

# Current Situation and Performance Evaluation of Innovation and Entrepreneurship Education in Colleges and Universities—A Quantitative Analysis Based on the Survey Data of Beijing-Tianjin-Hebei Region

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## ABSTRACT

The purpose of the study is to study the current situation and performance of innovation and entrepreneurship education. In order to speculate on the above research goal, we distributed 6,000 questionnaires and recovered in 5,444, with a recovery rate of 91%. We find that (1) The entrepreneurial performance of college students shows that interviewees are more satisfied with the non-financial performance, while their satisfaction with financial performance is lower; (2) In terms of the satisfaction of innovation and entrepreneurship education in school, 76.3% of the interviewees give the positive evaluation, 18.9% of those give the mediocre evaluation, and only 4.8% hold the negative evaluation. This research has a certain significance in evaluating the performance of innovation and entrepreneurship education in colleges and universities.

**Keywords:** *innovation and entrepreneurship education in colleges and universities, current situation of education, educational performance, Beijing-Tianjin-Hebei region*

## 1. INTRODUCTION

Developing and promoting innovation and entrepreneurship education in colleges and universities is an inevitable requirement to adapt to the modernization and socialization of colleges and universities.[1-3] General Secretary Xi Jinping pointed out in the report of the 19th National Congress of the Communist Party of China that strengthening education is fundamental to the pursuit of national rejuvenation, and it is necessary to give priority to education, further reform in education, speed up its modernization. On May 4<sup>th</sup>, 2015, the General Office of the State Council issued the *Opinions on the Implementation of Deepening the Reform of Innovation and Entrepreneurship Education in Colleges and Universities*, which initiates the reform process of innovation and entrepreneurship education in Chinese colleges and universities. With the proposal of the national strategy of “mass entrepreneurship and innovation”, innovation and entrepreneurship education is generally regarded as a breakthrough and an important step for the comprehensive reform of higher education. Colleges and universities are increasingly playing an important role in the cultivation of innovative talents, the creation of an entrepreneurial atmosphere and the supply of social services.

According to the definition, innovation and entrepreneurship education aims at cultivating talents with basic entrepreneurial qualities and pioneering personalities.

That education stresses on cultivating students' entrepreneurial awareness, innovative spirit, and innovative entrepreneurial ability, and it faces the whole society as well.[4-5] For those entrepreneurial groups who intend to start a business, or have already started a business, and even have successfully established a business, education on innovative thinking training and entrepreneurial ability training should be carried out in different stages with different levels.[4-7] Essentially, innovation and entrepreneurship education is practical education. Studying the current situation and performance evaluation of innovation and entrepreneurship education in colleges and universities can guide colleges and universities to effectively carry out innovation and entrepreneurship education activities and improve the efficiency of that education. [8-10]

Based on the current situation of innovation and entrepreneurship education in colleges and universities, the paper aims to evaluate the performance of education by surveying with questionnaires, and to provide inspiring ideas and suggestions for future colleges and universities to carry out innovation and entrepreneurship education.

## 2. DATA COLLECTIONS AND CURRENT SITUATION ANALYSIS

This questionnaire survey mainly directs at college students who have participated in related activities of innovation and entrepreneurship in the

Beijing-Tianjin-Hebei region. A total of 6,000 questionnaires are issued, and 5,444 valid questionnaires are recovered with a recovery rate of 91%. Students participate in this survey, coming from universities of “985 Project” and “211 Project” universities, or local universities and higher vocational colleges. In this sampling survey, on the basis of convenience and effectiveness, a proportional sampling method is adopted. That is, according to the proportion of 1.5 million college students in Beijing, 0.15 million in Tianjin and 0.25 million in Hebei, the sample size is in proportion of 20:2:3. Subsequently, 4,366 valid samples are selected from Beijing, 466 pieces are collected from Tianjin, and 612 from Hebei, keeping in line with the ratio of the total number of college students in three regions, which can support the successful development of the survey.

We first examine the distribution of the sample with gender, educational level, major, and grade.

**First, distribution of gender.** In this survey, the total number of students surveyed in Beijing-Tianjin-Hebei region is 5,444, including 2,235 male students, accounting for 41.1%, and 3,209 female students, accounting for 58.9%. In Beijing, there are 1,705 male students, accounting for 39.1%, and 2,661 female students for 60.9%. Among the students interviewed in Tianjin, 221 are male, accounting for 47.4% and 245 female students with 52.6%. In Hebei Province, there are 309 male students for 50.5%, and 303 female students, in the proportion of 49.5%. In general, there are more girls than boys (see Figure 1).

