Retraction

Retracted: Optimization of Ecological Mode of College Students' Innovation and Entrepreneurship Education Based on a Big Data Analysis Model

Journal of Function Spaces

This article has been retracted by Hindawi, as publisher, following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of systematic manipulation of the publication and peer-review process. We cannot, therefore, vouch for the reliability or integrity of this article.

Please note that this notice is intended solely to alert readers that the peer-review process of this article has been compromised.

Wiley and Hindawi regret that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] M. Yu, Y. Lu, and H. Wang, "Optimization of Ecological Mode of College Students' Innovation and Entrepreneurship Education Based on a Big Data Analysis Model," *Journal of Function Spaces*, vol. 2022, Article ID 4357354, 8 pages, 2022.

Research Article

Optimization of Ecological Mode of College Students' Innovation and Entrepreneurship Education Based on a Big Data Analysis Model

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However, the number of college students enrolling in our country has only begun to increase on a large scale in the 21st century. As educational big data gets more and more attention, it has its own distinct characteristics in the field of education and at the same time consolidates the overall trend of big data development. The countermeasure analysis of innovation and entrepreneurship education under the reform of the education supply side has become a subject to be explored in an all-round way. This paper is mainly aimed at the importance of a big data analysis model to college students, explores the current development status of innovation and entrepreneurship education for college students, finds some problems in the application of big data, and improves the existing problems based on the purpose.

1. Introduction

Big data is often equated with large-scale data information, and this view is very one-sided. Actually, big data is a systematic process integrating information collection, storage, sorting, and analysis, it is a comprehensive processing of data information, and it is an advanced technology with great data value [1]. Behind this series of innovative policies is to serve China's strategy of creating a strong country with double creation and create more jobs. College students, whose goal is to train students to grow into talents, are also promoting the development of innovation and entrepreneurship education in succession, so as to improve the innovation and entrepreneurship ability of graduates. However, it is not easy to bring the great value of educational big data into full play and make use of big data to reform entrepreneurship education. As educational big data gets more and more attention, it has its own distinct characteristics in the field of education and at the same time consolidates the overall trend of big data development. With the further penetration of the concept of "mass entrepreneurship and innovation," the whole society is affecting college students with the upsurge of entrepreneurship and entrepreneurship and small and microenterprises, and the concept of entrepreneurship and innovation among college students is increasingly strengthened [2]. The adjustment of the macroeconomic structure has put pressure on the reform of education and also pointed out the direction. Innovation and entrepreneurship education is closely related to the reform of the economic system.

College students are the new blood of revitalizing the prosperity of the Chinese nation and the strong main body of promoting the development of innovation and entrepreneurship. The continuous development of Internet innovation and entrepreneurship makes the data and information present typical characteristics of large scale, wide source, and variety [3]. There are great deficiencies in the promotion time of new entrepreneurship education and the students involved. Some college students' innovation and entrepreneurship education has problems such as quick success and lack of experience. In the face of many developed countries, innovation is the driving force of progress [4]. Therefore, to find out the many problems that college

students need to solve in their dual-venture entrepreneurship and to put forward solutions for the "pain points," only in this way can the college students be encouraged and assisted to start a double business, solve the employment problem, promote innovation, improve the quality of entrepreneurship, and implement the strategy of innovation and entrepreneurship development. Moreover, it can promote the reform of university students' talent education and its in-depth exploration, so as to meet the objective requirements of modern updating of college students' educational concepts, modes, and functions in the era of knowledge economy. This will facilitate the development of intellectualized sports industry and promote innovation and entrepreneurship in the future [5].

Starting from the characteristics of college students' double-venture entrepreneurship, we need to find the exploding point and path to improve the quality of double-venture entrepreneurship to meet the needs of a comprehensive national creation strategy [6]. This is also the manifestation of traditional natural thinking turning to intelligent thinking. It is an opportunity and a challenge for the survival and development of all walks of life. According to the statistics and analysis results of big data [7], it can ensure that scientific decision-making is closer to the actual situation, especially in the field of college students' double-innovation education. Faced with the competition from some research universities, it is necessary to cultivate a large number of innovative talents, transform innovative achievements, and attract more innovative and entrepreneurial teachers and outstanding enterprises to join the development of college students [8]. Studying the analysis method and application mode of educational big data is conducive to actively responding to the development of China's big data technology, thus promoting the systematic reform of education [9].

