Education System of College Students' Innovation and Entrepreneurship on Big Data

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Abstract. Currently, policy that encourages college students' entrepreneurship has been carried out heatedly within China, which is based on the situation of widespread serious industry solidification in the country. Therefore, as the important place to cultivate backbone talents for the society, colleges and universities should carry out optimizing reform to its current innovation and entrepreneurship education system to meet the macro demand for college students' entrepreneurship. Meanwhile, China is in the stage of efficient application of big data, so when reforming college students' innovation and entrepreneurship education, colleges and universities should coordinate with the big data background. This thesis starts from the analysis of the status of college students' innovation and entrepreneurship education system and conduct preliminary research on the reform model of it.

Keywords: big data, innovation and entrepreneurship, education system

1 Research Background

Education system refers to a series of education preparation in educational setting, including faculty resources, teaching resources and etc. within the system. According to the observation of innovation and entrepreneurship education system in China, now most of college students will choose to work for a public institution or private company after graduation [1]. Seldom of them choose to start a business or taking entrepreneurship as their first goal. One of the main reasons is that college students' innovation and entrepreneurship education system has not been perfected effectively and not employed big data technology [2, 3]. In terms of the long-term industry solidification in China, college students' innovation and entrepreneurship education system must be reformed to solve the problem of limited and low-quality travelers in the journey of entrepreneurship [4].

In the perspective of big data environment, this thesis means to do research on the reform of college students' innovation and entrepreneurship education system, which aims to take the reform of college students' innovation and entrepreneurship education system as the first goal and conduct further promotion on the awareness of college

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students' innovation and entrepreneurship in colleges and universities as well as provide educational approach and aids to promote their ability of entrepreneurship by adding various kinds of activities with practical teaching value [5, 6]. At the macro level, the main purpose of this thesis is to construct a holistic educational plan to make long-term contribution to the national fostering plan of entrepreneurial talents in next stage[7].

2 Current Problems in College Students' Innovation and Entrepreneurship Education System

2.1 The Macro Goal of College Students' Innovation and Entrepreneurship Education System is not Clear

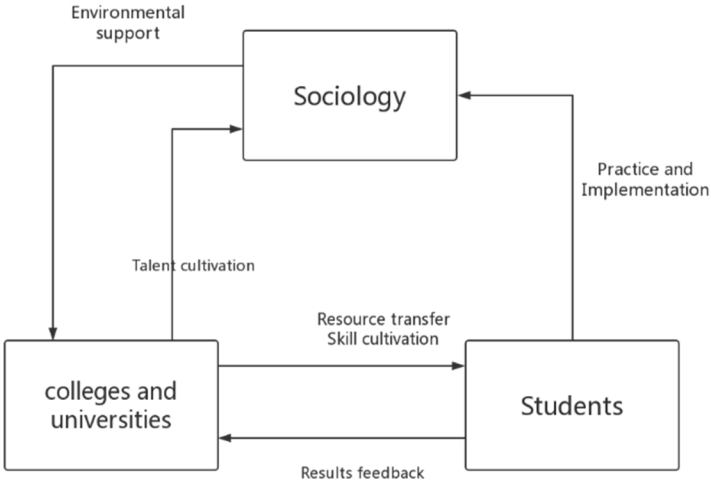

Fig. 1. The Inner Level of the Model of College Students' Innovation and Entrepreneurship Education

In terms of the concept and goal of college students' innovation and entrepreneurship education system, many colleges and universities consider it just one of teaching activities in campus, which is why most of them only focus on campus environment and students when setting educational objective[8]. However, actually innovation targets at students' minds and centers on the education and cultivation of students. Entrepreneurship is a relatively speaking concept, facing students and also facing the real world as an employment channel [9-11]. The society, colleges and universities, and students are the three inner levels in college students' innovation and entrepreneurship education system [12]. These three factors are mutually independent, connected and restrained. Therefore, when setting objective for innovation and entrepreneurship education,

colleges and universities should take the mechanism relationship among the society, colleges and universities, and students into account [1, 13, 14]. As a result, it can be ensured that the objective of innovation and entrepreneurship education system is feasible. Please refer Figure 1 for the inner level of the model of College Students' innovation and Entrepreneurship Education.