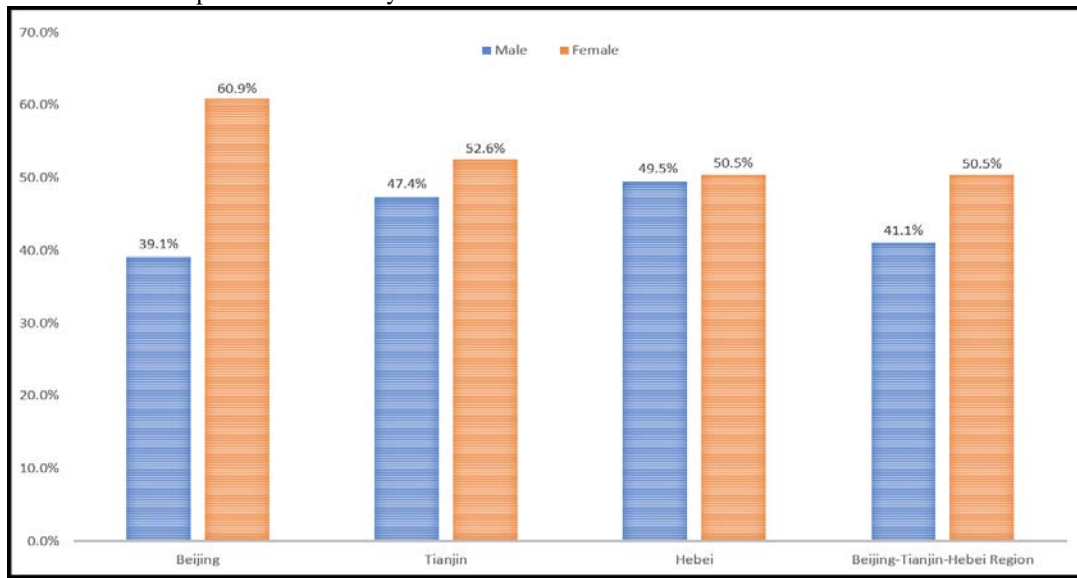


Figure 1. Gender distribution of students (%)

(Source: based on the data of questionnaires)

**Second, distribution of educational level.** Figure 2 shows that among the interviewed students, 17.6% of them have higher vocational education, 77.7% of them have bachelor degree, 3.5% of them have master degree and 1.2% of them have doctor degree. Among them, students from higher vocational college account for 11.0%, and the percentage of students in bachelor degree is 84.5%, in master degree is 3.9%, and in doctor degree is 0.7% in

Beijing. In Tianjin, there are 56.9% students in higher vocational college, 36.3% students have bachelor degree, 0.9% students have master degree, and 6.0% students have doctor degree. As for Hebei, students whose educational background are higher vocational college take up 35.5%, and those who have bachelor degree account for 60.3%, students in master degree account for 2.6% and 11.6% in doctor degree.

