Retraction

Retraction: Analysis of the Fine Management Strategy for the Cultivation of Vocational College Students’ Core Quality based on Big Data (J. Phys.: Conf. Ser. 1881 042056)

Published 9 September 2022

This article has been retracted by IOP Publishing following an allegation that raises concerns this article may have been created, manipulated, and/or sold by a commercial entity. In addition, IOP Publishing has seen no evidence that reliable peer review was conducted on this article, despite the clear standards expected of and communicated to conference organisers.

The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

Retraction published: 9 September 2022
Analysis of the Fine Management Strategy for the Cultivation of Vocational College Students' Core Quality based on Big Data

Wang Yanxia*, Wang Qian
Beijing Polytechnic, Beijing, 100876, China

*Corresponding author: stephaniewq@163.com

Abstract. The key to the development of vocational education is to improve the training quality of college students, and the key to improve the quality of college students is to cultivate the core quality of vocational college students. Based on the above background, the purpose of this paper is the application of big data in the fine management strategy analysis of Vocational College Students' core literacy cultivation. This study adopts the methods of literature research, questionnaire survey and interview to study and investigate the current situation of vocational college students' core literacy. This paper expounds the theory, practical significance and feasibility of the integration of data mining technology and fine management analysis in the era of big data from three aspects: the problems in the refined management analysis of traditional college students' core literacy cultivation, the expansion and deepening of the fine management analysis by data mining technology, and the construction path of the fine management analysis platform. This paper puts forward the reflection and promotion strategies for the fine management of college students from three aspects: Deepening the concept of student management, internalizing the concept into the practice of student management, and constructing the mechanism of campus characteristic culture education. Finally, the study found that the core quality that college students lack most is social participation, accounting for 37.1%. Therefore, in order to change the current situation of college students training, the most important thing is to enhance the social participation of college students, so that college students can adapt to the needs of life-long development and social development.

Keywords: Students' Core Literacy, Training Strategy, Big Data Technology, Fine Management

1. Introduction
Different from economic development, student development is based on the physical and psychological quality or literacy of students. The final result is to allow students to form ideals and high-level quality literacy, and to be able to face the society confidently, so as to satisfy the economic society for high-quality workers. And the demand for skilled talents [1-2]. In particular, modern vocational education students in my country have been challenged by the higher requirements of
society and enterprises on the employment standards of students. How to understand the current status of the core literacy of college students based on the new situation and better improve the quality of college student training has become the current development of colleges and universities. New topics that keep pace with the times [3].

Studying the refined management model of vocational college students is of great significance for deepening the understanding of the concept of refined management and enriching the theory of student management in colleges and universities [4-5]. At the same time, it is also to further improve the pertinence and effectiveness of college student management. Active exploration to promote the healthy growth of students in private colleges and universities [6]. Although there are many domestic researches on refined management, especially the research on the refined ideology and politics of college students is more abundant [7-8]. However, there are few researches on the application of refined concepts to student management in vocational colleges. There is a lack of more systematic and in-depth model construction research. There is a lack of a scientific, operability, and practicality that is recognized by teachers and students. A refined system of student management based on people-oriented and comprehensive development of students [9-10].

In the context of big data, this paper takes the concept of refined management as a management idea and culture. It uses human text, combined with the management characteristics of scientific management and human-based management, to break through the shortcomings of the traditional student management model, and it serves as a new type of student management model. The management concept and model are more suitable for the urgent needs of colleges and universities pursuing development and the current needs of colleges and universities to rely on management to improve the level of running.

2. Student Core literacy and Data Mining

2.1 Data Mining

The purpose of data mining (DM) is to mine hidden knowledge and value information from a large number of fuzzy and noisy data, that is, the process of mining knowledge from big data is affected by machine learning, artificial intelligence, statistics, database technology and other disciplines. It is usually used for classification, prediction, correlation analysis, time series prediction, etc. Data mining has the following characteristics: (1) universality, most algorithms have good analysis and prediction effect for a small amount of data and a large amount of data; (2) implicitly, the knowledge to be mined by data mining is not simple and easy to obtain information; (3) pioneering, data mining is not to verify experience and existing knowledge, but to explore unknown areas; (4) value, the conclusion of data mining should enable us to obtain direct or indirect value; (5) engineering, which involves the standard engineering process from data preparation to result verification; (6) interdisciplinary, data mining is an interdisciplinary subject, which integrates the ideas of machine learning and other fields.

