

Exploration into College Students' Innovation and Entrepreneurship Education under Big Data

Chen Hu

*Jiangnan University, Wuhan, 430056, China
282470301@qq.com*

Abstract: *In the era of big data, the information technology revolution has profoundly changed the production and lifestyle of human society, and it will inevitably put forward higher goals and requirements for the training of college talents. In this context, this paper expounds on the significance of big data to innovation and entrepreneurship education, analyzes the shortcomings of innovation and entrepreneurship education for college students, and then puts forward the path to improve the quality of innovation and entrepreneurship education for college students from the perspective of big data. The optimization path means to transform the concept of innovation and entrepreneurship education, build a big data platform for innovation and entrepreneurship education, and carry out the practical application of big data technology. The three paths are interdependent and mutually reinforcing, which helps to promote the deep integration of big data technology and innovation and entrepreneurship education and provides references for training high-quality entrepreneurial talents and developing innovation and entrepreneurship education.*

Keywords: *Big data; College students; Innovation and entrepreneurial education; Talent training*

1. Introduction

Innovation is the soul of a nation's progress and an inexhaustible driving force for a country. In the new era, universities that improve the quality of talent training must adapt to the characteristics and needs of the in-depth promotion of the reform of education and teaching models. The whole process of penetrating innovation and entrepreneurial education throughout the cultivation of college talents is to focus on improving students' innovation, creation and entrepreneurial ability. In the era of big data, universities strengthening innovation and entrepreneurship education are the new challenges proposed by the development of the times, national development, and personal development of students. ^[1] The big data industry has brought new opportunities, challenges, and breakthroughs to developing innovation and entrepreneurship education. At the same time, it also provides new paths, models, and ideas for the change of innovation and entrepreneurial education. The new journey of innovation and entrepreneurship education in the context of big data consists of precise personal innovation and entrepreneurial growth support systems, reducing invalid supply in innovation and entrepreneurship education and establishing a model for innovation and entrepreneurship precision education.

2. Experiments

2.1 Survey Object

This study takes J University as an example to conduct a focused study. Through questionnaires, it analyzes the needs and outstanding problems of undergraduate innovation education in science and engineering colleges, and puts forward corresponding countermeasures and suggestions. This research adopted questionnaire survey method, mainly on students through questionnaire survey, understand the student perceptions of entrepreneurship education, understanding of schools for the undergraduate course situation of innovation education and practice of opinions and views. In terms of sample selection, students of grade 2020 were mainly selected, and 635 questionnaires were distributed, including School of Business, School of Law and School of Educational Science and other key schools of liberal arts, including the School of Mathematics and Computer Science, School of Physics and Information Engineering, School of Chemical and Environmental Engineering, School of Life Sciences, school of chemical and environmental engineering, school of life sciences, School of

Electromechanical and Architectural Engineering, etc.

2.2 Experiment Design

Questionnaires were distributed and collected through online questionnaires and targeted contact with classes. After data screening and invalid data clearing, 628 valid questionnaires were obtained, with an effective rate of 99%. The present questionnaire consisted of three dimensions and the three dimensions included five aspects, 22 Likert-scale Items (1=strongly disagree, 2=disagree, 3=uncertain, 4=agree, 5=strongly agree). Questions 1–3 were designed to ascertain students' cognition toward Innovation and entrepreneurial education.

3. Result and discussion

3.1 The significance of big data on innovation and entrepreneurial education

In the era of big data, the information technology revolution has profoundly changed the production and lifestyle of human society, and it will inevitably put forward the goals and requirements of higher updates for the training of college talents. The strengthening of innovation and entrepreneurial education in universities is the new challenge proposed by the development of the times, the development of the country, and the personal development of students.^[2] Big data technology can collect students' daily learning data, presented visually to guide college students to innovative and entrepreneurship education activities, and gradually allow college students to generate better learning paths for innovation and entrepreneurship knowledge.

Big data promotes innovation and entrepreneurship education based on the analysis of J university entrepreneurship promotion, which is a significant way to innovative talent cultivation. In the survey (see Figure 1), 63.95 % of students strongly agree that Big data is very useful to stimulate innovation, and 45.86% agree it is important.

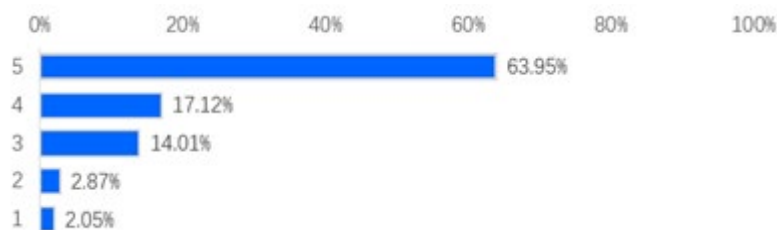


Figure 1: The influence of big data on innovation and entrepreneurship education

3.2 The influence of curriculum on innovation and entrepreneurial education

When analyzing the curriculum system setting of Z University, it is found that the curriculum setting is oriented towards the training goal of innovative talents, emphasizing the "generous foundation" and the "innovative spirit". In the survey (see Figure 2), 35.99 % of students strongly agree that curriculum is very useful to stimulate innovation, and 8.66% agree it is important.