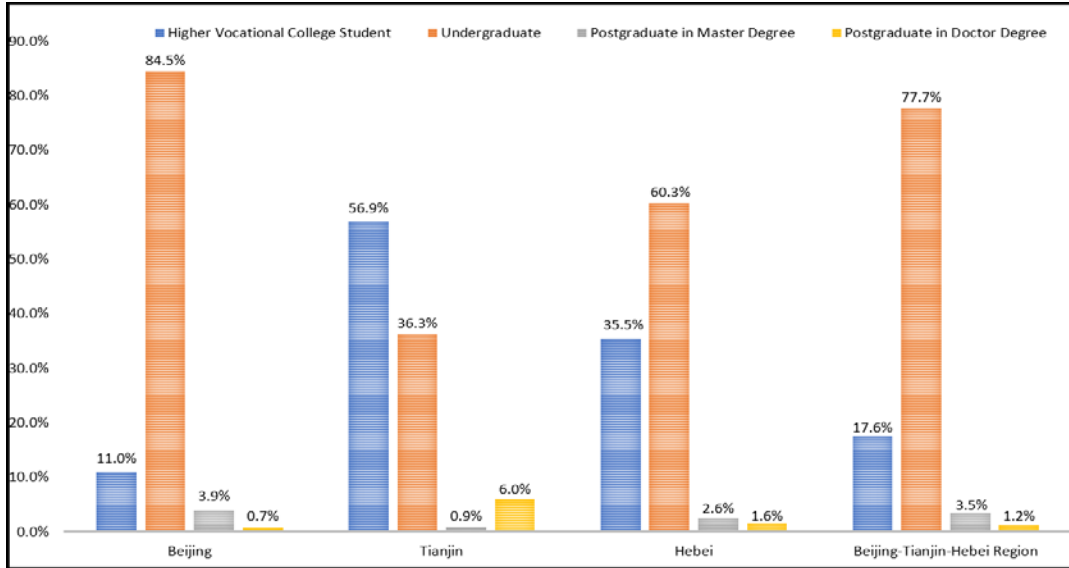


Figure 2. Distribution of educational level (%)

(Source: based on the data of questionnaires)

**Third, distribution of major.** Figure 3 shows that among the interviewees in this survey, the proportion of their majors from high to low are: Science and Engineering (48.9%), Economics and Management (20.4%), Education

(6.6%), and Humanities and Social Sciences (except Economics and Management) (6.4%), Art (5.9%), Medicine (3.8%), Agriculture (1.4%), and other majors (6.7%).

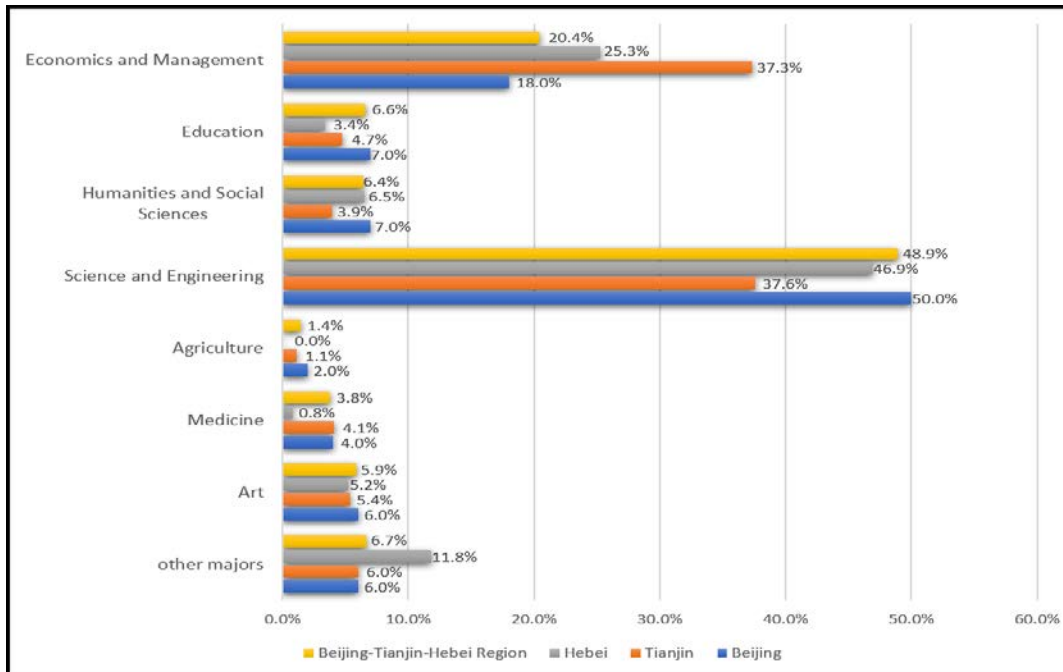


Figure 3. Distribution of studying major in college and university (%)

(Source: based on the data of questionnaires)

**Fourth, distribution of grade.** Figure 4 shows the grade distribution of the students surveyed in this research. The results show that the lower grades (first and second grades) account for 59.5% of all, the higher grades (third to graduation grades) take up 27.5%, and the proportion of the students who have graduated less than 2 years is 13%.

In Beijing, students of the lower grades take up 54.8% of all, students of the higher grades are 30.6%, graduates take up 14.5%; In Tianjin, 83.7% students of this survey are junior students and 11.3% are senior students, and 9.2% students are graduates. In Hebei province, there are 83.7%

students in lower grades, 11.3% in the higher grades, and 5.1% are graduates.

