

# Research on continuous improvement of teaching quality of entrepreneurship education in Colleges and Universities Based on QFD theory

Yonghui CAO<sup>1,a</sup>, He JIANG<sup>\*1,b</sup>

<sup>1</sup>Department of Business Administration Guangzhou College of Technology and Business Guangzhou, China

**Abstract.** Taking local colleges and universities as an example, this paper explores the teaching design and process quality assurance system of entrepreneurship education with the help of quality function deployment theory, starting from the needs of customers and local society, and puts forward the quality function deployment model of entrepreneurship education curriculum, so as to provide theoretical support for our country to cultivate qualified entrepreneurship talents.

## 1 Introduction

In the current era of "mass entrepreneurship and innovation", innovation and entrepreneurship has become an important starting point for colleges and universities to enhance students' innovation ability and employment ability. With the further implementation of the public entrepreneurship and innovation strategy, major universities have set up entrepreneurship education courses [1]. The Ministry of education pointed out in "opinions on vigorously promoting innovation and entrepreneurship education in Colleges and universities and college students' independent entrepreneurship work": we should carry out innovation and entrepreneurship education in Colleges and universities, and actively encourage college students to start their own businesses. This is a major strategic measure for the education system to deeply study and practice the scientific outlook on development and serve the construction of an innovative country. This is an important way to deepen the teaching reform of higher education and cultivate students' innovative spirit and practical ability. This is also an important measure to promote the employment of college graduates by entrepreneurship. The government attaches great importance to the development of innovation and entrepreneurship education activities in Colleges and universities, adheres to the principles of strong foundation, platform building and guidance, creates a good environment for innovation and entrepreneurship education, optimizes the system and service environment for innovation and entrepreneurship, creates a campus cultural environment to encourage innovation and entrepreneurship, and strives to build a comprehensive, hierarchical and systematic innovation and entrepreneurship education system in Colleges and universities.

At present, China's economic restructuring and

development has reached a new stage that must rely on innovation driven, however, the whole society's understanding of innovation remains at the "grassroots level", many entrepreneurial courses serve the survival type entrepreneurship in 80s. Classroom teaching is still the main model, the curriculum system is not perfect, and the lack of professional courses and practical environment for the integration of entrepreneurship, which are particularly serious in local universities [2]. Local colleges undertake the important task of training high-level talents for the region. In the process of local economic development and social progress, local universities play an important role [3-4]. Therefore, local universities should be how to design teaching of entrepreneurship education, improve the quality of entrepreneurship education, training entrepreneurial talent to meet the needs of local development, which is a problem to be solved urgently.

## 2 QFD theory and Entrepreneurship Education

Quality function deployment shows a method of transforming customer demands into quality demands of product service or production service system through multi-level deductive analysis[5]. Since 1990s, scholars have tried to combine the QFD theory with the quality of the teaching process, thus linking the needs of students and the teaching design of teachers, such as Wisconsin-Madison University in the United States uses QFD theory to identify staff and student needs, Michigan university applies QFD to design total quality management course teaching, Yamanashi University of Japan applied QFD to develop TQM online learning system and so on. Scholars gradually apply QFD tools to teaching curriculum design, teaching process assurance, teaching results evaluation and so on [5]. However, in the field of entrepreneurship

<sup>a</sup>Xinrui20132015@126.com

<sup>b</sup>\*Corresponding author: He JIANG: GZhappy2020@126.com

education, only a few scholars use QFD to explore and research.

Combing the existing literature, QFD theory plays an increasingly important role in the cultivation of entrepreneurial talents in Colleges and universities, and also puts forward higher requirements for the cultivation of entrepreneurial talents in Colleges and universities. However, there are still some problems in the cultivation of entrepreneurial talents in Colleges and universities, such as lagging behind the concept, divorced from the reality, lack of practice and poor systematicness. Therefore, colleges and universities should take QFD theory as the guidance, firmly establish the entrepreneurial talent training concept with improving quality as the core, adhere to the entrepreneurial talent training mode with market and students' needs as the basis, build the entrepreneurial talent training platform with diversification and efficiency as the focus, and build the entrepreneurial talent training system with full participation and all-round goal. Based on the quality function deployment theory (QFD), some scholars construct the satisfaction evaluation system with students' needs as the starting point, and study the teaching process, entrepreneurship guidance and support, internal and external environment and resource integration, entrepreneurship knowledge and skills promotion of entrepreneurship education in higher vocational colleges. The results show that: students have high expectations of entrepreneurship education, and the overall level of satisfaction is also high, but there is a certain gap between the level of satisfaction and expectations. The carrier of entrepreneurship education with practice as the main body is recognized by students, but it needs to be further improved in the construction of teachers, entrepreneurship evaluation standards and students' skills training. Some people use STP market positioning theory and QFD quality function deployment method to analyze the quality control and training mode of entrepreneurial talents.

