

Does Entrepreneurship Education And Training Promote College Students' Entrepreneurship? - Based On The Survey Data Of 735 Maker Spaces In Guangdong Province

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Abstract:

Promoting college students' entrepreneurship is an intrinsic requirement of economic development and a continuous driving force for social progress. Based on the survey data of 735 maker spaces in Guangdong Province, this paper empirically tests whether entrepreneurship education and training can promote college students' entrepreneurship using OLS and Probit models and further measures its effect. The results show that entrepreneurship education and training have a significant positive impact on college students' entrepreneurship and the possibility of college students' entrepreneurship increases by 0.002 for each increase in entrepreneurship education and training. We should pay attention to the influence of maker space on college students' entrepreneurship, strengthen their entrepreneurship education and training services, and promote the realization of the goal of "entrepreneurship and entrepreneurship".

Keywords: *Entrepreneurship education and training; College student entrepreneur-ship; Co-working space*

Date of Submission: 12-01-2025

Date of Acceptance: 22-01-2025

I. Introduction

Innovation and entrepreneurship are the internal driving forces for the sustainable development of society, and they are also crucial in supporting the construction of a modern economic strategy. Makerspace is known as the carrier of innovation and entrepreneurship in the new era, and its vigorous development plays an essential role in integrating various innovation elements and promoting the transformation of new and old kinetic energy[1]. To actively respond to the call of the country's "entrepreneurship and entrepreneurship," since 2014, the number of maker spaces has shown a blowout growth, and by the end of 2017, there were more than 5,000 in the country, ranking first in the world[2]. The existing research on maker spaces mainly focuses on the connotation characteristics [3-5], ecological models [6-7], operational efficiency [2], makers and maker spaces [8-9], constituent elements [10], governance mechanisms [6], and actual case studies [11-12]. The definition of the connotation of maker space has not yet been unified. Shao Yongxin and Ni Zhiqing see it as a continuation and expansion of the existing service system. The goal is to serve as an entrepreneurial service platform that meets the market's needs [4]. Kera, on the other hand, sees the makerspace as an informal organizational

structure in which a series of elements share information and technology, which can fully integrate online and offline and, simultaneously, differ from the service model of the makerspace [10]. At the same time, the maker space is also an open incubator, which can effectively connect market information and resources, maximize social support, and provide integrated services [13]. Based on the ecosystem theory, many scholars have constructed an ecosystem framework of maker space [14], simulated the ecosystem model [15], and included organizations such as governments, universities, and enterprises, further enriching the theoretical connotation of maker space [16]. The operating efficiency of crowdsourcing space has the problem of unbalanced regional development [17], manifested by the imbalance within the region and the relative balance among the regions [1]. The main reason lies in the difference in population. However, from the static and dynamic dimensions, it is found that the operational efficiency of the central region is significantly higher than that of the eastern and western regions, and pure technical efficiency is the main reason for the efficiency difference between regions[2].

The original intention of the crowdsourcing space is to provide innovative entrepreneurial services for various organizations and individuals to help them get entrepreneurial support. Entrepreneurship education in crowdsourcing is an important platform and strong support for college entrepreneurship, but its influence on college students' entrepreneurship has not received enough attention. As a talent group with high knowledge reserves, college students play a unique role in "entrepreneurship and entrepreneurship." However, it is undeniable that college students are still immature in terms of experience and capital accumulation, and it is difficult for them to achieve entrepreneurial results in a short period on their own [19]. They also need to be guided and supported by corresponding entrepreneurial service platforms. The impact of entrepreneurship education and training on college students' entrepreneurship is seldom discussed in the existing literature, and its effect has not been measured. Based on the survey data of 735 innovation spaces in Guangdong province, this paper examines the impact of entrepreneurship education and training in innovation spaces on college students' entrepreneurship, to provide new path choices for promoting college students' innovation and entrepreneurship.

The rest of this paper is arranged as follows: the second part is the research hypothesis, the third part is the research design, the fourth part is empirical results and analysis, and the last part is the conclusion and policy recommendations.

Research hypotheses

The rapid development of the Internet economy has brought unprecedented opportunities for entrepreneurs, especially for college students. Self-employment has become a critical choice [20]. At present, college students who choose to start their businesses are excellent, and their entrepreneurial ability is at the upper middle level. However, it is undeniable that college students also face many problems, such as a lack of experience, early accumulation of funds, and lack of excellent team cooperation. The entrepreneurial behavior of college students is influenced by entrepreneurial education and training[21]. On the one hand, entrepreneurship education and training can stimulate college students' entrepreneurial pursuits, enhance their entrepreneurial awareness, and strengthen their confidence in undertaking entrepreneurial projects.