Regression analysis is a common method in mathematical statistics. It is a method that uses regression equation (model) to study the relationship between independent variable and dependent variable, that is to determine the influence degree of independent variable on dependent variable, and then predict the value of dependent variable by given independent variable according to regression model. The common regression analysis methods include linear and nonlinear regression, unitary and multiple regression, etc.

Linear regression:

\[ Y = \alpha + \beta X \] (1)

\[ \alpha = \bar{y} - \beta \bar{x}, \beta = \frac{\sum_{i=1}^{S}(x_i - \bar{x})(y_i - \bar{y})}{\sum_{i=1}^{S}(x_i - \bar{x})^2} \] (2)

Multiple linear regression was used:
\[ Y = \alpha + \beta_1 X_1 + \beta_2 X_2 \quad (3) \]

\( a \) and \( b \) are regression coefficients, which can also be obtained by the least square method according to the given data points.

2.2 Data Mining Process

Data mining is not only the application of algorithm analysis, but also a complete engineering process. This process includes data preparation and management, data preprocessing and transformation, mining algorithm development and application, result presentation and verification, and finally knowledge accumulation and utilization. In the application, a model mining process is an interactive reincarnation process.

1. Problem definition: analyze the problem to be studied and conceive the solution and result evaluation method of the problem;
2. Data selection: select and collect data resources related to the problem according to the content defined in the first step;
3. Data preprocessing: the process includes data cleaning and integration, de-noising the collected data, checking the validity of the data, preprocessing and other data cleaning, and multi-source data fusion;
4. Data transformation: reprocessing the data, according to the specific problems, data collection, format transformation, data sampling and other operations;
5. Data mining: according to the solution specified in the first step, determine the mining algorithm for the problem, and determine the use method;
6. Results evaluation: obtain or summarize the knowledge, and evaluate the results according to Euclidean distance, recall rate, accuracy and other evaluation methods. At the same time, it needs to compare with other similar methods to determine the optimal data mining method;
7. Application: summarize and display the acquired knowledge or calculation results in the form of text, table, application program and text.

2.3 Students' Core Literacy

From the word "accomplishment", accomplishment refers to one's accomplishment, which is synonymous with quality. In Cihai, quality is defined as: first, the physiological characteristics of human beings; second, the nature of things; third, the basic conditions necessary to complete certain activities. The core quality of students in this study is equal to that of students' core quality. There are two important meanings of students' core literacy: one is that students' core literacy should not only pay attention to individual value orientation, but also pay attention to social value orientation. While cultivating students' own quality, they should also take into account the role of students in the social environment. Second, the core quality of students should be a collective concept, which can not separate the quality and ability, nor can it be separated from the quality education and three-dimensional objectives implemented in China for a long time. Students' core literacy should be the sum of all the qualities that can be represented by individuals in the process of adapting to complex situations, and it should have the function of "one plus one greater than two". At the same time, students' core literacy should also have its different orientation in each stage of education. For example, in the basic education stage, we should cultivate students' core literacy suitable for the basic education stage, which is different according to the physical and mental development and acceptance ability of the basic education stage. In high school or vocational education stage, it should be the core quality of students in line with the characteristics of high school students.

3. Experimental Design

3.1 Mobile Phone for Experimental Data

This study selects our city as the survey site, and takes the representative vocational college students as the research object. Before the survey, 250 questionnaires were distributed to some students in order
to find out the problems that may be encountered in the formal survey, and to carry out the reliability and validity analysis. A total of 315 questionnaires were distributed in the survey, of which 259 were valid, with an effective recovery rate of 82.2%. This study adopts the method of random sampling to interview teachers and students of a college. The acquisition of the above data and materials provides a large number of authentic first-hand materials for this study, and provides a guarantee for the scientificity of this study.

