, especially in higher education. Xu (2014) discussed the establishment of a university student thought political education network platform, providing a new carrier for communication and exchange between teachers and students. Ding (2016) summarized the theoretical basis of ideological and political work and analyzed the current challenges facing university students' ideological and political education. In response to this new situation, Ding proposed innovative approaches to ideological and political education in colleges and universities. These approaches include improving ideological and political education through the construction of new media platforms, refining mechanism for students' ideological and political education, and deepening education on ideal faith and civic values. Moreover, Ding emphasized the importance of integrating ideological and political education with societal and economic mobilization efforts, highlighting the need to construct a system of ideological and political education. As colleges face the challenges and opportunities presented by new technologies, ideological and political education must adapt and evolve accordingly.

These studies focus only on the use of Web-based technologies in ideological and political education, ignoring the potential value of other technologies. In addition, the literature review fails to mention how to measure the tangible effectiveness of technology in ideological and political education and how to assess the learning and developmental outcomes of students. Finally, the scope of the study is rather limited, concentrating solely on university-level ideological and political education, whereas similar issues and challenges may exist in other educational fields. Therefore, more in-depth research is needed to address these gaps, allowing for a more extensive exploration and evaluation of the effectiveness of various technologies in ideological and political education.

In summary, these studies demonstrate the importance of technology in improving the quality and effectiveness of ideological and political education within Chinese universities. Thus, the proposed system for political education of university students, based on multimedia service architecture leveraging deep learning technology, contributes to the existing knowledge by providing an innovative approach to ideological and political education. The proposed system has the potential to improve the personalized and interactive learning experience of students, making political education more effective and engaging.

Moreover, political education is an essential aspect of the educational system, aiming to help students develop critical thinking skills and civic engagement. However, traditional methods of delivering political education can be less effective, especially among today's digitally savvy students. Therefore, there is a need for innovative approaches to deliver political education that can keep pace with rapid strides in technological advancements.

In light of these trends, the proposed system for political education of university students, anchored in multimedia service architecture, holds significant potential. Through this architecture, the system can deliver students with an engaging and interactive learning experience, helping them develop critical thinking and civic engagement skills. Furthermore, the use of deep learning technology augments the system's capabilities, facilitating targeted feedback to students, thereby enhancing their learning outcomes.

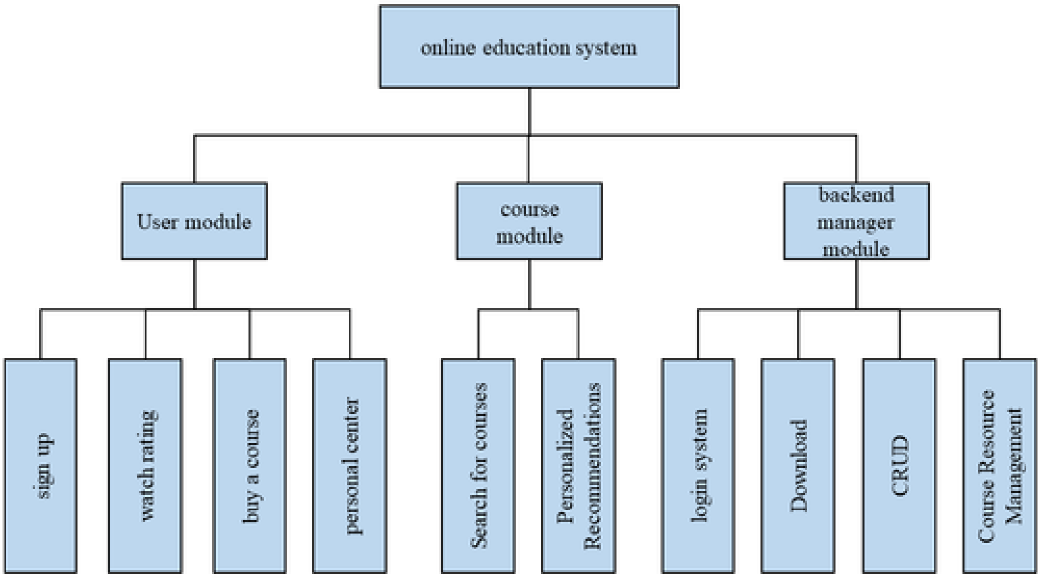
MATERIALS AND METHODS

Intelligent Ideological and Political Education Systems in Higher Education

The ideological and political education work in colleges and universities serve as the basis for establishing morality and nurturing individuals, playing a key role in unifying students' thoughts and ensuring their ideological stability. Carrying out network ideological and political education in the digital era will help to transition from traditional way of face-to-face interactions to online conversation, providing a more in-depth understanding of students' ideological trends. Enhancing the diversity of ideological and political education and innovating educational platforms in colleges and universities holds immense significance. The ideological and political smart education system in colleges and universities is shown in Figure 1.

Building on the basis of information systems like Internet+ education, the ideological and political intelligent education system in colleges and universities proposes to introduce advanced learning technology. By fully integrating the current Internet+ education application mode and leveraging technologies like cloud computing, databases, and 5G communication, an intelligent education system is constructed. This system automates the collection, storage, and dissemination of teaching resources from the network, intelligently pushing teaching resources and methodologies according to the application behavior of teachers (Jing, 2022).