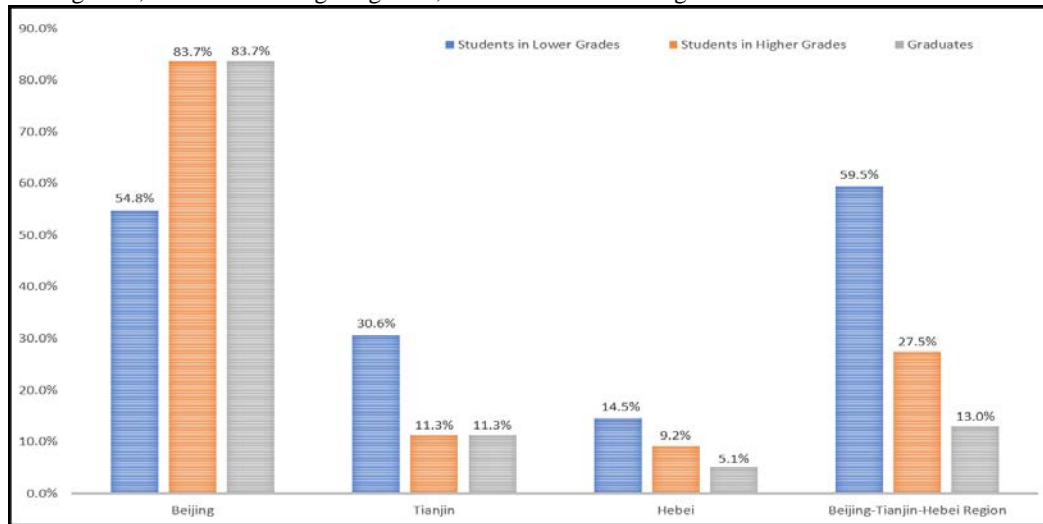


Figure 4. Distribution of studying grade (%)

(Source: based on the data of questionnaires)

According to the results of this questionnaire survey, we find that college students participating in related activities of innovation and entrepreneurship education in colleges and universities of Beijing-Tianjin-Hebei region show the following characteristics: (1) From the perspective of gender distribution, female students are slightly more than male students, and undergraduate students under 22 years old are in the majority; (2) From distribution of educational level, undergraduates are the majority of students who start their own business; (3) For distribution of major, students whose majors in Science and Engineering and Economics and Management are majority; (4) As for studying grade, the interviewed students mainly lie in the lower grades of universities; (5) From the perspective of regional distribution, senior students and graduates in Beijing are more active in participating in innovation and entrepreneurship; higher vocational college students in Tianjin and students majoring in Economics and Management are more active; and in Hebei, junior students about 20 years old is considered more active.

This paper uses the self-assessment method of the interviewees to evaluate students' entrepreneurial performance and innovation and entrepreneurship education performance. The entrepreneurial performance indicators include financial indicator and non-financial indicator. The financial performance of entrepreneurs is measured by three indicators: operating profit growth rate, return on investment, and market share growth rate. Non-financial indicators include employee performance, customer performance and resource utilization rate. The indicators are selected from two aspects of stability and initiative. Employee performance is measured by two indicators: "low absence/turnover rate" and "a stronger sense of belonging and a higher loyalty and satisfaction". Customer performance is described by two indicators: "willing to continue to buy and use products and services that the company has and newly developed", and "high confident in the company and willing to put forward suggestions for improving products or services". The resource utilization rate includes two parts: human resources matching and hardware facilities using. Results of entrepreneurial performance self-assessment are shown in Table 1.

### 3. ANALYSIS ON PERFORMANCE OF INNOVATION AND ENTREPRENEURSHIP EDUCATION IN COLLEGES AND UNIVERSITIES

Table 1. Distribution of results to the self-assessment on entrepreneurial performance of college students in Beijing-Tianjin-Hebei region

Indicators	0 Point	1 Point	2 Points	3 Points	4 Points	5 Points
Higher operating profit growth rate than peers	1.6%	11.4%	38.2%	34.1%	14.6%	1.6%
Higher return on investment than peers	0.0%	10.6%	39.8%	35.0%	14.6%	0.0%
Higher market share growth rate than peers	0.8%	8.1%	35.8%	42.3%	13.0%	0.8%
Low absence / turnover rate of employees	2.4%	8.1%	36.6%	35.8%	17.1%	2.4%