2. Related Work

With regard to the solutions to the predicament of college students' entrepreneurship and innovation, most scholars put forward their own opinions based on their professional knowledge. Mace opened "New Entrepreneurial Enterprise Management." Many entrepreneurship scholars define the opening of this course as the beginning and starting point of innovation and entrepreneurship education for Western college students [10]. Feng analyzes the problems existing in the entrepreneurship and innovation policies in Shandong, Shanghai, and other places [11]. Lin established that there is still a lot of room for college students to play their role in such aspects as creating an innovative culture, leading social development, and improving mechanisms. The emphasis on scale and quantity has shifted to the emphasis on structure, efficiency, quality, and innovation, and we should follow the trend and have the courage to reform [12]. Yang proposed to set up entrepreneurship and innovation courses; Baisen Business School has the first undergraduate major named after entrepreneurship education [13]. Wang et al. pointed out the shortage of college students' entrepreneurship education and also pointed out that the service guarantee system for college students is not perfect

and the social entrepreneurship service mechanism and financing system are not perfect, thus restricting college students' entrepreneurship [14]. Bai proposed three new measures for the reform of college students' entrepreneurship education from three perspectives: concept transformation, multiple paths, and system support, positioning of educational goals from improving employment rate to improving employment quality and level, respecting cultural differences in different regions, exploring multiple development paths, and establishing relevant systems to support the development of college students' entrepreneurship education [15]. Liu et al. did research on the entrepreneurship of female college students, referring to the resistance of opportunity recognition, entrepreneurship financing, the resistance of creating team, the resistance of actually starting a new enterprise, and the resistance of successfully developing the enterprise [16]. Robert Davis founded the student-oriented SIFE, which Smiler explored the US entrepreneurship University paradigm in a highly competitive global entrepreneurship environment with internal and external outcomes, entrepreneurship, contact mechanisms, and support systems [17]. Wang analyzed the impact of the reform on the supply side of education on the private college students. Combining with the characteristics of the private college students themselves, she tried to find out the focus and development direction of the reform on the supply side of college students [18]. Zhang believes that the ability and consciousness of individual dual-venture entrepreneurship affect dual-venture entrepreneurship; in addition, we need to optimize the innovation and entrepreneurship ecosystem through improving policies [19]. Most scholars explore the angle of innovation and entrepreneurship education, but few mention issues such as the quality of college students' dual-venture entrepreneurship and the success rate of college students' dual-venture entrepreneurship, which leaves a large space for this study.

3. Significance of Applying Big Data in Double-Creative Education for College Students

3.1. Value of Application. Its educational model has also begun to change subtly, and innovation and entrepreneurship education has been transformed from system to ecological construction. For example, teachers need to fill in the students' social practice, physical examination, and some data related to students' moral sentiment for the evaluation of students' comprehensive quality [20]. Through the analysis and application of educational big data, it is possible to grasp the detailed problems in the students' learning process and realize the effective reform of the contemporary educational model and educational system. Students have not yet formed a complete and unified understanding of the developmental purpose of this education, as shown in Table 1.

In the teaching of its courses, there are mainly the present situations of dull content and methods, imperfect knowledge structure, weak linkage of professional learning, and low teaching level of teachers in this respect, as shown in Table 2.

Table 1: Overall understanding of college students' innovation and entrepreneurship education.

Survey content	Student number	Questionnaire	Proportion (%)
Depends on your career choice	380	790	49.37
All students	130	790	16.46
Know a lot	90	790	11.39
General emphasis	600	790	66.67
Respond to the government's call	280	790	35.44

Table 2: Teaching of innovation and entrepreneurship education for college students.

Survey content	Student number	Questionnaire	Proportion (%)
Electives	470	790	59.49
Novel frontier	50	790	6.33
Disconnected from each other	695	790	87.97
Entrepreneurship training skills	240	790	30.38
Important role	140	790	17.72

Table 3: Activities attended by college students.

Survey content	Student number	Questionnaire	Proportion (%)
Provided	275	790	34.81
Knowledge lecture	325	790	41.14
Skills competition	125	790	15.82
Corporate internship	80	790	10.13
Project planning training	130	790	16.46

Innovation and entrepreneurship education for college students has the status quo of unbalanced development of activities and unclear cognition, as shown in Table 3.