Figure 2: The influence of curriculum on innovation and entrepreneurship education

3.3 Teachers' demand for innovation and entrepreneurial education

The demand for entrepreneurship teachers in universities has soared. In the survey, more than 48.41% of the students strongly agree that entrepreneurship teachers can help promoting innovation,

and 35.16% agree it is useful. (see Figure 3)

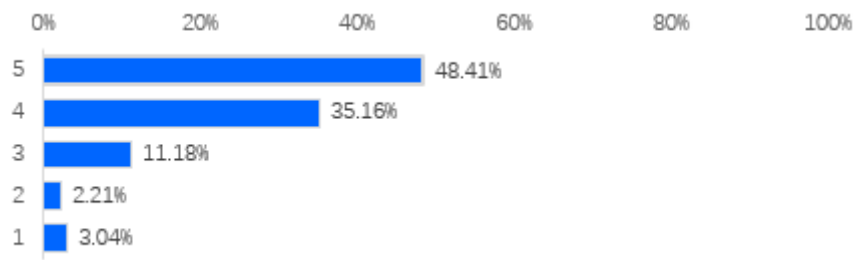


Figure 3: The influence of teachers on innovation and entrepreneurship education

3.4 The problems on innovation and entrepreneurial education under big data

College innovation and entrepreneurship education is based on college students as the main object, with the main content of innovation and entrepreneurial awareness training, ability improvement, environmental cognition, and practical exercise. Since the 1990s, Chinese universities have gradually attached great importance to and strengthened innovation and entrepreneurial education.^[3] They have strived to explore the establishment of an innovative and entrepreneurial education system with Chinese characteristics in terms of curriculum system, teachers, innovation competitions, and entrepreneurial practice, but did not get the idealized effect. Most innovative and entrepreneurial courses are still the same as traditional classrooms.^[4] They do not reflect the characteristics of innovation. The innovation and entrepreneurial education system lacks flexibility and accuracy. There is still a series of places that need to be improved. The main problem factors of innovation and entrepreneurial education in the era of big data are shown in figure 4.

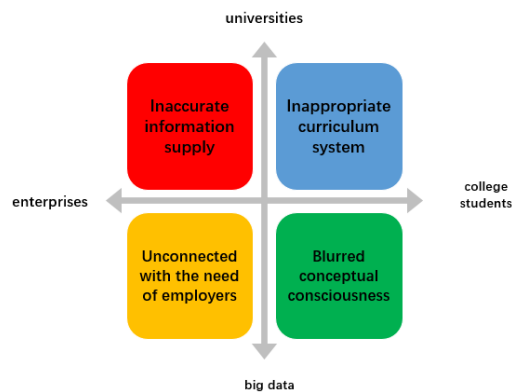


Figure 4: Problems of innovation and entrepreneurial education in the era of big data

4. The optimization path of innovation and entrepreneurial education in universities in the era of big data

In response to the lack of innovation and entrepreneurial education in college students, based on the analysis of the relationship between big data and college students' innovation and entrepreneurship education, this study proposes the quality of innovation and entrepreneurial education in college students from the perspective of concept, platform construction, and application practice.

4.1 The concept of changing innovation and entrepreneurship education

The concept of changing innovation and entrepreneurship education refers to establishing the conception of "data-driven innovation and entrepreneurship" so that they no longer rely on individual or team experience to choose the direction of entrepreneurship. In conventional teaching, instruct teachers should use big data technology to collect the latest teaching resources, update the teaching content promptly, and combine the concept of "data-driven innovation and entrepreneurship" with professional discipline knowledge, innovation and entrepreneurial practice cases. On the other hand, it

is necessary to use big data technology to min and analyze the blind spots of college students to solve doubt and confusion. In addition, universities can build an innovation and entrepreneurial education platform based on big data technology and encourage the instructor to carry out data-driven innovation and entrepreneurial flipping classroom and moody classes. At the same time, the entrepreneurial team is encouraged to find partners and raise funds and innovative products on this platform by building a crowdfunding one for entrepreneurial projects.