Figure 1. Intelligent ideological and political education system in colleges and universities



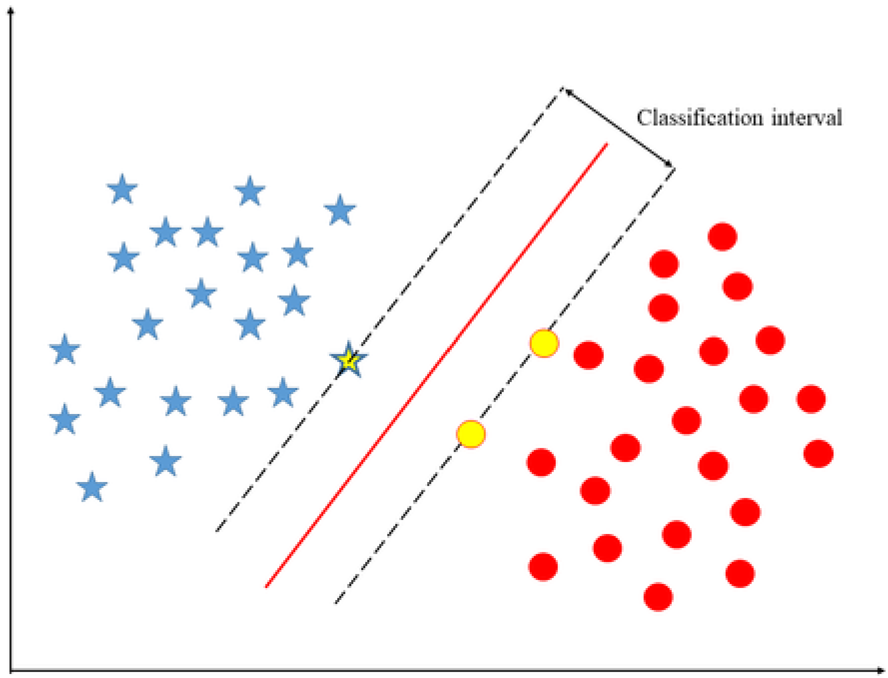
Relationship Between the Internet and Ideological and Political Education in Higher Education

The development of the Internet+ era has broadened the scope of ideological and political education, providing technical and content support for the reformation and development ideological and political education (Maloshonok, 2016). First, it creates a comprehensive teaching platform for students. Second, it creates a full-time teaching service for students. With the popularization and development of mobile Internet technology and mobile terminals, colleges and universities can use mobile Internet capabilities to achieve continuous support. Through interactive forums, chat rooms, and other means, students can seamlessly receive ideological and political guidance and edification in real-time, fostering the purpose of ideological and political education imperceptibly (Henten & Tadayoni, 2008).

The unique two-way communication mode offered by the digital network provides a unique and innovative educational mode, which allows the information receiver to have greater initiative. Communication on the network transitions people from traditional passive education to active participation in the exchange of ideas, fostering silent acceptance of guidance in the collision of ideas (Dabscheck, 2022). The virtual nature of the network allows individuals to hide their true identities, facilitating a more candid expression of their true ideas. This virtual environment enables a more accurate grasp of students' thoughts and emotional tendencies (Sudo, 2022). Information disseminated via the Internet can appear in various forms, including images, animations, sounds, and scenarios, effectively stimulating people's strong interest and enthusiasm for learning. With the help of network multimedia technology, various lively and engaging ideological and political education activities can be carried out (Hang, 2021).

At present, the Internet has become an indispensable tool for both academic study and daily life among college students. With its ability to share information resources across time and space, the Internet provides a new carrier for ideological and political education within colleges and universities. Particularly, We-Media stands out for its ability to transcend time and space constraints, presenting an avenue for ideological and political discourse. However, amidst the globalization of Internet information, the emergence of We-Media crowdsourcing, and the diverse needs of online groups, the ideological and political education in colleges and universities face multiple challenges (Khiabany,

Figure 2. Schematic diagram of SVMs



2003). It is vital for ideological and political educators in academia to analyze the new characteristics of ideological and political education in the contemporary Internet era, identify the main challenges, and actively respond to both internal and external pressures (Greenfield, 2007).

RESULTS AND DISCUSSION

Support Vector Machines

Support vector machines (SVMs) are machine learning algorithms designed to find the optimal hyperplane within a vector space model. This hyperplane maximizes the distance between the hyperplane and the nearest data points (support vectors). The goal of SVMs is to find the hyperplane that best separates different categories, enabling effective classification (see Figure 2).

When SVMs are applied to classification tasks, the training samples are marked as: (x,y}, i = 1, 2 ... l, where y € {-1,1}, and xR. A hyperplane H is defined as w x + b = 0. The hyperplane segments the existing samples, with hyperplanes H and H parallel to H: the two types of samples closest to H fall near H and H respectively, and such samples are called Support vector.