3.2 Formal Investigation of the Experiment
In order to ensure the scientificity of the questionnaire and the validity of the survey results, this study uses factor analysis to test the structural validity of the questionnaire to test whether the validity level of the questionnaire meets the requirements and whether the questions analyzed by the questionnaire are persuasive. As shown in Table 1, the internal consistency reliability of the whole scale and each subscale is good. Generally speaking, when $\alpha$ coefficient is greater than 0.50, it is an acceptable reliability coefficient. If the $\alpha$ value is greater than 0.70, the reliability of the questionnaire has reached a very high standard, and the quality of the questionnaire is completely acceptable.

| Scale name               | Number of items | $\alpha$ coefficient |
|--------------------------|-----------------|----------------------|
| Subscale 1: Cultural foundation | 4               | 0.698                |
| Subscale 2: Healthy lifestyle     | 4               | 0.750                |
| Subscale 3: Social participation | 4               | 0.719                |
| Subscale 4: Lifelong learning     | 4               | 0.690                |
| Subscale 5: Information thinking | 4               | 0.709                |

3.3 Processing of Survey Data
This study adopts the method of questionnaire and interview on the core literacy of secondary vocational education students, and conducts investigation and interview on college teachers and students. There are five questions in the outline of the interview, which are mainly to investigate the current situation of College Students' training quality; the questionnaire consists of three parts: basic information, five subscales and current situation survey, with a total of 40 questions. All the data were processed by spss22.0 statistical analysis software after sorting out the invalid questionnaires. The formal questionnaires were analyzed by different methods, including descriptive statistical analysis, independent sample t-test, analysis of variance and difference analysis.

4. Analysis of the Refined Management Strategy for the Cultivation of College Students' Core Literacy

4.1 Analysis of the Overall Situation of Core Literacy
Through the single sample t-test, we can see that the average number of samples is 1.5764, of which the highest score of cultural basic literacy is 1.6593, and the lowest score of social participation is 1.5106. Healthy life is the closest to the overall situation, with the score of 1.5830, followed by the same degree of final learning and information thinking, both of which are 1.5647. It can be seen that the overall situation of College Students' core literacy is very weak and needs to be strengthened. The statistics are shown in Table 2.

| Scale name       | N  | Average | Standard deviation | Standard error average |
|------------------|----|---------|--------------------|------------------------|
| Cultural foundation | 259| 1.1693  | .55289             | .03436                 |
| Healthy lifestyle | 259| 1.5830  | .56536             | .03513                 |
| Social participation | 259| 1.5206  | .50734             | .03152                 |
| Life-long learning | 259| 1.5647  | .50570             | .03142                 |
According to the final 259 questionnaires, as shown in Figure 1, the core quality that college students lack most is social participation, accounting for 37.1%. Social participation is the fundamental guarantee for individuals to realize their self-worth and promote social development, mainly including whether they have the people-oriented consciousness, respect and safeguard human dignity and value, whether they have the awareness of rules and the rule of law, national consciousness, identification of national identity, and conscious defense of the dignity and interests of national sovereignty. Whether it has global awareness and openness, and can respect the diversity and diversity of the world's multi cultures. This coincides with the fact that the traditional "double base" training goal fails to involve social participation.

Figure 1. Current college students lack the core literacy most

The cultivation of College Students' core literacy is a systematic project, which requires the joint efforts of the government, society, teachers, families and students. Especially for an emerging thing or concept, we need more funds to study the core literacy of students. For example, it is necessary to organize teaching staff or researchers to set up research groups or research projects, carry out relevant empirical research and pilot research, and carry out corresponding university curriculum reform, investment in teaching resources, reform of discipline core literacy, re training of teachers and teaching staff and teaching evaluation mode of core literacy, etc., which need a lot of financial support. The core quality of college students is also worth the government to do so. According to the theory of human capital, college students belong to the powerful human resources in China's constructive talents, so the government can appropriately increase the support for college students' core literacy.

4.2 Refined Management Mode

In the fine management mode, the first thing to do is to establish the student-oriented management concept and realize the people-oriented management. In the student management work, we should always take the students' fundamental interests as the starting point and foothold of the students' management work, respect the students' principal position, care for the students, respect the students, encourage the students and serve the students, and give full play to the students' subjective initiative, To promote the development of students' personality and ability, to meet the development needs of students to the maximum extent, so as to realize the all-round development of students. According to the above satisfaction survey and analysis results, the project with the lowest average score is the recognition of the college student management concept. It can be seen that many students have a low awareness of the college management concept, which affects the implementation and deepening of the fine management concept to a certain extent. Therefore, in the work of improving the refined student
management mode, the college should first further deepen the "student-oriented" fine student management concept, and improve the understanding and identification of the whole college teachers and students on the college student management concept.