On the other hand, entrepreneurship education and training for college students lay a foundation for cultivating entrepreneurship. The courses such as practical case analysis and business consulting, carried out in entrepreneurship education and training, help increase the entrepreneurial experience of college students and make up for their lack of knowledge. By studying the corresponding courses, we can train the college students' entrepreneurial ability pertinently, which is helpful to the success of college students' entrepreneurship. In addition, entrepreneurship education and training activities organize entrepreneurs from different fields and

growth experiences to participate, and college students can learn and communicate with other entrepreneurs, which helps to expand their horizons, accumulate network resources, and increase the probability of entrepreneurial success.

As a comprehensive service platform for innovation and entrepreneurship, the maker space has rich service resources. Its entrepreneurship education and training activities have strong practicability and pertinence. The training quality is high, which can effectively meet the needs of college students to start their businesses and promote more college students to embark on the road of independent entrepreneurship. Based on the above analysis, the research hypothesis 1 of this paper is proposed:

H1: The entrepreneurship education and training carried out by the maker space significantly impacts college students' entrepreneurship.

Research design

Data sources

The data used in this paper comes from the survey data of 735 maker spaces in Guangdong Province, involving 21 cities, including Guangzhou, Shenzhen, Shaoguan, Zhuhai, Shantou, and Foshan. The survey includes the basic situation, service and operation status of the maker space, the status of investment and financing services, and the profile of the entrepreneurial team and enterprise.

Model Specification

Since the dependent variable in this paper is the number of college students starting a business, which is a continuous variable, OLS is used for regression, and the model is set as follows:

$$Y_i = \alpha_i + \beta_i \sum X + \eta_i$$

Among them, $i = 1 \dots n$ represents each maker space; Y indicates the number of college students starting their businesses; X Indicates the explanatory variables, including entrepreneurship education and training activities, whether universities and institutes establish the maker space, whether it has obtained financing, the number of service personnel, the number of teams and enterprises providing technical services, the number of people who have been helped to settle in and enjoy fiscal policies, and whether it is a listed or listed company; the α and β are the coefficient of the corresponding variable; η is a random perturbation term.

Variable selection

1. **Interpreted variable:** This paper aims to investigate the impact of entrepreneurship education and training in maker spaces on college students' entrepreneurship, and the number of college students' entrepreneurship is selected as the dependent variable with reference to the existing literature [20].
2. **Core explanatory variables:** According to the survey indicators and the research theme of the article, the number of entrepreneurship education and training activities was selected as the proxy variable for entrepreneurship education and training.
3. **Control Variables:** Besides the entrepreneurship education and training that may affect college students' entrepreneurship, the nature, financing, service, and financial status of the maker space may affect the entrepreneurship of college students, so it is further included in the control variables. Table 1 shows the definitions and descriptive statistics of relevant variables.

From Table 1, we can see that the average number of college students supported by crowdsourcing space is about 8, and the average number of entrepreneurial education and training activities is about 13, the results

show that the entrepreneurial education and training service of the crowdsourcing space is better implemented, and that the crowdsourcing space established by the institutions of higher learning is less, and it is difficult for the institutions of higher education to organize the crowdsourcing space. The average number of service personnel in the crowdsourcing space is about 20, which means that the existing crowdsourcing space is mainly small and medium-sized; the average number of teams and enterprises providing technical services in the crowdsourcing space is about 12, at the same time to help individuals or organizations to enjoy the number of fiscal policy in the three or so, access to more policy benefits; crowdsource space itself generally does not belong to listed or listed enterprises.