Accelerate the construction of maker space, and form an innovative service carrier integrating innovation and entrepreneurship, online and offline integration, incubation, and investment. The carriers of innovation and entrepreneurship mainly include the following: (1) the carriers of public service platforms, various professional technical service platforms, and scientific research institutions that gather to provide services for scientific and technological innovation. (2) Entrepreneurial carrier (incubator) mainly refers to the carrier that gathers scientific and technological start-ups and promotes the transformation and incubation of achievements. (3) Innovation and entrepreneurship are entrepreneurial activities based on innovation, which is different from either pure innovation or pure entrepreneurship. (4) Therefore, in the concept of innovation and entrepreneurship, innovation is the foundation and premise of entrepreneurship, and entrepreneurship is the embodiment and extension of innovation. In a narrow sense, it is based on the reorganization, reengineering, and integration matching of related theory, elements, technology, and capabilities. The satisfaction survey of university innovation and entrepreneurship education teachers in the questionnaire survey is shown in Figure 1.
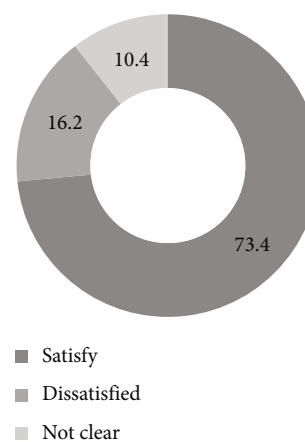

Figure 1: The satisfaction of teachers in innovation and entrepreneurship education.

In order to realize a kind of practical teaching that promotes self-physical and mental development, sound personality cultivation, and intelligent space improvement in the new production relationship, college students can choose to take a break from school to start a business and count their entrepreneurial achievements into their students' grades, making the schooling system for entrepreneurship
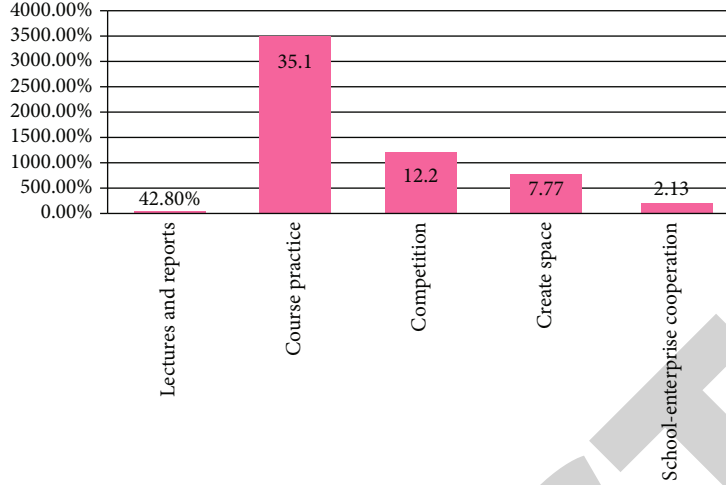
Figure 2: Social practice of innovation and entrepreneurship education for college students.

more flexible. From the data survey, the way students participate in social practice is mainly used in lectures, presentations, and courses. There is still a lot of room for progress towards enterprises and related competitions, as shown in Figure 2.

For example, big data needs to collect data through "crawlers," process data through big data algorithms, and flexibly change strategies according to the results of data processing. Through practical projects or products, it provides a good platform for entrepreneurship education, so that students and entrepreneurs can give full play to their respective advantages on this platform, thus improving their innovation ability. In the modeling and analysis of educational data, the current focus is on the establishment and qualitative analysis of theoretical models, and there is a lack of specific analysis and model construction for the educational teaching process and teaching and learning behavior. The core of the iterative upgrading of modern education is the surge in demand for data analysts. Scientific strategic planning is needed, so that teachers can have a better understanding of students. The current teaching methods are developing in this direction, and information sharing between different schools is strengthened. It is guaranteed that each point in the common space has an equal probability of being included in the sample, which is

$$
x_i = \min_{v \in D} \{\text{dist}(p_i, v)\},
$$
$$
y_i = \min_{v \in D, v \neq q_i} \{\text{dist}(q_i, v)\}. \tag{1}
$$

Calculate statistics:

$$
H = \frac{\sum_{i=1}^{n} y_i}{\sum_{i=1}^{n} x_i + \sum_{i=1}^{n} y_i}. \tag{2}
$$