4.2 Construction of college innovation and entrepreneurial education big data platform

To solve the problems encountered in the teaching of innovation and entrepreneurship education in colleges and universities, combined with innovation and entrepreneurial education concepts and big data thinking, it will build a big data platform for innovation and entrepreneurship in colleges and universities. [5] Specifically divided into three parts: data collection and storage, data processing and analysis, and risk prediction and evaluation (see Figure 5). The collection and storage of massive data is to provide data sources for college innovation and entrepreneurial education big data platform, which is the foundation and source of the entire platform. Data analysis is to process data processing and thoroughly tap data connotation value. Risk predictions and evaluations are big data that can analyze the past, grasp the present, predict the future, and effectively serve innovation and entrepreneurial education.

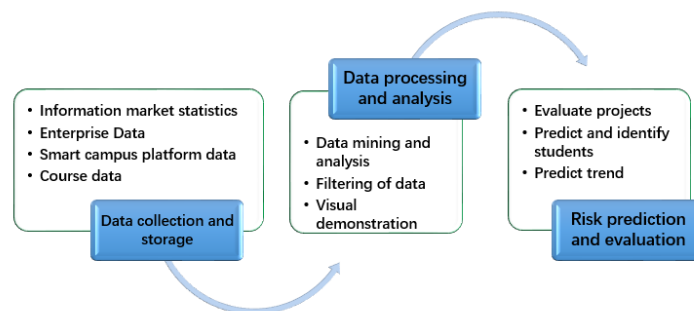


Figure 5: Construction of college innovation and entrepreneurial education big data platform

4.2.1 Data collection and storage

Education data collection and storage mainly use big data technology to collect and store innovative and entrepreneurial education policies that college students are interested in, such as national policies and scientific and technological innovation results. Market statistical data comes from the data source of the National Bureau of Statistics, the portal of the governments of various governments, and databases of economic management disciplines, such as enterprise registration policies, tax regulations, relevant policies for government support for college students, Technical information, etc.

4.2.2 Data processing and analysis

The functions of analysing, mining and visualizing are to use big data technology to clear the direction of the entrepreneurial market and dig out the most valuable business innovation product needs from a big end-user group. [6] The relevant technologies can meet the needs of user need through visual technology and show the database that can meet the needs of user needs.

The functions of statistics and evaluations are through big data platforms, statistics and analysis of all data related to innovation and entrepreneurship education. Then statistical results can directly or indirectly become the basis for educators to study and evaluate the quality of innovation and entrepreneurship education to ensure that the evaluation results are more comprehensive, objective and precise.

The function of the background service is to achieve the integration and Unicom of high-quality resources and to achieve the efficient aggregation of various resources between teachers, students, enterprises, managers, and universities, to promote information sharing, policy promotion, technology transfer and project promotion, as for project promotion, innovative and entrepreneurial education reform decisions and project management.

4.2.3 Risk prediction and evaluation

In traditional innovation and entrepreneurship education, it is difficult for teachers to

comprehensively grasp the comprehensive data of college students' innovation and entrepreneurship, so as the dynamic risk management of innovative and entrepreneurial projects.^[7] Big data technology can collect, tap relevant data, and perform risk control analysis to help entrepreneurial teams obtain information, realize real-time monitoring of projects, dynamically track the development trend of innovative technologies, and finally enhance the entrepreneurial ability and risk of college students' Management ability. Through big data prediction and analysis functions, you can adopt a quantitative risk to present entrepreneurial projects to third-party investment institutions to expand your financing channels and improve the success rate of projects.

Innovation and entrepreneurial assessment are established by acquiring the spontaneous data generated by teachers and students on big data collection platforms during innovation and entrepreneurial activities. These data are not affected by the subjective consciousness of the collector, which is original ecological data. Compared with traditional artificial collection data, data evaluation results are more accurate as big data collection technology is more objective. Using big data collection platforms can collect full coverage, multi-dimensional, and instantaneous collection such as "innovative and entrepreneurial education satisfaction", "college student innovation and entrepreneurship participation", "promotion of college students' innovation and entrepreneurship projects" and "project economic benefits" and other evaluations Data. Thereby, it can provide convenience for universities to comprehensively evaluate the quality of innovation and entrepreneurship, and ensure the timeliness of evaluation.

4.3 Application of Big Data Platforms in the teaching of innovation and entrepreneurial education practice in universities

The introduction of big data thinking and technology into college innovation and entrepreneurship education can improve the accuracy and scientific nature of innovation and entrepreneurial education practice teaching in universities, which are reflected mainly in three aspects of applications.

4.3.1 Integrate innovation and entrepreneurial information

The big data platform provides multiple data interfaces such as national policy, scientific and technological innovation achievements, the national statistics bureau, the data of the website of the governments at the gate of various governments, and the database of economic management disciplines. These market analysis data is to help the entrepreneurial team find market gaps or blank spots and market opportunities. Analysis of the correlation of big data can help the entrepreneurial team find the interconnection between new types of data, thereby solving market demand. The integration and analysis of these data are prone to "good creative ideas". The big data platform also integrates patented technical data and experimental results data. College students can search for technical support on the platform and seek cooperation to improve the scientific and technological content of the project. Therefore, the barriers between "good creative ideas" and "necessary technical support" can be opened on big data platforms.