Table 1 Variable definitions and descriptive statistics

Variable type	Variable name	Variable definitions	mean	standard deviation
The interpreted variable	College students start their businesses.	Number of college students entrepreneurship supported by the maker space (unit)	7.848	16.588
Core explanatory variables	Entrepreneurship education and training	Number of entrepreneurship education and training activities held (units)	13.048	30.893
Control variables	Establishment of colleges and universities	Whether the co-working space is established by a university or institute (yes=1, no=0)	0.077	0.267
	Financing status	Whether the co-working space has received financing (yes=1, no=0)	0.186	0.389
	Number of service personnel	Number of service personnel in the maker space (units)	20.895	187.102
	Service Availability	Number of teams and enterprises providing technical services in the maker space (units)	11.502	23.181
	Fiscal policy situation	The number of crowdsourcing spaces to help individuals or organizations move in and enjoy fiscal policy (unit)	2.763	10.76
	Nature of organization	Is crowdsource space itself listed or listed enterprises (yes = 1, No = 0)	0.039	0.194

Empirical results and analysis

The regression results of entrepreneurship education and training on college students' entrepreneurship

Table 2 shows that entrepreneurship education and training have a significant positive impact on college students' entrepreneurship. Hypothesis 1 is verified. Entrepreneurship education and training can stimulate the enthusiasm of college students. At the same time, the spirit of entrepreneurship is embedded in its value goals so

that the overall thinking and quality of college students are promoted quickly and conducive to their entrepreneurial path. In addition, entrepreneurship education can gradually cultivate the entrepreneurial ability of college students through the sharing and analysis of practical cases, give them a more in-depth understanding of the process of entrepreneurship, and help them to increase their relevant experience. Undoubtedly, it is essential in promoting college students' entrepreneurship. At the same time, college students' participation in entrepreneurship education and training is a continuous learning process. Through communication with entrepreneurship mentors, they can quickly enter the state of entrepreneurship, and timely and effective communication channels can be used to settle the doubts of college students and build a strong bridge. Therefore, the entrepreneurship education and Training Service of the crowd innovation space can effectively promote college students' entrepreneurship and provide a feasible path to encourage and support college students' entrepreneurship.

Table 2 OLS regression results of entrepreneurship education and training for college students

Variable	College students start their businesses
Core explanatory variables	
Entrepreneurship education and training	0.032* (0.018)
Control variables	
Establishment of colleges and universities	12.407*** (2.132)
Financing status	2.251 (1.473)
Number of service personnel	-0.006** (0.003)
Service Availability	0.128*** (0.026)
Fiscal policy situation	0.364*** (0.052)
Nature of organization	-0.567 (2.949)

Note: *, **, and *** indicate significance at 10%, 5%, and 1% statistical levels, respectively, with robust standard errors in brackets.

Among the controlled variables, the establishment of the public innovation space by institutions of higher learning, the status of service provision, and the status of financial policies have significantly favorable effects on college students' entrepreneurship, and the number of service personnel has a significant negative impact on college students entrepreneurship. If colleges and universities establish the crowdsourcing space, it aims to provide innovative and entrepreneurial services for college students. At the same time, the more extensive the service object, the more complete the type of service, the more support the students get, the more favorable it is. In addition, the more financial policy support, the stronger the ability to access resources, and the more help college students can provide for entrepreneurship, the more likely college students are to start businesses. It is worth noting that the more people who work in crowdsourcing, the less likely college students are to start their businesses. The reason may be that the more people in the crowdsourcing space, the bigger the scale of its

operation, and the support of large and medium-sized crowd innovation space is more inclined to enterprises and other organizations, while the support of individual entrepreneurship for college students will decline. Therefore, to further encourage and support college students to start their businesses, colleges, and universities can appropriately establish crowdsourcing spaces, and the government should increase policy support for crowdsourcing spaces to promote the creation of space for college students to provide more convenient and targeted services.

Robustness test

To further measure the reliability of the regression results, this paper replaces “The number of college students starting an undertaking” with “Whether college students start an undertaking” and sets “College students starting an undertaking” as 1, “College students do not start a business” set to 0, and use Probit regression. Table 3 shows that entrepreneurship education and training significantly promote college students' entrepreneurship, which is consistent with the previous regression results, indicating that the conclusions of this paper are robust.

Table 3 Probit regression results of entrepreneurship education training on college students' entrepreneurship

Variable	College students start their businesses
Core explanatory variables	
Entrepreneurship education and training	0.006* (0.003)
Control variables	
Establishment of colleges and universities	0.149 (0.203)
Financing status	0.101 (0.136)
Number of service personnel	-0.002 (0.001)
Service Availability	0.0006 (0.002)
Fiscal policy situation	0.038*** (0.014)
Nature of organization	0.100 (0.274)

Note: *, **, and *** indicate significance at 10%, 5%, and 1% statistical levels, respectively, with robust standard errors in brackets.