2.2 College Students Lack Creative Thinking Generally

Creative thinking belongs to an absolute subjective thinking, which means when students have creative ideas about their research independently, creative thinking of students can be considered really creative [15]. In order to initiate students' creative thinking in education system, colleges and universities should co-host various competition in the theme of entrepreneurship to stimulate students to attend those activities actively to practice ability of creativity [16, 17]. From the pattern of external growth, this kind of practice provided by colleges and universities apparently can be effective in short term. For instance, before and after competitions, teachers and students in entrepreneurship section will go through professional training together, and it is very likely for students to obtain different experience about entrepreneurship [18]. Unfortunately, right after a competition, the proposed innovation program in the competition can hardly be put into practice. In long term, students' creative ideas and logical thinking can not be actually developed[19].

2.3 Faculty Resources are Insufficient

Unlike professional courses, entrepreneurship represents a totally new acquisitive thought, so whether teachers in entrepreneurship section are professional enough to afford the responsibility to instruct students to start their own business by cultivating their creativity is extremely important [5, 20, 21]. In fact, the faculty resources of entrepreneurship section in most universities are too insufficient to afford the diverse requirements in innovation and entrepreneurship section, which makes impossible to develop new entrepreneurship courses based on good creative thinking and to effectively stimulate students' creativity[4, 8, 22]. In order to improve the insufficient faculty resources, a majority of universities turn to hire professionals for help, which will constantly consume abundant teaching resources and reduce the amount of fund that can be used to reform education system, thus worsening the fund shortage in the reform on faculty resources.

2.4 Entrepreneurship Education Disconnects Seriously from Students' Specialty

In order to maximize the real function of entrepreneurship education, it is not sufficient to just deliver simple theories [4, 16]. Successful entrepreneurship thinking should be established in the shoes of students' specialty in specific and professional education system, by which students can combine their professional thought and entrepreneurship thinking together in light of their specialty to use this "non-disconnected"

education to perfect their basic ability in innovation[18, 23]. Meanwhile, entrepreneurship education based on students' specialty can assist students to develop efficient innovation and entrepreneurship thinking. Unfortunately, most efficient entrepreneurship education systems have not put specialty integrity onto practice. What's worse, digital resources like big data have never been employed to help students to start business. Thus these have caused the disconnection between entrepreneurship education and students' specialty.

3 Research on Education System of College Students' Innovation and Entrepreneurship Based on Big Data

3.1 Clarify the Role of Innovation and Entrepreneurship Education in the Environment of Big Data.

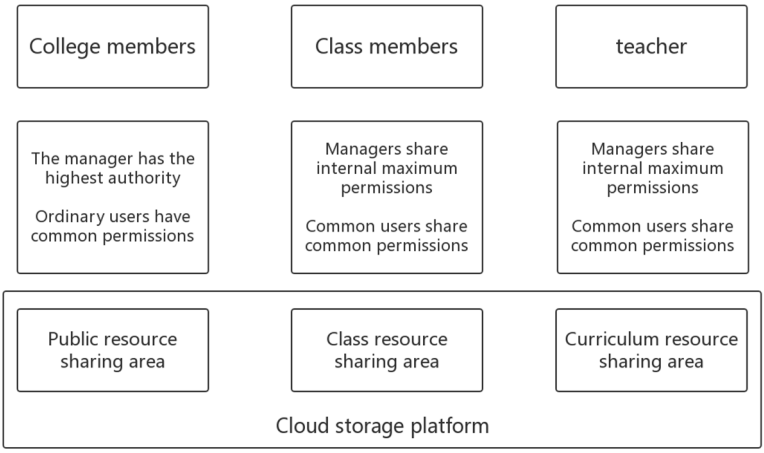

Fig. 2. Security sharing strategy based on the space and role of entrepreneurial resources in colleges and universities

Colleges and universities should realize the technological support brought by big data to innovation and entrepreneurship section [17]. Therefore, they should make every possible use of educational and administrative resources in the campus by pooling all physical and web-based teaching resources to conduct macro-control over important aspects of the system, including faculty resources, teaching resources, and educational resources of innovation and entrepreneurship section, which can be realized by establishing online teaching resources management section to make the complicated administration of innovation and entrepreneurship education system three-dimensional and more accessible [24]. To start with, an online resources platform or administration system should be established to store a great quantity of searchable and usable teaching resources [20]. Then this platform must be available to administrative of colleges and

universities, students and teachers at the same time, only by which the strength of the provided innovation and entrepreneurship education can be optimized [5, 15, 25]. Please refer Figure 2 for Security sharing strategy based on the space and role of entrepreneurial resources in Colleges and Universities.