The contour factor of object o is defined as

$$
s(o) = \frac{b(o) - a(o)}{\max\{a(o), b(o)\}}. \tag{3}
$$

For each sample i, calculate the classes it should belong to:

$$
c^{(1)} = \arg \min_{j} \left\| x_i - \mu_j \right\|. \tag{4}
$$

For each cluster j, the centroid of the class is recalculated:

$$
u_j = \frac{\sum_{i=1}^{n} \text{sign}\left(c^{(1)} = j\right) x_i}{\sum_{i=1}^{n} \text{sign}\left(c^{(1)} = j\right)}.
$$
$$
J(c, \mu) = \sum_{i=1}^{n} \left\| x_i - \mu_j \right\|. \tag{5}
$$

Prediction strength is defined as

$$
ps(k) = \min_{1 \leq j \leq k} \frac{1}{n_{kj}\left(n_{kj}\right) - 1} \sum_{i \neq t \in A_{te}} \left(D[C(X_{tr}, k), X_{te}]_{it} = 1\right). \tag{6}
$$

That is, the research on establishing mathematical model and mining analysis based on real data is rare. Targeted teaching and counseling will separate students from traditional learning concepts and attitudes. Deepening students' understanding and memory of the content of "double creation education" is conducive to strengthening students' innovative thinking and entrepreneurial ability and promoting students' formal development in entrepreneurial activities.

3.2. Application Function. Entrepreneurship and entrepreneurship education grasp the development opportunities in the era of big data and give full play to its technical advantages, which can realize the mining of big data technology, systematic analysis, and visualization of various teaching
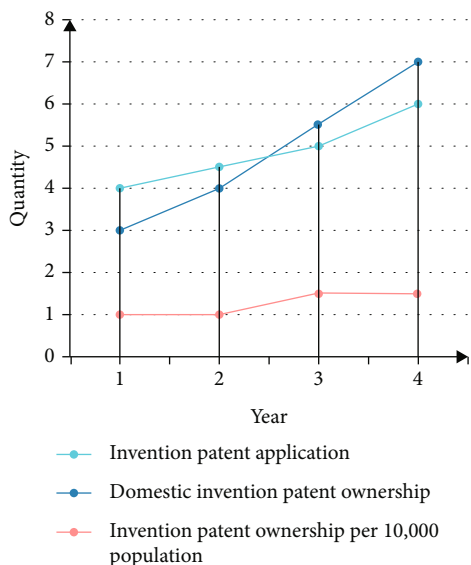
Figure 3: Data map of the Chinese patent.

Figure 4: Patent-related data in the field of artificial intelligence in China.

data and provide accurate educational resources for the cultivation of students' practical skills. Of course, this has always been a prominent problem in China's entire education. Educational big data analysis involves multiple interdisciplinary fields, including educational science based on educational theory and learning theory and computer science based on big data and artificial intelligence technology. Based on the analysis of large data, it provides personalized service for the target and makes learning plans according to the specific learning situation and the preferences of the object, so as to stimulate the learning interest of the object. According to the statistics table of comprehensive operation of crowdsourcing space published by the Torch Center of the Double Foundation Department, it is mentioned that "college students' entrepreneurship refers to the entrepreneurship team or enterprise founded by college students". "Among them, college students refer to those who have not studied or graduated for more than two years in institutions of higher learning." Scientific and technological entrepreneurship is creative, a breakthrough in existing technology, and the application of new technology. Intellectual achievements are the most scientific, complete, and core manifestation of scientific and technological innovation, as shown in Figure 3.