Marginal effect

To investigate the effect of entrepreneurship education and training on college students' entrepreneurship and further measure its marginal effect, table 4 shows that for every unit increase in entrepreneurship education and training, college students increase by 0.002 units; at the same time, for every unit increase in financial policy enjoyed by college students, the number of units increased by 0.011. It can be seen that the rise in entrepreneurial education and training activities in crowdsourcing space and the government's support for crowdsourcing space will promote college students' entrepreneurship.

Table 4 The marginal effects of entrepreneurship education and training on college students' entrepreneurship

Variable	College students start their businesses
Core explanatory variables	
Entrepreneurship education and training	0.002* (0.001)
Control variables	
Establishment of colleges and universities	0.046 (0.062)
Financing status	0.031 (0.041)
Number of service personnel	-0.001 (0.0004)
Service Availability	0.0001 (0.0008)
Fiscal policy situation	0.011*** (0.004)
Nature of organization	0.030 (0.084)

Note: *, **, and *** indicate significance at 10%, 5%, and 1% statistical levels, respectively, with robust standard errors in brackets.

II. Conclusions And Policy Recommendations

Conclusion

Based on the survey data of 735 maker spaces in Guangdong province, this paper empirically analyzes the impact of entrepreneurship education and training conducted by maker spaces on college students' entrepreneurship by using OLS and Probit models. The magnitude of its action is further measured. The results show that entrepreneurship education and training have a significant positive impact on college students' entrepreneurship. In addition, for every unit added to entrepreneurship education and training, there is a significant positive impact on college students' entrepreneurship. The number of business start-ups by college students will increase by 0.002 units, and the number of units will increase by 0.011 for each additional fiscal policy unit enjoyed by college students.

Policy recommendations

Based on the conclusion of this study, the following policy recommendations are put forward:

Entrepreneurship education and training in space for mass innovation are to be paid more attention to. Entrepreneurship education and training in the maker space play an important role in promoting college students' entrepreneurship. To respond to the call of the country's "entrepreneurship and entrepreneurship," seize the opportunity of the development of the times, and promote the entrepreneurship of college students, the government should actively take measures to encourage and support entrepreneurship education and training of the maker space, and provide appropriate financial subsidies to it; At the same time, an evaluation and assessment mechanism for entrepreneurship education and training in the maker space will be established, and policy support will be improved for institutions with outstanding performance. In addition, to ensure the

participation of college students in entrepreneurship education and training as much as possible, a two-way incentive mechanism is implemented. On the one hand, certain financial subsidies are provided for college students participating in entrepreneurship education and training, and college students are encouraged to receive entrepreneurship education and training and obtain relevant entrepreneurial knowledge. On the other hand, for the maker space that provides entrepreneurship education and training for college students, preferential policies will be given to encourage more maker spaces to offer entrepreneurship education activities for college students to obtain better entrepreneurship education.

Colleges and universities are encouraged to establish maker spaces. The maker space established by colleges and universities is of a public welfare nature, which can provide entrepreneurship education services for more college students. At the same time, the maker space established by colleges and universities has good teaching resources and can use the high-quality teachers in the school to carry out targeted entrepreneurship education and training to create good learning conditions for college students. To encourage colleges and universities to establish maker spaces and provide convenient entrepreneurial services for college students, the government should actively provide universities and institutes with the conditions required for the establishment of maker spaces, fully considering the problems that colleges and universities may face, and escort them to carry out maker space services.

The technical services of the maker space are to be improved. The government's financial support policies can alleviate its financial pressure to a certain extent, and at the same time, the subsidies and other financial funds obtained by the maker space are conducive to expanding service projects and improving service quality. College students can also enjoy better entrepreneurial services. Therefore, for the government, under reasonable and legal conditions, the financial support policies for the maker space should be strengthened, such as appropriate tax reductions and exemptions, especially for the maker space that provides entrepreneurial services for college students, and financial incentives should be given to expanding the service path for college students' entrepreneurship, achieve the internal goal of "entrepreneurship and entrepreneurship", stimulate the potential of economic development, and promote sustainable social progress.

Funding:

This work was supported by the Lingnan Normal University 2024 Campus level Education Reform Project "Research on Enhancing and Practicing Digital Literacy of Humanities Students in Local Universities under the Background of AI Intelligent Application: Taking Lingnan Normal University as an Example".

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