During the establishment of the platform, colleges and universities may face the problem of the fairness of data layout, i.e. the complexity of grading because of its large number of possible users[9, 26]. To avoid the weakening of sharing rights in each level, the creator need to introduce the concept of equipment weight and virtual node to enhance the fairness. When the storage of the platform refers to distributing weight of all equipment, the sum of all weights equal to 1, as in the following formula:

$$\sum_{i=1}^{n} \omega_i = 1 \tag{1}$$

Then assume the minimum weight of all equipment is w_m, and can distribute $k \log n$ of virtual storage node to each storage node, as in the following formula:

$$N_i = \left(w_i / w_m\right) \cdot k \log n \tag{2}$$

As deduced from the above arithmetic, set all storage nodes as $\{d_1,\ldots,d_n\}$, its total required virtual storage node is N, and the next arithmetic is represented in the following formula:

$$N = \sum_{i=1}^{n} \left(w_i / w_m\right) \cdot k \log n \tag{3}$$

The fairness of data layout can be effectively ensured by the above arithmetic, while in order to clarify the role of innovation and entrepreneurship section, colleges and universities should target at the development of this era. They should take cultivating the innovation and entrepreneurship thinking and ability of college students as their own duty and integrate newest innovation and entrepreneurship courses into professional courses to achieve the best effect of college students' innovation and entrepreneurship education.

3.2 Optimize Talent Cultivation Plan in the Environment of Big Data

Talent cultivation plan is undoubtedly complicated, thus demanding colleges and universities pool all their teacher resources to construct and perfect[27]. To start with, innovation and entrepreneurship training plan and united entrepreneurship activities can be carried out in the campus. Colleges or universities that contain internal entrepreneurship programs should actively lead students into them, while those that have not developed entrepreneurship programs should take full advantage of classes as the main educational method to enrich students' market research and entrepreneurship practices, taking classes as the battle field to promote students' entrepreneurship skills and sharpen students' ability of independent creativity and scientific innovation effectively.

Meanwhile, colleges and universities should share online teaching resources with their students when they can use their portable equipment to check for entrepreneurship teaching resources to improve their ability anytime necessary. When students acquire basic ability and skills, colleges and universities should take students to attend large-scale competition, such as professional entrepreneurship competition, which means to provide chances for students to put their entrepreneurship idea into practice, so when they achieve their goal successfully in the competition, the head teacher must keep specific record about students' thinking for it may be the very first step to start a business in real life.

3.3 Optimize Faculty Construction in the Environment of Big Data

To start with, colleges and universities can employ big data analysis and processing technology to enter comprehensive ability of all teachers into the analysis software and work out the most reasonable teaching structure according to the model given by the data analysis system. Then, they can optimize the teaching resources despite the actual insufficiency of teacher resources. At the same time, colleges and universities should fasten the fostering of current and new teachers according to the standard of entrepreneurship in China as well as hire experienced predecessors in entrepreneurship from the society to improve the teaching ability of teachers in the campus.

4 Conclusions

In conclusion, to construct innovation and entrepreneurship education system based on big data, colleges and universities should focus on cultivation of students and take every advantage of its current resources. To be specific, colleges and universities should develop an education administration system based on big data as well as combining its own development to improve their teacher resources to achieve the maximum teaching practicality and value of college students' innovation and entrepreneurship education system.