The distance between H and H is: 1 Margin = 2/w, and the final optimization function can be obtained by introducing slack variables:

$$\min \frac{1}{2} \| w \|^2 + C \sum_{i=1}^{N} \xi_i \tag{1}$$

$$\text{s.t. } y_i \left(w \cdot x_i + b \right) \geq 1 - \xi_i \tag{2}$$

where C is the penalty function, the larger the value of C, the greater the penalty for misclassified samples. With parameter C selected, solve:

$$\alpha^* = \left(\alpha_1^*, \alpha_2^*, \ldots \alpha_N^*\right)^T \tag{3}$$

Get the optimal solution:

$$w^* = \sum_{i=1}^{N} \alpha_i^* y_i \mathrm{x}_i \tag{4}$$

$$b^* = y - \sum_{i=1}^{N} \alpha_i^* y_i \left(\mathrm{x}_i \cdot \mathrm{x}_j\right) \tag{5}$$

When SVMs are used to complete regression tasks, they generally deal with nonlinear data by mapping low-dimensional samples into a higher-dimensional space. The corresponding function model is: f(x,w) = w.Ø(x) + b. Here, f(x,w) is the prediction function, w is the weight vector, Ø(x) is the feature space transformation function, and b is the threshold.

Regression prediction is facilitated through ε, and the function is optimized based on structural risk minimization:

$$\min \varphi(\omega, \xi) = \frac{1}{2} \parallel \omega \parallel^2 + C \sum_{i=1}^{l} \left(\xi_i^- + \xi_i^+\right) \tag{6}$$

The constraint equation is:

$$\begin{cases} y_i - f(x, \omega) \le \varepsilon + \xi \\ f\left((x, \omega) - y_i\right) \le \varepsilon + \xi^+ \\ \xi_i, \xi_i^+ \ge 0, i = 1, \cdots, l \end{cases} \tag{7}$$

In general, the SVM algorithm is suitable for small sample problems and strong generalization ability.

Long- and Short-Term Memory Neural Network

The long- and short-term memory (LSTM) algorithm is a deep learning technique primarily used in college ideological and political intelligent teaching systems. This algorithm enables the modeling and classification of various instructional data, while collaborative learning among models is realized through the application of model fusion technology.

Originally proposed by Sepp Hochreiter and Jurgen Schmidhuber, the LSTM network model revolutionized the ordinary recurrent neural network (RNN) structure by including hidden nodes in the form of self-loops. This change facilitates the maintenance of long-term effective memory within the memory unit, thus realizing long-term storage of information. Thus, it is like gradient explosion and gradient dispersion are avoided, ensuring stability and effective learning processes.

They are as follows:

Input gate:

$$i_t = \sigma\left(W_{xi}x_t + W_{hi}h_{t-1} + b_i\right) \tag{8}$$

Output gate:

$$o_t = \sigma\left(W_{xo}x_t + W_{ho}h_{t-1} + b_o\right) \tag{9}$$

Forgotten gate:

$$f_t = \sigma\left(W_{xf}x_t + W_{hf}h_{t-1} + b_f\right) \tag{10}$$

The LSTM network model solves the issue of gradient dispersion and demonstrates good convergence, making it advantageous when applied to time-related problems. In the classroom, students' attention levels exhibit dynamic fluctuations over time, often following certain patterns, thus making it suitable for using LSTM modeling in deep learning techniques. As a special technique, LSTM algorithms excel in mitigating long-term dependence issues.

Based on the characteristics of students' attention spans over time in the classroom, using LSTM allows for the development of an early warning model. This model can accurately evaluate changes in students' attention levels over 10-minute intervals.

Similarity Calculation

After collecting user preferences within the Mahout framework, the similarity calculation and nearest neighbor calculation are required. The recommendation results vary based on the combination of similarity and neighbor calculation methods used. Thus, the selection of similarity calculation method has a great influence on the reliability of the recommendation results. The following will introduce commonly used distance calculation methods and their implementation within Mahout.

(1) Euclidean distance

As shown in equation (11):

$$d(x,y) = \sqrt{\left(\sum\left(x_i - y_i\right)^2\right)} \tag{11}$$

When using the equation to represent similarity, the following formula (12) is generally used for conversion:

$$sim(x,y) = \frac{1}{1 + d(x,y)} \tag{12}$$

The class name for calculating Euclidean similarity in Mahout is Euclidean distance similarity. The larger the value, the smaller the distance (the closer the distance, the greater the similarity).

(2) Pearson correlation coefficient

The closeness of the relationship between two quantifications can be assessed using the Pearson correlation coefficient. In Mahout, the class used to calculate the Pearson correlation is called Pearson correlation similarity, and its value is between [-1,+1]. A value closer to +1 is a relatively strong correlation, while a value closer to 0 is very weak. Negative correlation values have little meaning for recommendation scenarios. Its calculation formula is shown in the following:

$$p(x,y) = \frac{\sum x_i y_i - n\overline{xy}}{(n-1)s_x s_y} \tag{13}$$

(3) Cosine distance of included angle

The angular cosine distance is used to measure the difference between individuals. There are two class names for calculating cosine similarity within the Mahout framework, namely: UncenteredCosineSimilarity and PearsonCorrelationSimilarity. A larger calculated value indicates a larger cosine angle, resulting in a greater distance between two points and, thus, lower similarity. The cosine similarity calculation formula is shown in the following equation:

$$T(x,y) = \frac{x \cdot y}{\| x \|^2 \times \| y \|^2} \tag{14}$$

Finally, according to the output of LSTM, this article proposes a new scoring metric. The last layer of the LSTM network is a fully connected layer using Softmax as the activation function. This activation function is often employed in multi-classification tasks, facilitating the mapping of its outputs.