Cont. to Table 1.						
The quality of the employees' works well matched with the company's human resources input	0.8%	13.0%	35.0%	36.6%	14.6%	0.8%
Employees with a stronger sense of belonging and a higher loyalty and satisfaction	0.0%	8.9%	28.5%	49.6%	13.0%	0.0%
Customers with willingness to continue to buy and use the company's products or services	0.0%	8.9%	31.7%	41.5%	17.9%	0.0%
Customers with willingness to put forward suggestions for improving products or services	0.8%	6.5%	37.4%	39.8%	15.4%	0.8%
The company's main hardware facilities with high utilization rate, without laying idle.	0.0%	9.8%	29.3%	41.5%	19.5%	0.0%

By calculating the weighted average of the percentage distribution of students' answers, we find that the self-evaluation of entrepreneurial business performance from high to low, are: "Receive the respect and understanding of society and people around by entrepreneurship" (hereinafter referred to as "respect and understanding"); "Be satisfied with and be proud of owning a company" (hereinafter referred to as "satisfaction and pride"); "Whatever happens, continue to engage in entrepreneurship" (Hereinafter referred to as "the confidence in keeping entrepreneurship"); "The main hardware facilities with high utilization rate, without laying idle." (hereinafter referred to as "the utilization rate of hardware facilities"); "Have a good reputation in this industry field" (hereinafter referred to as reputation); "Customers with willingness to continue to buy and use the company's products or services" (hereinafter referred to as "customers willingness of purchase"); "Employees with a strong sense of belonging and a higher loyalty" (hereinafter referred to as "employee loyalty"); "Customers with willingness to put forward suggestions

for improving products or services" (hereinafter referred to as "customer interaction"); "The initial personal value and goals have been achieved" (hereinafter referred to as "the initial personal goals"); "Higher market share growth rate than peers" (hereinafter referred to as "market share growth rate"), "Low absence / turnover rate of employees" (hereinafter referred to as "employee turnover rate"); "Be satisfied with the economic return of entrepreneurship" (hereinafter referred to as "economic return"); "Higher return on investment than peers" (hereinafter referred to as "return on investment"); "The quality of the employees' works well matched with the company's human resources input" (hereinafter referred to as "employee matching degree"); "Higher operating profit growth rate than peers" (hereinafter referred to as "operating profit growth rate"). Figure 5 plots the ranking of entrepreneurial performance, and the results unveil that the respondents are more satisfied with their non-financial performance results in the entrepreneurial process, while the satisfaction with the company's financial performance results is relatively low.

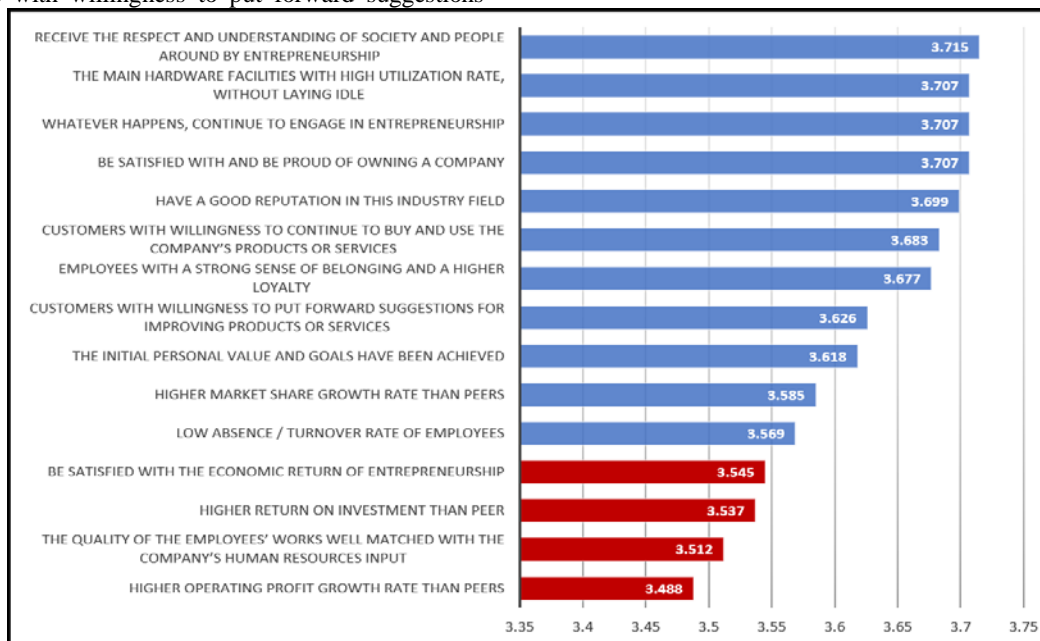


Figure 5. Ranking of college students' entrepreneurial performance in Beijing-Tianjin-Hebei Region