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References

1. Li W, Nie Y, Tian Z. Innovation and entrepreneurship model of higher vocational college students based on probability theory statistics [J]. Applied Mathematics and Nonlinear Sciences, 2023.
2. Pagano C, Pipino C, Squillante D, et al. Preserve local commerce in the global e-commerce era: The case of CiShoppo[J]. 2024.
3. Hai-Yan Y U. Adjusting the Business English Training Program for the Needs of Cross-border E-commerce Innovation and Entrepreneurship[J]. Journal of Hubei Open Vocational College, 2019.
4. Virgosita R, Paramita W, Rostiani R, et al. BUILDING SOCIAL ENTREPRENEURIAL SELF-EFFICACY IN AN EMERGING ECONOMY: THE ROLE OF EDUCATION AND ENTREPRENEURIAL EXPERIENCE[J]. Journal of Developmental Entrepreneurship, 2023.
5. Liu Y, Wen J. STUDY ON THE CONSTRUCTION OF COLLEGE STUDENTS' INNOVATION AND ENTREPRENEURSHIP EDUCATION ECOSYSTEM[J]. Journal of environmental protection and ecology, 2023, 24(3):1053-1060.
6. Ying Y, University K. Construction of Cross-border E-commerce Innovation and Entrepreneurship Talents Training System in Higher Vocational Colleges[J]. Journal of Kaifeng University, 2019.
7. Cao Q. Study on Resource Sharing Strategy of e-Commerce Innovation and Entrepreneurship Education Based on Cloud Computing [J]. Sci. Program., 2021, 2021: 8268000-8268001.
8. Baskir M B. A novel belief-based QFD-AHP model in interval type-2 fuzzy environment for lean after-sales service in automotive industry[J]. International Journal of Lean Six Sigma, 2023.
9. Wang Y, Tang B. Research and Practice on the Collaborative Education System for the Innovation and Entrepreneurship of E-commerce Major: International Conference on Big Data and Informatization Education[C], 2020.
10. Bao F, Ju C, Gu Q. Exploration of E-Commerce Innovation and Entrepreneurship Interdisciplinary Talents Education System Multi-Level Linkage Resource Sharing Based: 2020 International Conference on Advanced Education, Management and Social Science (AEMSS2020)[C], 2020.
11. Lihong D, Polytechnic C. Study on Training Model of Cross-border E-commerce Innovation and Entrepreneurship Talents Major in Business English[J]. Journal of Hubei Adult Education Institute, 2019.
12. Liang G, Alghazzawi D, Joseph N R. The evaluation of college students' innovation and entrepreneurship ability based on nonlinear model[J]. 2021.
13. Engineering M P I. Retracted: The Construction of Innovation and Entrepreneurship Incentive Mechanism for College Students Based on Hierarchical Analysis[J]. 2023.
14. Deutschland I, Mazur G. QFD and Design for Six Sigma: A Quality Product Development System[J]. 2022.
15. Li Q. Connecting East and West Through Corporate,Entrepreneurial and Cultural Experience——Interview with Margaret Chen,CEO of Optimus Horizon[J]. China's foreign trade, 2022(4):24-25.

16. Qian H. Research on Innovation and Entrepreneurship and Talent Cultivation Mode of College Students under the Background of Artificial Intelligence Technology[J]. Applied Mathematics and Nonlinear Sciences, 2024,9(1).
17. Olazo D B. Marketing competency, marketing innovation and sustainable competitive advantage of small and medium enterprises (SMEs): a?mixed-method analysis[J]. Asia Pacific Journal of Marketing and Logistics, 2023,35(4):890-907.
18. Wang S, Zhen X, Wang X. Research on the Cultivation Path of Craftsmanship Spirit Among Vocational College Students[J]. Contemporary Education Research, 2023,7(4):1-6.
19. Stebljuk S. Professional competence of future specialists of entrepreneurship, trade and exchange activities, and their structure[J]. Scientific visnyk V O Sukhomlynskyi Mykolaiv National University Pedagogical Sciences, 2019,66(3):238-243.
20. Deng B, Wu J. RETRACTED ARTICLE: The Cultivation of Innovation and Entrepreneurship Skills and Teaching Strategies for College Students from the Perspective of Big Data[J]. Arabian journal for science and engineering, 2023,48(2):2605.
21. Reund F L. Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research[J]. Business Strategy and the Environment, 2020,29.
22. Granger C. TDI Challenge highlights 'the spirit of innovation'[J]. Machinery Market, 2023(TN.6318).
23. Fang X, Shen Y, Zhou J, et al. QFD-Based Product Design for Multisegment Markets: A Fuzzy Chance-Constrained Programming Approach[J]. IEEE Transactions on Engineering Management, 2020,PP(99):1-15.
24. Zeng S, Fu Q, Haleem F, et al. Logistics density, E-commerce and high-quality economic development: An empirical analysis based on provincial panel data in China[J]. Journal of cleaner production, 2023(Nov.10):426.
25. Huihui C, Hualing Z. Empirical Study on Supply Effect of Social Support on Innovation and Entrepreneurship Literacy of College Students[J]. Journal of Hefei University of Technology(Social Sciences), 2019.
26. Ren J. Research on the Training Mode of E-Commerce Talents' Innovation and Entrepreneurship Ability Based on the Cooperation Between School and Enterprise: International Conference on Economic Management and Cultural Industry[C], 2019.
27. Zhang X, Xie S. Construction of Modern Information Technology Training base Centered on E-commerce Innovation and Entrepreneurship: International Conference on Management, Education and Information[C], 2019.