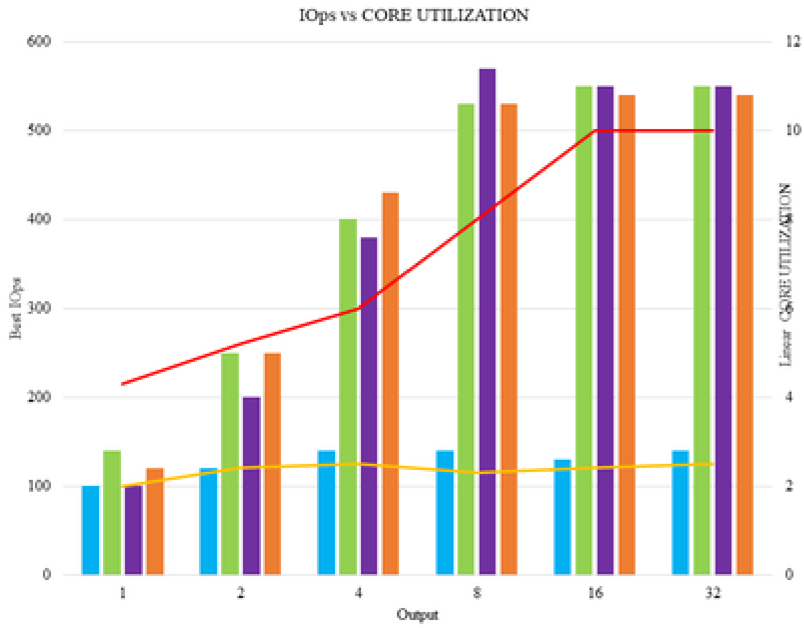
$$S_i = \frac{e^i}{\sum_{j=1}^{C} e^j} \tag{15}$$

EXPERIMENTAL RESULTS AND ANALYSIS

RDMA and SPDK Technology Implementation

The intellectual education storage system for ideological and political education in colleges and universities needs to optimize its software stack to harness the high performance brought by new equipment. Remote direct memory access (RDMA) has a distinct calling interface from TCP, offering a more efficient method of utilization, albeit with special limitations. The software stack of a high-performance storage system needs to be optimized according to the particularity of RDMA to achieve ideal I/O latency. Leveraging RDMA and storage performance development kit (SPDK) technology aims to reduce the latency of requests. Generally, RDMA and SPDK can improve the queries per second (QPS) of a single connection, helping to maximize the performance of high-performance disks by reducing latency. When existing data transmission latency cannot meet the business requirements, this type of technology can be employed to improve network and disk access speed, albeit with cost considerations in mind.

Figure 3. Comparative analysis of the instruction mode of SPDK and Linux Kernel



The remote storage engine system needs to use RDMA and SPDK technology to accelerate and reduce network latency. As shown in Figure 3, the performance of the I/O mode utilizing SPDK is compared and analyzed against the normal Linux kernel on the Optane SSD DC P4800X disk. It is evident that as the queue depth (qp) increases, SPDK has an obvious acceleration effect on high-performance disk devices, reaching 500k IOPS.

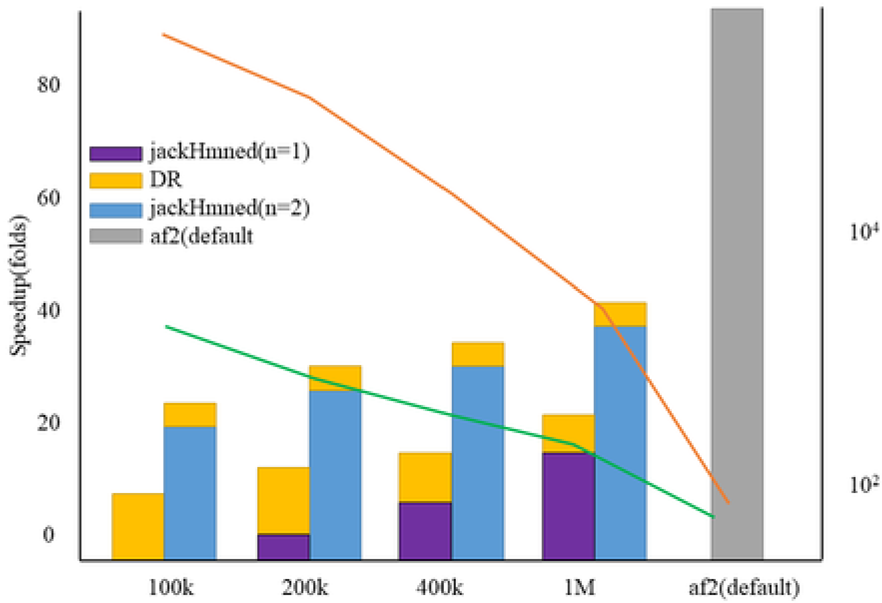
This article tests the coding performance of the Reed-Solomon Code (RSC) engine for different instruction sets. The testing method involves using the Benchmark tool in a specific system environment with an Intel(R) Xeon(R) Gold 5118 CPU @ 2.30GHz and 16MB of L3 Cache memory. Among them, the RSC engine is configured in an 8 + 3 mode. Two modes were primarily tested: one with cache (With Cache), where all data is stored in L3 Cache, and the other without cache (WithOut cache). The goal of the test is to decouple computation and memory access, while evaluating the CPU's IOPS limit for the RSC algorithm without caching in the actual application process.

