



# Research on satisfaction evaluation of innovation and entrepreneurship education in medical colleges

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**Abstract.** This paper constructs an evaluation index system of innovation and entrepreneurship education satisfaction in medical colleges from the perspectives of school management, curriculum design and entrepreneurship and innovation practice. The research shows that the degree of satisfaction with innovation and entrepreneurship education in medical colleges is general, especially the transformation effect of innovation and entrepreneurship results, the faculty strength of innovation and entrepreneurship education in schools, the practice activities of innovation and entrepreneurship, and the sound degree of innovation and entrepreneurship course system need to be further improved.

**Keywords:** Medical colleges; Innovation and entrepreneurship education; Educational satisfaction evaluation

## 1 Introduction

With the increasing development of science and technology, new medical technologies and methods are emerging in the medical field, which accelerates the cross-integration of medicine and other disciplines. Innovation and entrepreneurship education for medical students can not only cultivate innovative medical talents, but also contribute to the continuous progress of medical disciplines<sup>[1-2]</sup>. At present, innovation and entrepreneurship education in medical colleges has been carried out for many years, but in the actual teaching process, there have been a series of problems such as mismatch between teachers and students, difficult balance of educational resources, and low transformation of innovation achievements<sup>[3]</sup>. At the same time, due to professional restrictions, medical college students are prone to more obstacles in the process of innovation and entrepreneurship, resulting in a relatively slow development of innovation and entrepreneurship education in medical colleges<sup>[4]</sup>, which is more difficult to achieve good results on the cultivation of students' innovation and entrepreneurship ability than comprehensive universities<sup>[5]</sup>.

Based on this, in order to explore the quality of innovation and entrepreneurship education construction in medical colleges, this paper establishes a scientific evaluation index system for innovation and entrepreneurship education satisfaction in medical colleges with educates as the object. The application of fuzzy comprehensive analysis

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method provides a feasible scientific evaluation to improve the satisfaction of innovation and entrepreneurship, improve the construction of innovation and entrepreneurship education system, and promote the development of innovation and entrepreneurship education, and puts forward satisfaction improvement strategies from three aspects: school management, curriculum design, and entrepreneurship and innovation practice.

## 2 Research Design

### 2.1 Research tools

In order to understand the current satisfaction status of innovation and entrepreneurship education in medical colleges, this paper takes North Sichuan Medical College as the research object and students as the survey object to conduct a questionnaire survey on innovation and entrepreneurship education satisfaction in medical colleges. Based on a comprehensive analysis of the connotation of innovation and entrepreneurship education and research results at home and abroad, through consulting experts and literature research and analysis, combined with the training characteristics of medical colleges, this paper constructs the preliminary screening index system of innovation and entrepreneurship education satisfaction evaluation index system of medical colleges. Then, a semi-structured interview with managers of innovation and entrepreneurship education in medical colleges was conducted to screen the indicators for the first time. Finally, based on the experts' evaluation of the importance of the indicators and the analysis of suggestions, the index system as shown in Table 1 was finally determined, consisting of 3 first-level indicators and 11 second-level indicators.

**Table 1.** Evaluation index system of innovation and entrepreneurship education satisfaction in medical colleges

Evaluation Goal	Primary Index	Secondary Index
Satisfaction evaluation of innovation and entrepreneurship education in medical colleges	School management	School innovation and entrepreneurship education policy improvement
		School innovation and entrepreneurship education level
		School innovation and entrepreneurship education support
	Curriculum design	School innovation and entrepreneurship education teachers
		The sound degree of innovation and entrepreneurship curriculum system
		Innovation and entrepreneurship course schedule
		The degree of integration between the curriculum and medical schools
	Innovation and entrepreneurship	Special lectures, school-enterprise exchange theme education

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practice	Innovation and entrepreneurship practice activities Transformation of innovation and entrepreneurship results Innovation and entrepreneurship incubation model
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The evaluation index system of innovation and entrepreneurship education in medical colleges was used to design expert questionnaires and determine the weights of each index. Then, we designed a questionnaire to evaluate the satisfaction of innovation and entrepreneurship education in medical colleges. Students were asked to score each index, and 5 points were collected for each item, and relevant data were sorted out.

**2.2 Data Collection**

Forty innovation and entrepreneurship education staff, teachers and relevant experts in medical colleges were invited to investigate the weights of the first and second indexes of the evaluation index system of innovation and entrepreneurship education satisfaction in medical colleges, collect and collate them, and compare them one by one by using analytic hierarchy process. The results are shown in Table 2.

1000 students were randomly invited to conduct a questionnaire survey on the satisfaction status of innovation and entrepreneurship education in medical colleges. Questionnaires were distributed on site and collected through online survey platforms. A total of 984 questionnaires were collected from January 2022 to December 2022, of which 932 were valid. Cronbach's  $\alpha$  coefficient was tested for each dimension of the index system, and all of Cronbach's  $\alpha$  coefficients are above 0.8, indicating that the reliability level of the scale was high, and each measurement item of the scale had high internal consistency, which enabled further data analysis. KMO test and Bartlett sphere test were used to test the validity of the questionnaire. Each index was shown in Table 3, indicating that the KMO value was 0.91. The results showed that the questionnaire design was reasonable and reached an acceptable level.