4.3.2 Improve the adaptation of members of the entrepreneurial team

The entrepreneurial team with a high degree of adaptation is the core of cultivating successful innovation and entrepreneurial projects. Big data platforms can solve the problem of team members' adaptation well. The first is to identify the appropriate team members. The big data platform collects the trajectory of college students during the school period to form data that can be recorded and analyzed. These data are comprehensive, irregular, and non -structured. Compared with the subjective method of traditional innovation and entrepreneurship education, the analysis results of big data technology are more objective, more accurate, and timelier. After that, through the analysis of the mathematical model, the portrait model of innovation and entrepreneurship was described, and cloud computing technology is used to identify the portraits of college students in innovation and entrepreneurship. The entrepreneurial team can achieve through the big data platform: one is a self-assessment to evaluate whether they are suitable for entrepreneurship; the other is system matching team members to find members with a high degree of adaptation and entrepreneurial teams, including professional matching, career planning development, matching advantage matching.

4.3.3 Evaluate "Innovation and Entrepreneurship Project"

In innovation and entrepreneurial education practice teaching, most expert review systems are input during project evaluation. It is difficult for tutors to comprehensively master the comprehensive data of college students' innovation and entrepreneurship and make an accurate evaluation of the project. Big

data platforms have collected data information such as market analysis data, policy data, project operation data, and technical data. Through cloud computing technology it can generate the "college student innovation and entrepreneurial project" evaluation report through cloud computing technology. From the perspective of big data, this report uses "data" to objectively and comprehensively analyze the economic benefits and feasibility of the project, realize the real-time monitoring of the project, grasp the promotion of the project, and cultivate the excellent "innovation and entrepreneurial project" by providing data support.

In the incubation of college students' innovation and entrepreneurship projects, interesting investment institutions need to participate to solve the problem of financial support. For investment institutions, it is often tough to identify outstanding and potential college entrepreneurship projects. The big data platform has the functions of project promotion and project tracking. Investment institutions can retrieve excellent and potential college students' entrepreneurial projects on big data platforms, check the project evaluation report and cooperate with college students' entrepreneurial teams. The big data platform builds an information exchange platform for both parties, which can increase the success rate of project landing.

5. Conclusions

The application research of big data in college innovation and entrepreneurship education is still in its infancy. Big data platforms are applied to innovative and entrepreneurial education, which can provide strong data support. This study aims at proposing the optimization path of innovation and entrepreneurship education under the perspective of concept, platform construction and practice application by analysing the lack of innovation and entrepreneurship education of college students and based on the significance of big data on college students' innovation and entrepreneurship education. The application of big data technology in innovation and entrepreneurship education is reflected mainly in reforming innovation and entrepreneurial education, optimizing the direction of innovation and entrepreneurial education, and finding the needs of market innovative products through data mining and analysis, thereby improving effectively the success rate of innovation and entrepreneurship projects, and finally promoting the in-depth integration of big data technology and innovation and entrepreneurial education.

References

- [1] Mansheng Zhou; Haixia Xu. *A Review of Entrepreneurship Education for College Students in China* [J]. *Administrative Sciences*, 2012(1).
- [2] Ghulam Nabi. Andreas Walmsley; Francisco Lián; Imran Akhtar; Charles Neame, *Does entrepreneurship education in the first year of higher education develop entrepreneurial intentions? The role of learning and inspiration* [J]. *Studies in Higher Education*, 2018(3).
- [3] Lou Qinqin. *Quantitative Analysis of the Impact of Wireless Internet Technology on College Students' Innovation and Entrepreneurship under the Background of "Internet Plus"*[J]. *Scientific Programming*, 2021.
- [4] Patrick Premand, Stefanie Brodmann, Rita Almeida, Rebekka Grun, Mahdi Barouni, *Entrepreneurship Education and Entry into Self-Employment Among University Graduates* [J]. *World Development*, 2016.
- [5] Saadat Saeed, Shumaila Y. Yousafzai;Mirella Yani-De-Soriano;Moreno Muffatto, *The Role of Perceived University Support in the Formation of Students' Entrepreneurial Intention* [J]. *Journal of Small Business Management*, 2015(4).
- [6] Bryan Fuller, Yan Liu, Saleh Bajaba, Laura E. Marler, Jon Pratt. *Examining how the personality, self-efficacy, and anticipatory cognitions of potential entrepreneurs shape their entrepreneurial intentions* [J]. *Personality and Individual Differences*, 2018.
- [7] Ying Zhang, Geert Duysters, Myriam Cloudt. *International Entrepreneurship and Management Journal*, 2014(3).