From a broad perspective, it is considered that entrepreneurship education is to set the basic qualities and multidimensional skills of entrepreneurship as the integrated goal of entrepreneurship talent cultivation and to teach them in practice, so that their career development and career activities can be effectively transformed into creative social labor. At the same time, what responsibilities students, families, government, and society take in the whole process of education, what obligations they practice, and the external driving force of entrepreneurship education is clear distribution of rights, responsibilities, and benefits. Who is leading college students to set up education? However, the lack of deep utilization of big data by most college students directly restricts
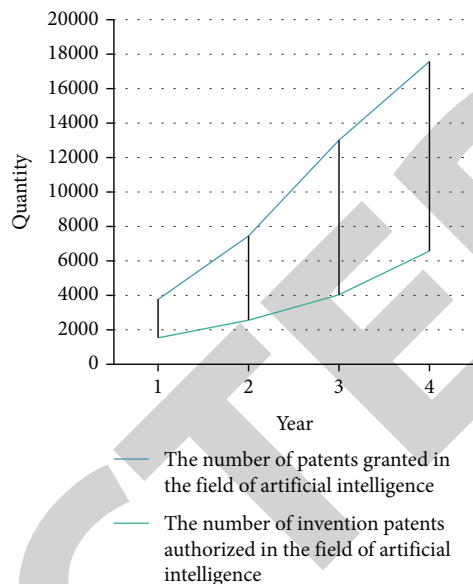

Figure 5: Graduates' whereabouts six months after graduation.

the educational effect. The existing innovation and entrepreneurship education system cannot fully realize intelligent and automatic information collection and processing. Universities and scientific research institutes have made great contributions to basic algorithms and basic hardware, while enterprises have more patent achievements in vertical applications and have obvious advantages, as shown in Figure 4.

College student makers are also gradually paying attention to makerspaces to find a starting point for technological entrepreneurship and where to go after six months of graduation, as shown in Figure 5.

Starting the transformation to an innovative country, the internal double-venture entrepreneurship, the educational mechanism, and other innovative entrepreneurship continue to accelerate the reform. Using the statistical functions of large data, we can evaluate the effectiveness of double-

innovation education, help to set up a double-innovation education environment that suits the characteristics of students efficiently, and ensure the effectiveness and pertinence of double-innovation education according to the training objectives of talents.

4. Practical Strategy of Introducing Big Data Technology into College Students' Double-Innovation Education

4.1. Improve the Dual-Innovation Education Application System. To deepen the reform of education evaluation in the new era, we should effectively combine education big data with education evaluation methods and make innovative applications. Starting from the concept of measurement and evaluation and the innovative application of statistical analysis methods, a unified evaluation standard and comparable evaluation system are created. And scientifically use equivalent technology to solve the comparability problem of education big data. Specifically, we can develop evaluation tools, build a large education database, pay attention to potential variables and covariates, and innovate and apply equivalent technology. We will develop a dynamic discipline development scale, train and train professionals, and build a database sharing platform.

Under the concept of data entrepreneurship and innovation, the education application system for college students' innovation and entrepreneurship is the education data collection layer and can also be used to analyze previous technical materials. In addition, like the diversity and hierarchy of ecology, college students in different countries and regions should develop their own models of diversity education and training, none of which is suitable for all regions. The willingness of college students to start a scientific and technological business is increasing, as shown in Figure 6.

Based on homework evaluation and examination data, judge students' academic situation and predict students' academic achievements. In the actual situation of college students' pioneering work. It involves not only the application of advanced science and technology in the technical field but also our practical exploration of new fields and innovative involvement and development in all walks of life. Innovation and entrepreneurship education, as a social practical activity of linking education with production, fully endows the theory of people's all-round development with reality and concreteness. It not only breaks through the professional teaching barrier through the interdisciplinary integration, but also enriches everyone's theoretical knowledge, thus promoting the comprehensive development of human intelligence. Among those who choose to start their own businesses half a year after graduation from undergraduates and graduates of higher vocational colleges, more than half of them have given up entrepreneurship for various reasons, and the survival rate of entrepreneurship is less than half, as shown in Figure 7.