**Table 2.** Weight of evaluation index system of innovation and entrepreneurship education satisfaction in medical colleges

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Primary Index	Weight	Secondary Index	Weight
School management	0.343	School innovation and entrepreneurship education policy improvement	0.205
		School innovation and entrepreneurship education level	0.234
		School innovation and entrepreneurship education support	0.288
		School innovation and entrepreneurship education teachers	0.273
Curriculum design	0.268	The sound degree of innovation and entrepreneurship curriculum system	0.412

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		Innovation and entrepreneurship course schedule	0.374
		The degree of integration between the curriculum and medical schools	0.214
		Special lectures, school-enterprise exchange theme education	0.075
Innovation and entrepreneurship practice	0.389	Innovation and entrepreneurship practice activities	0.463
		Transformation of innovation and entrepreneurship results	0.218
		Innovation and entrepreneurship incubation model	0.244

**Table 3.** Validity test

Variable		Indicator
	KMO	0.91
	Approximate chi-square	1487.301
Bartlett	df	72
	P	0.000

### 3 Research Result

The results of the questionnaire survey were sorted out and the evaluation results of the satisfaction degree of innovation and entrepreneurship education in medical colleges were calculated using analytic hierarchy process (AHP), as shown in Table 4. It can be seen from the table that the lowest scores of the secondary indicators are the transformation effect of innovation and entrepreneurship achievements, the faculty strength of innovation and entrepreneurship education in schools, the practice activities of innovation and entrepreneurship, and the degree of the sound system of innovation and entrepreneurship courses. In particular, the index of the sound degree of innovation and entrepreneurship curriculum system has a high weight, but the score is low, which reduces the overall satisfaction of innovation and entrepreneurship education. The scores of the first-level indicators of school management, curriculum design and innovation and entrepreneurship practice were 3.6733, 3.5715 and 3.2307, respectively, indicating that the scores of the three aspects were between average and good, and need to be further improved. According to the weight calculation, the satisfaction evaluation score of innovation and entrepreneurship education in medical colleges is  $3.6733 \times 0.343 + 3.5715 \times 0.268 + 3.2307 \times 0.389 = 3.4738$ , which is also between average and good.

**Table 4.** Evaluation results of innovation and entrepreneurship education in medical colleges

Primary Index	Score	Secondary Index	Score
School management	3.6733	School innovation and entrepreneurship education policy improvement	4.013
		School innovation and entrepreneurship education level	3.874
		School innovation and entrepreneurship education support	3.922
		School innovation and entrepreneurship education teachers	2.984
		The sound degree of innovation and entrepreneurship curriculum system	3.193
Curriculum design	3.5715	Innovation and entrepreneurship course schedule	4.058
		The degree of integration between the curriculum and medical schools	3.450
		Special lectures, school-enterprise exchange theme education	3.621
Innovation and entrepreneurship practice	3.2307	Innovation and entrepreneurship practice activities	3.019
		Transformation of innovation and entrepreneurship results	2.705
		Innovation and entrepreneurship incubation model	3.982

It can be seen from the table that the transformation of innovation and entrepreneurship achievements has the lowest score. Due to the lack of scientific understanding and grasp of innovation and entrepreneurship in medical colleges, the utilization rate of business incubators is far lower than expected, and the conversion rate of results is low, which leads to the bottleneck of the transformation of innovation and entrepreneurship results between teachers and students. Therefore, medical colleges should build an intellectual property system with information collection, resource aggregation and complete protection, and scientifically and effectively transfer the results of innovation and entrepreneurship education in medical colleges to enterprises through normal technical channels, which not only improves the conversion rate of results but also realizes the maximum rate of resources.

Secondly, the score of the school's innovation and entrepreneurship education teachers is 2.984, which is also low. Due to the relatively short time for college students to set up innovation and entrepreneurship courses, and the uneven ability of innovation and entrepreneurship teachers in medical colleges, entrepreneurship teachers lack medical background, innovation teachers are busy, and although their professional background is prominent, they have a weak entrepreneurial awareness. In the process of selecting teachers of innovation and entrepreneurship courses in medical colleges, higher requirements are adopted to select teachers with relatively high ability and relatively strong sense of responsibility to carry out innovation and entrepreneurship

education for college students.

Finally, the score of the sound degree of innovation and entrepreneurship course system is 3.193. In terms of innovation and entrepreneurship course setting, medical colleges have not formed a complete course system at present. At present, innovation and entrepreneurship education in medical colleges in China is still in the exploratory stage, and the curriculum is not mature, especially in the integration degree of innovation and entrepreneurship education and medical professional education. In addition, the number of innovation and entrepreneurship courses is relatively small, which leads to teachers' timely compression of teaching content in the course teaching process, focusing on the explanation of innovation and entrepreneurship education theory, while ignoring the integration with medical professional knowledge. It is suggested to construct scientific innovation and entrepreneurship education courses, highlight the characteristics of medical majors, and create innovation and entrepreneurship education courses for medical students that are different from those in science and technology, literature and history.

## 4 Conclusions

In order to understand the quality of innovation and entrepreneurship education in medical colleges, this paper shows that the satisfaction of innovation and entrepreneurship education in medical colleges is general, especially the transformation effect of innovation and entrepreneurship results, the faculty strength of innovation and entrepreneurship education in schools, innovation and entrepreneurship practice activities, and the sound degree of innovation and entrepreneurship course system need to be further improved. It is suggested that multi-departments cooperate to improve the curriculum system of innovation and entrepreneurship, strengthen the cultivation of innovation and entrepreneurship teachers, enrich innovation and entrepreneurship practice activities, and improve the conversion rate of innovation and entrepreneurship achievements.

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