As shown in Figure 4, the ordinate shows IOPS (number of disk assessments per second), while the abscissa is the instruction sets. In extreme cases, the CPU has the best computing performance when using the AVX512 instruction set.

This subject developed two versions of RaidECFile and ISALECFile to compare the RSC implementation. The standard RaidECFile uses the 2008 version of the open-source encoding library Jerasure for encoding and decoding calculations. Compared with Jerasure, ISAL is lower-level library adopted by Intel, optimized in assembler mode to exploit processor capabilities. It selects the most suitable execution method to maximize the computing power of the processor.

ECFile aims to replace the original Jerasure database with the ISAL encoding library to better utilize the processor's performance and improve the experience of upper-level users. In the distributed file system, as shown in the test data in Figure 5, ISAL is 10 times faster than Jerasure.

Figure 4. Test results of each instruction set



Database Comparison Test

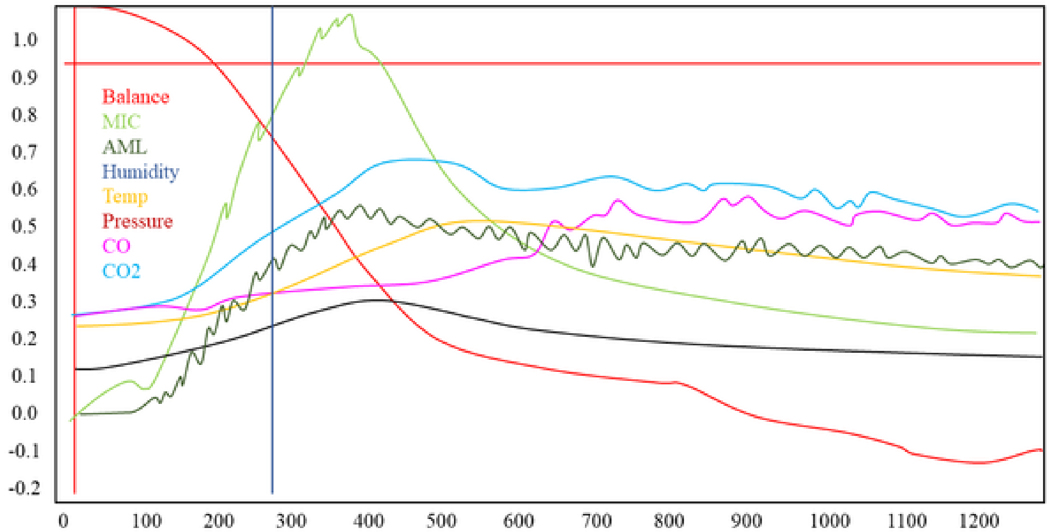
Considering the cost and performance of structured data storage, the ideological and political education system chose the RocksDB-based storage engine MySQL database (MyRocks) for data storage, to verify the MyRocks data compression rate. This section will compare and test the MySQL database and MyRocks based on the InnoDB storage engine. At the same time, the data impact brought by the acceleration of RDMA technology is compared and analyzed.

Under the condition that the content of the pressed data records is repeated, but the data IDs are different, the MySQL database based on the InnoDB storage engine and the MySQL database based on the RocksDB storage engine are compared and analyzed. Under the same pressure, after 24 hours of testing, there is no The compressed MySQL database occupies 1500GB, the InnoDB storage engine based on the zlib compression algorithm occupies more than 900GB, and the database based on the RocksDB engine occupies about 400GB of data, which saves more than 70% of the storage space compared to the original data, as shown in Figure 6 Compression capacity usage trend graph.

The comparison of QPS for a query based on SSD (solid-state drive) disks is displayed in Figure 7. This article compares MySQL native versions 5.7.10, 5.6.26, and Zlib compression algorithm-based versions 5.7 and 10, Zlib-based versions 5.6.26, and Zlib-based data storage engines using 20 clients to test continuously for a whole day. Databases built on RocksDB zlib are superior to native database engines from QPS's point of view. Accordingly, more query requests can be handled by RocksDB zlib-based databases under the same testing circumstances, leading to an improvement in system performance.