College management should focus on how to build a big data system, and gradually change the thinking. First of all, the senior management of the college should change their thinking, attach importance to the application of big data technology in college management, increase the implementation of big data, and do a good job in publicity, so as to make big data technology "take root and sprout" in college management. Increase the investment in research and development funds, and cultivate professionals in the management of big data applications, so that big data technology can be flexibly applied to college management. Due to the rapid development of big data technology, talent training can not keep up with the development speed, which leads to the shortage of talents in this field in China. Big data talents can not only make good use of this technology, but also make different application schemes according to different industries, college education management can help college management work out a set of reasonable management scheme through the research and analysis of big data, and solve the problems existing in the current college education management work. From this aspect, we can find the importance of big data talents, and building our own professional team is the most important task of college managers. In addition, colleges can strengthen cooperation with social enterprises, let enterprises assist college to vigorously develop the application of big data, and colleges train talents for enterprises, so as to achieve the goal of mutual benefit and win-win results, and also can accelerate the pace of education reform and avoid the shortage of funds for education reform. At the same time, it is also necessary to strengthen the supervision of student information to avoid the leakage of student personal information involved in big data, so as to ensure the personal information of students. In this way, big data will be gradually applied to college management.

5. Conclusion
This paper puts forward the strategy and practice path of Cultivating College Students' core literacy, which can be divided into four dimensions. At the government level, the first is to introduce special policies to improve the college evaluation system; the second is to provide special funds to improve the top-level design of core literacy; at the college level, the first is to improve the students' training mode and build the core literacy curriculum system, The second is to lead teachers' professional development and help students realize their core literacy; on the teachers' level, firstly, to strengthen the quality construction and update teachers' knowledge structure; secondly, to actively guide students and encourage students to cultivate core literacy; at the student level, firstly, actively practice students' core literacy and give full play to their subjective initiative; secondly, focus on strengthening social participation in the formation of core literacy; at the level of students' parents, it is necessary to strengthen the cultivation of students' core literacy, One is to support students' core quality and strengthen cognition repeatedly; the other is to actively cooperate with teachers' work and give correct guidance.

Acknowledgements
Project: Research on The Fine Management Mode of Cultivating Students from the perspective of core literacy, Project No.: 2019Z002-051-SXZ, key project of Beijing Polytechnic

References
[1] Bowen L , Marshall M , Murdoch-Eaton D . Medical Student Perceptions of Feedback and Feedback Behaviors Within the Context of the "Educational Alliance"[J]. Academic Medicine, 2017, 92(9):1303-1312.
[2] Xue J W , Xu X K , Zhang F . Big data dynamic compressive sensing system architecture and optimization algorithm for internet of things[J]. Discrete and Continuous Dynamical Systems - Series S, 2017, 8(6):1401-1414.
[3] Wang Y, Kung L A, Byrd T A. Big data analytics: Understanding its capabilities and potential benefits for healthcare organizations [J]. Technological Forecasting & Social Change, 2018, 126(JAN.):3-13.

[4] Cai H, Xu B, Jiang L, et al. IoT-Based Big Data Storage Systems in Cloud Computing: Perspectives and Challenges[J]. IEEE Internet of Things Journal, 2017, 4(1):75-87.

[5] Singh S, Yassine A. Big Data Mining of Energy Time Series for Behavioral Analytics and Energy Consumption Forecasting [J]. Energies, 2018, 11(2):452-463.

[6] Zhang Y, Ren S, Liu Y, et al. A big data analytics architecture for cleaner manufacturing and maintenance processes of complex products [J]. Journal of Cleaner Production, 2017, 142(P.T.2): 626-641.

[7] He Y, Yu F R, Zhao N, et al. Software-Defined Networks with Mobile Edge Computing and Caching for Smart Cities: A Big Data Deep Reinforcement Learning Approach[J]. IEEE Communications Magazine, 2017, 55(12):31-37.

[8] Zhuo G, Jia Q, Guo L, et al. Privacy-Preserving Verifiable Set Operation in Big Data for Cloud-Assisted Mobile Crowdsourcing[J]. IEEE Internet of Things Journal, 2017, 4(2):572-582.

[9] Stergiou C, Psannis K E. Recent advances delivered by Mobile Cloud Computing and Internet of Things for Big Data applications: a survey [J]. International Journal of Network Management, 2017, 27(3):1-12.

[10] Lv Z, Song H, Basanta-Val P, et al. Next-Generation Big Data Analytics: State of the Art, Challenges, and Future Research Topics[J]. IEEE Transactions on Industrial Informatics, 2017, 13(4):1891-1899.