(Source: based on the data of questionnaires)

This paper analyzes the realization of entrepreneurial value of college students in Beijing-Tianjin-Hebei region in Figure 6. By calculating the weighted average of the percentage distribution of students' answers, among the self-assessment indicators for the entrepreneurial value achieved by the students surveyed in the

Beijing-Tianjin-Hebei region, all of the 6 indicators are between 3-4 points, and no indicator is above 4 points or below 3 points. It can be seen that the interviewed students have nothing special feeling about realizing entrepreneurial value.

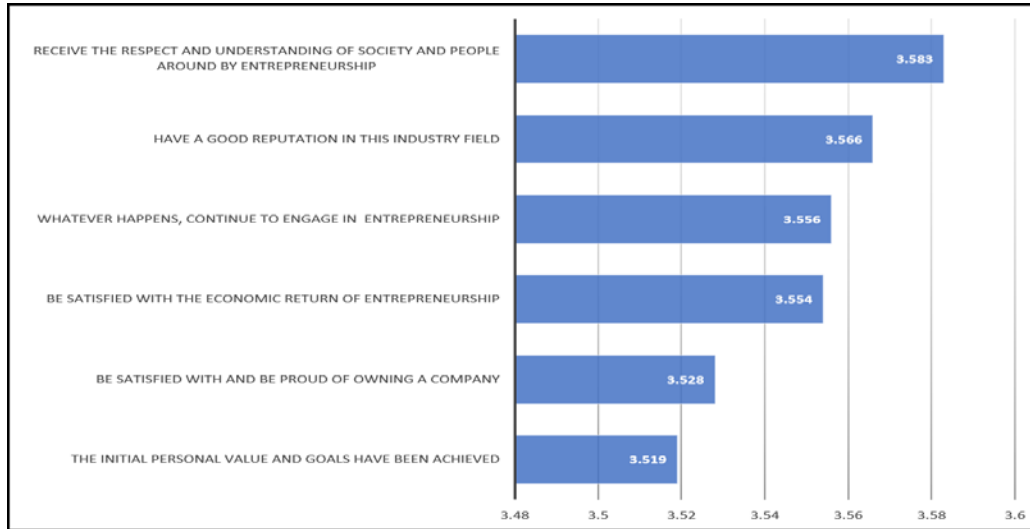


Figure 6. Ranking of the weight average of college students' scores of realizing entrepreneurial value in Beijing-Tianjin-Hebei Region

(Source: based on the data of questionnaires)

Then we investigate the satisfaction of innovation and entrepreneurship education in colleges and universities. Figure 7 reports the distribution of college students' satisfaction with innovation and entrepreneurship education in Beijing-Tianjin-Hebei region. It can be seen that 76.3% of the respondents give the positive evaluation, 18.9% give the mediocre evaluation, and only 4.8%

explicitly give the negative evaluation. In Beijing, 78.0% of interviewees evaluate it positively, 18.0% give the mediocre evaluation, and 4.0% evaluate it negatively. In Tianjin, 70.2% of students comment with positiveness, 19.7% comment it commonly, and 10.1% comment with negation. As for Hebei, there are 68.5% positive assessments, 24.7% normal, and 6.9% negative.