Write amplification means that the amount of data written to the disk is greater than the logical amount of data written. As shown in Figure 8, the blue color is the actual amount of IO data written, and the red color is the amount of IO data written by the disk device. Compared with the MyRocks data based on the zilib compression algorithm, the write amplification is not obvious. The compression algorithm of the MySQL database based on the InnoDB storage engine is relatively large.

Figure 5. Comparison of RaidECFile and ISALECFile experimental versions



Through the comparison and analysis of the experimental performance of MySQL database using InnoDB and RocksDB storage engines, RocksDB has greater storage advantages. The main reasons are as follows:

(1) The InnoDB storage engine suffers from waste of space due to several reasons. First, InnoDB adopts the B-tree data structure at the underlying level, and the division of the B-tree leads to

Figure 6. Compression capacity usage trends

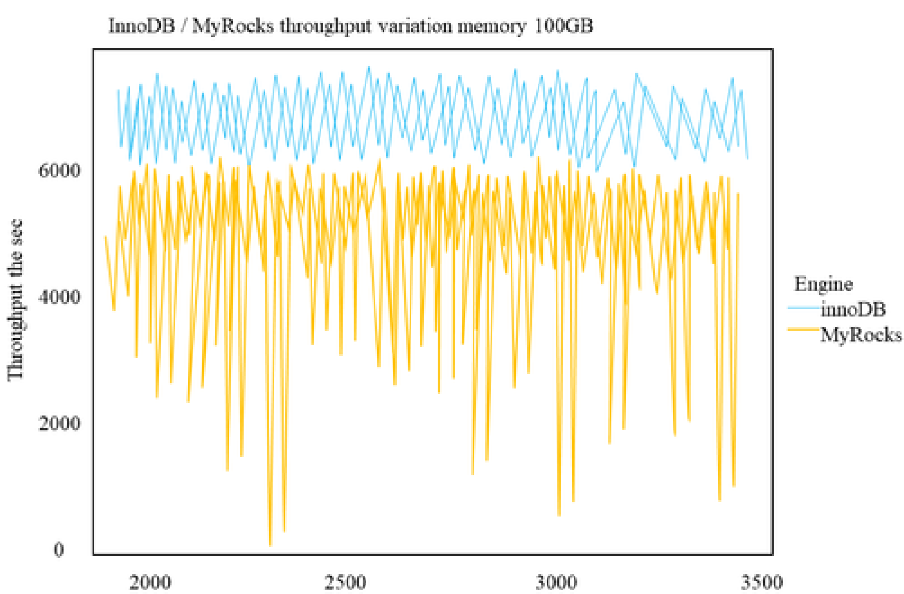
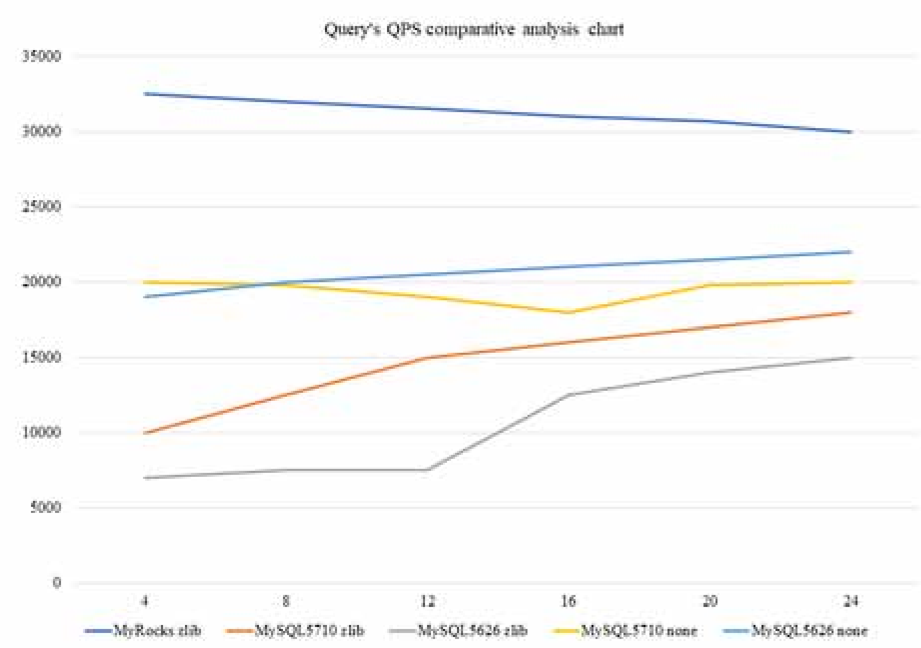


Figure 7. QPS comparative analysis chart of query



blank spaces within stored pages, which reduces page utilization. In addition, the compression efficiency of InnoDB is not high, and the block-level compression will also exacerbate waste.