The combination of big data and innovative entrepreneurship can be multifaceted. For example, in the start-up and operation of enterprises, big data can accurately target
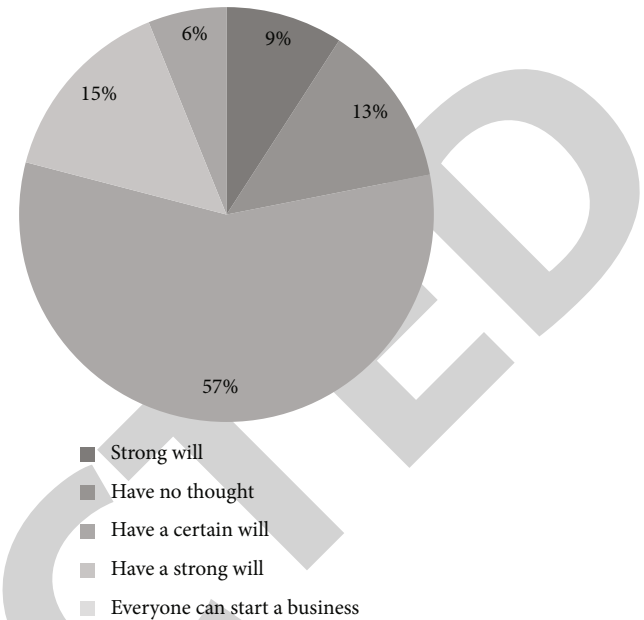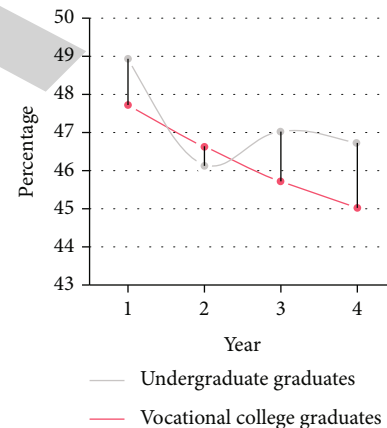

Figure 6: Business intention.

Figure 7: The proportion of self-employed entrepreneurs who insist on starting their own business half a year after graduation.

customers with user portraits. Students need to design advertisements with large data user portraits to link customer needs with enterprise products. With the cooperation of college students, teachers and students, cooperative enterprises, and college students' administrators, resource integration, information sharing, technology push, and project promotion are realized, which provides technical support for project management and innovation of dual-innovation education mode.

4.2. Build a Dual-Creation Practice Platform. First, build an online network platform led by big data. Use big data to collect entrepreneurship and innovation information, simulate the actual needs of students and users, and strengthen the user's operability and experience. At the same time, with the advantages of low cost and diversified sharing, it provides more convenience for students. Just like an ecosystem,

there are no completely independent individuals, and there are always more or less connections between different individuals, that is, mutual symbiosis, which cannot be analyzed solely for a single factor of education. It has opened up a new research perspective of educational big data analysis: taking information-based classroom teaching as a specific research field of educational big data mining and analysis, building a systematic modeling and analysis framework, and forming big data analysis models and methods. Then, students log in to the teaching platform, receive personalized preview resources pushed by teachers, prepare for class, and complete relevant assessments before class. Because the education they receive is more specialized, they specialize in a certain field of subject knowledge, and they have a higher level of education, and the technical content of college students is relatively high when they start a business. Its essence is to inherently require the establishment of people's subject status and equal development of their own abilities, so that they can not only freely choose the direction, road, and way of self-development. Subjective initiative is the unique ability and function of people to reflect and transform the world. Correct consciousness can guide people to take correct actions and promote the development of things. At the same time, it can transcend the real life itself by virtue of its own subjective initiative. In addition, big data also has the function of public opinion analysis. In innovation and entrepreneurship practice, students can assume that they are the public relations personnel of a large enterprise. Then, they can design a public opinion analysis system that combines corporate brands with big data. Through online and offline interaction, build a three-dimensional platform for double-innovation practice, which is more conducive to promoting the development of students' double-innovation ability in practice, so as to achieve the ideal effect of double-innovation education.

5. Conclusions

This paper studies from the perspective of big data, from the aspects of system construction, technology application, concept change, etc., to expand the path to improve the quality of dual-innovation education and promote the closer relationship between big data and dual-innovation education. In the changing environment of economy, politics, and culture, the traditional university education and operation mode are also changing and innovating with the times. In the new era, China vigorously advocates innovation and uses the development strategy of innovation and entrepreneurship to guide all kinds of social subjects to give full play to their subjective initiative, stimulate the vitality of social innovation, gather "innovation," and deal with the dual-innovation revolution. The application of big data in innovation and entrepreneurship education can timely discovers students' personality differences. Innovation and entrepreneurship education requires teachers to keep pace with the development of the times, stand at the forefront of the development of the times, let students learn the latest innovation and entrepreneurship knowledge and tools, and let students create a new future.

However, the current teaching content giving too much emphasis on theoretical knowledge, operability, and practicality is not strong. Although many colleges and universities have set up this course, most of them only study theoretical knowledge and lack a platform for practical operation, and students' entrepreneurial activities only stay at the level of paper work. Therefore, further research is needed.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

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