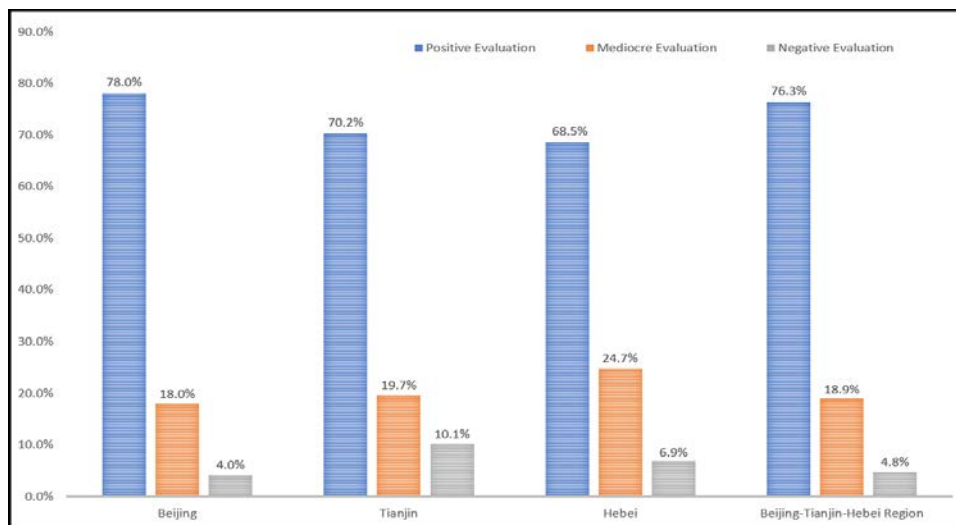


Figure 7. Distribution of college students' satisfaction with innovation and entrepreneurship education in Beijing-Tianjin-Hebei (%)

(Source: based on the data of questionnaires)

#### 4. CONCLUSION

This paper studies the current situation and performance of innovation and entrepreneurship education in universities. We find that entrepreneurial college students are more satisfied with the results of non-financial performance, while satisfaction with financial performance is relatively low. In addition, in terms of satisfaction with school innovation and entrepreneurship education, 76.3% of entrepreneurial students gave a positive evaluation. In the future, as the coordinated development of Beijing-Tianjin-Hebei region goes deeper, the innovation and entrepreneurship education of colleges and universities in the region will inevitably move towards the goal of coordinated development. It requires the joint efforts of governments, colleges and universities, society and enterprises to build a collaborative education system of entrepreneurship and innovation education that suits the development characteristics of this region. Innovation and entrepreneurship education has high practical requirements, hence, colleges and universities should support from the aspects of high-quality courses, perfect guarantee system and ability-oriented training platform with aiming at the weak links of innovation and entrepreneurship education. Macroscopically, it is necessary to build a cooperative development linkage mechanism for innovation and entrepreneurship education in Beijing-Tianjin-Hebei region.

#### REFERENCES

- [1] Jiang C, Li Y Z, Huang, Z. Research on the influencing factors of undergraduates' entrepreneurship intentions—Based on the survey of Peking University students[J]. Higher Education Exploration, 2018, (1):120-123.
- [2] Li T T, Wang, Y. Evaluation on innovation and entrepreneurship education of C9 universities[J]. Journal of Higher Education, 2018, (8): 33-34,37.
- [3] Wang L. Analysis of the times opportunities, realistic challenges and promotion strategies of innovation and entrepreneurship education in colleges and universities[J]. Education Review, 2018, (2): 78-81.
- [4] Liu H T, Guo S Z, Liu Z L, et al. Review on the development of factor space [J]. Fuzzy Systems and Mathematics, 2017, (6): 39-58.
- [5] Tian X. Types and construction of evaluation system of entrepreneurship education in colleges and universities[J]. Higher Education Exploration, 2016, (4): 82-85.
- [6] Zhou D Y, Li Q S. Research on comprehensive evaluation of entrepreneurship education[J]. Journal of Tianjin University (Social Science), 2015, (4):333-337.
- [7] Chen L P, Zhang Y. Research on the performance evaluation index system of colleges and universities under the background of innovation and entrepreneurship education Reform[J]. Assets and Finances in Administration and Institution, 2016 (07): 28-29.
- [8] Harkema S, Schout H. Incorporating student-centered learning in innovation and entrepreneurship education[J]. IEEE Engineering Management Review, 2012, 40(2):164-174.
- [9] Béchar J P, Grégoire D. Archetypes of pedagogical innovation for entrepreneurship in higher education: Model and illustrations[J]. Handbook of research in entrepreneurship education: A general perspective, 2007, 1: 261-284.
- [10] Ding Y Y. The constraints of innovation and entrepreneurship education for university students[J]. Journal of Interdisciplinary Mathematics, 2017, 20(6-7): 1431-1434.