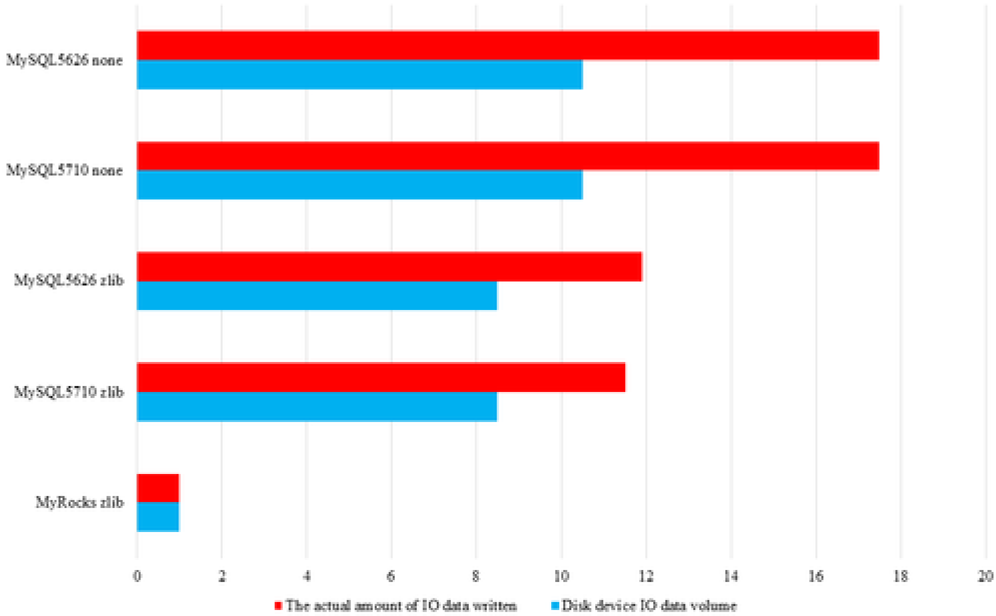
(2) InnoDB updates are in page units, meaning that in worst-case scenarios, updating N rows will necessitate updating N pages. In contrast, RocksDB uses an append-write approach. In addition, InnoDB's double write mode will further increase the cost of writing operations.
(3) SST files require alignment for storage, typically exceeding 2M in size, which is much larger than the disk size of 4k. Alignment is not required; therefore, alignment minimizes wasted space.
(4) RocksDB compresses and stores the same value within the prefix in the index.
(5) RocksDB accounts for 90% of the bottom-level data in the total data volume and does not require storage of system column Seqid in the row, unlike the InnoDB clustered index column which contains Trxid, Roll_ptr, and other information.

In addition, RocksDB's data storage adopts sequential writing of write-ahead logging (WAL) logs for appending logs. This approach realizes the separation of computing and storage, and provides the env interface for the transformation of the underlying storage. This simplifies the implementation of remote storage transformation for RocksDB.

CONCLUSION

To better achieve the goals of ideological and political education, a suitable educational platform is needed. Based on the background of the Internet+ era, this article uses a smart education system for ideological and political smart education in colleges and universities, using deep learning technology. The main goal of the system is to identify whether the standards have been met, giving comprehensive evaluations and suggestions for enhancing the quality of educational activities, thus enabling automatic and intelligent auxiliary teaching. In addition, to optimize the storage performance of the college's networked ideological and political education system, MyRocks database technology is used to

Figure 8. Write zoom comparison analysis diagram



compress and store structured data. Furthermore, the acceleration technologies of RDMA and SPDK are used to reduce network latency between computing nodes and storage nodes.

DATA AVAILABILITY

The figures and tables used to support the findings of this study are included in the article.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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REFERENCES

Dabscheck, B. (2022). Undoing the liberal world order: Progressive ideals and political realities since World War II by Leon Fink. *Labour History: A Journal of Labour and Social History, 123*(1), 208–210.

Ding, J. (2016, August). Innovative ways on ideological and political education work of college students under the new situation. In *2016 International Conference on Economics, Social Science, Arts, Education and Management Engineering* (pp. 728–733). Atlantis Press. doi:10.2991/essaeme-16.2016.147

Ding, Y. (2020). Strategies of combination of ideological and political education and psychological health education for university students. *Journal of Contemporary Educational Research*, *12*, 85–89.

Ding, Z., Huang, Y., & Li, H. (2019, September). A probe into the path of ideological and political education and practice of minority college students in the new era. In *2019 3rd International Conference on Education, Management Science and Economics (ICEMSE 2019)* (pp. 64–67). Atlantis Press. doi:10.2991/icemse-19.2019.14

Gang, S. (2014). On internet resources service system based on SN-network service model and SOA framework. *Advanced Materials Research*, *846*, 1868–1872.

Gao, Q., & Ai, L. (2021, April). Problems of ideological and political education of college students in the era of big data. *Journal of Physics: Conference Series*, *1852*(3), 032037. doi:10.1088/1742-6596/1852/3/032037

Greenfield, D. (2007). The addictive properties of Internet usage. In Internet addiction: A handbook and guide to evaluation and treatment (pp. 133–153). Springer. doi:10.1002/9781118013991.ch8

Hang, X. (2021). Reform and challenges of ideological and political education for college students based on wireless communication and virtual reality technology. *Wireless Communications and Mobile Computing*, *2021*, 1–7. doi:10.1155/2021/6151249

Hao, Y. (2020, February). How to use computer network technology to strengthen the management of ideological and political work. *IOP Conference Series. Materials Science and Engineering*, *750*(1), 012022. doi:10.1088/1757-899X/750/1/012022

Henten, A., & Tadayoni, R. (2008). The impact of the Internet on media technology, platforms and innovation. *The Internet and the Mass Media*, 45–64.

Hu, Z., & Li, J. (2018). Innovative methods for ideological and political education of college students. *Educational Sciences: Theory & Practice*, *18*(5).

Jing, Q. (2022). A deep neural network-based method for building a professional farmer training model. *Journal of Circuits, Systems, and Computers*, *31*(14), 2250255. doi:10.1142/S0218126622502553

Juan (2020).

Khiabany, G. (2003). Globalization and the internet: Myths and realities. *TIC. Trends in Communication*, *11*(2), 137–153. doi:10.1207/S15427439TC1102_05

Li, S. (2021). The theory and practice of ideological and political education for college students from the perspective of psychology. *Psychiatria Danubina*, *33*(suppl 6), 282–284.

Li, Y., & Teng, Y. (2017). *On strengthening ideological and political education of college students with WeChat.*

Ma, R. (2020). Research on the cultivation of college students' ideology based on the practice of education. *International Journal of Social Science and Education Research*, *3*(2), 186–191.

Ma, X. (2020, October). RETRACTED: Application research of ideological and political education platform based on computer network. *Journal of Physics: Conference Series*, *1648*(3), 032113. doi:10.1088/1742-6596/1648/3/032113

Maloshonok, N. (2016). How the use of Internet and multimedia technology in education correlates with student engagement. *Вопросы образования, 4*(eng), 59–83.

Shapira, P., & Youtie, J. (2001). Teaching with Internet and multimedia technologies: Insights from an online seminar on industrial modernization. *Journal of Planning Education and Research*, *21*(1), 71–83. doi:10.1177/0739456X0102100107

Shuai, G. (2013). On Internet resources service system based on SN-network service model and SOA framework. *Advanced Materials Research*. doi:10.4028/b-7b2tVy

Si, Y. (2022). On the influence of party history education on ideological and political education for medical students. *Journal of Higher Education Research*, *3*(2), 141–145. doi:10.32629/jher.v3i2.741

Sudo, N. (2022). Effects of regional inequality on political attitudes: Social capital and support for redistribution and free competition. In *Social stratification in an aging society with low fertility: The case of Japan* (pp. 143–171). Springer Nature Singapore. doi:10.1007/978-981-19-3647-0_8

Wang, P. (2020). Research on ideological and political education of college students based on red resources. *International Journal of Social Science and Education Research*, *3*(3), 74–78.

Wang, Y. (2022). *Retraction Note: Analysis on the construction of ideological and political education system for college students based on mobile artificial intelligence terminal.* Research Gate.

Wu, J., & Wang, L. (2021). *Research on the key technologies of mobile platform development of network ideological and political education innovation based on e-class.* Research Gate.

Wu, Z. (2014). *Study on three-level dynamic management mode of student organizations in Hefei University of Technology Xuancheng Campus.*

Xu, J. M. (2014). The research of ideological and political work management system for college students based on J2EE. *Applied Mechanics and Materials*, *687*, 2533–2536. doi:10.4028/www.scientific.net/AMM.687-691.2533

Xue, J. (2014). *Thoughts on moral education of college students in network era*. Research Gate.

Yang, H., Chen, J., & Zhan, X. (2022). "Integrated" ideological and political education system for TCSOL major. In Advances in artificial systems for logistics engineering (pp. 336–345). Springer International Publishing. doi:10.1007/978-3-031-04809-8_30

Yanhong, D. (2021). Study On the ideological and political construction of college courses from the content of tobacco control education. *Tobacco Regulatory Science*, *7*(4), 364–372. doi:10.18001/TRS.7.4.13

Yu, H. (2021). Application analysis of new internet multimedia technology in optimizing the ideological and political education system of college students. *Wireless Communications and Mobile Computing*, *2021*, 1–12. doi:10.1155/2021/5557343

Yu, Y. (2022). On the ideological and political education of college students in the new media era. *Open Journal of Social Sciences*, *10*(1), 1–14. doi:10.4236/jss.2022.101001

Zhang, X., Gao, X., Yi, H., & Li, Z. (2021). Design of an intelligent virtual classroom platform for ideological and political education based on the mobile terminal APP model of the Internet of things. *Mathematical Problems in Engineering*.

Zhao, Y. (2021). *Innovation of college network ideological and political education facing the new era of Internet 5G.*

Zheng, R., & Zheng, G. (2021). An artificial intelligence data mining technology-based evaluation model of education on political and ideological strategy of students. *Journal of Intelligent Fuzzy Systems*.

Zhong, J. (2021). Exploring and researching ideological and political education of college students' psychological quality for the development of artificial intelligence. *Mobile Information Systems*, *2021*, 1–12. doi:10.1155/2021/2453385