It is an unshirkable task for colleges and universities to improve the quality of entrepreneurship education and cultivate capable entrepreneurial talents [6-7]. The existing studies have summarized the current situation and shortcomings of the quality evaluation of entrepreneurship education in domestic colleges and universities from the aspects of literature distribution, index system construction and research methods, and on this basis, put forward the prospect of the quality evaluation of entrepreneurship education in Colleges and universities. The research on the application of QFD theory to the improvement of education quality needs to be carried out, because QFD is of great value to the continuous improvement. Therefore, there is theoretical significance to discuss the teaching quality improvement of entrepreneurship education by applying QFD theory. This paper takes local universities as an example, by means of the quality function deployment theory from the customer's needs, to explore the teaching quality of entrepreneurship education in design, implementation, control process, and then put forward the QFD model of teaching quality improvement of Entrepreneurship Education.

Through the above literature, we can find that: First,

the whole society's understanding of innovation remains at the "grassroots level", many entrepreneurial courses serve the survival type entrepreneurship in 80s. Classroom teaching is still the main model, the curriculum system is not perfect, and the lack of professional courses and practical environment for the integration of entrepreneurship, which are particularly serious in local universities. Second, local universities should be how to design teaching of entrepreneurship education, improve the quality of entrepreneurship education, training entrepreneurial talent to meet the needs of local development, which is a problem to be solved urgently. Third, scholars gradually apply QFD tools to teaching curriculum design, teaching process assurance, teaching results evaluation and so on. However, there is no exploration and research on QFD application in the field of entrepreneurship education.

### 3 RESEARCH MODEL

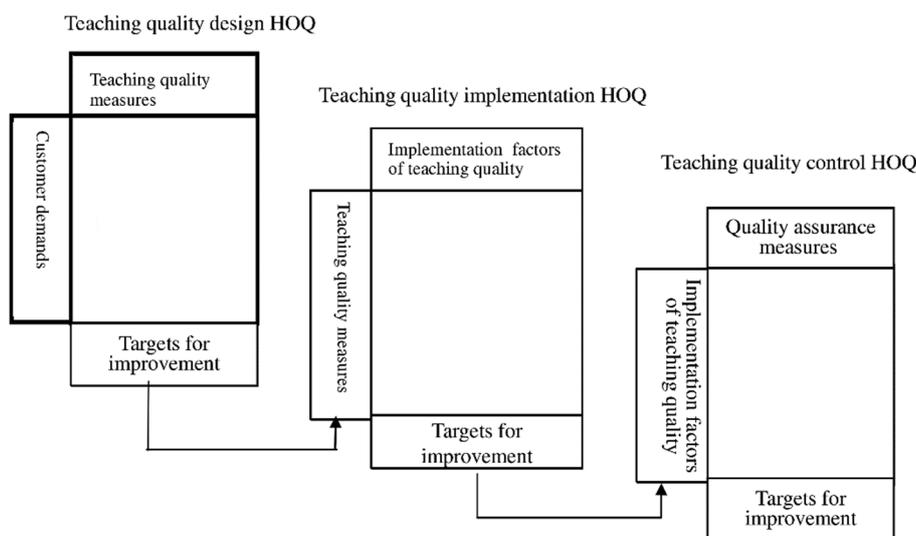
Local universities pay more attention to serving the local economic and social development, whose main objective of talent training is to apply practical talents with strong practical ability and strong practical ability. Therefore, local universities put emphasis on the establishment of hierarchical entrepreneurial education goals system, to meet local economic and social development and local demand oriented when carry out entrepreneurship education. The goal of entrepreneurship education is a diversified system consisting of "active employment + job creation + personal entrepreneurship" in local universities. University students' entrepreneurship education through a series of teaching and curriculum, training the basic awareness of entrepreneurship and entrepreneurial spirit, but entrepreneurship education does not require every student achieve personal entrepreneurship, different students have different goals and personal development path. Active employment means that university students receive a popular entrepreneurship education and become entrepreneurial talents; Job creation refers to some students get the entrepreneurial passion and skills to develop themselves after graduation through the various entrepreneurial activities in university; Personal entrepreneurship refers to the very few students who want to start business after graduation. Therefore, the objective system of entrepreneurship education in local universities is diversified, which is determined by the actual needs and development paths of each student.

At present, entrepreneurship education courses have been established in most local universities in China, and the following problems are widespread: First, entrepreneurship education has not yet formed a complete system in local universities, which cannot convey the basic educational concepts and entrepreneurial knowledge systematically (Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A., 2017); second, entrepreneurship education does not teach students in accordance with their aptitude, but the course content covers a wide range but lacks pertinence. Which cannot be well integrated with the students' major? Third, the lack of adequate entrepreneurial support in entrepreneurship practice,

entrepreneurship is highly practical, entrepreneurial environment cannot be simulated in the laboratory, the lack of government, social organizations, enterprise support and other issues.

The reasons for the problems of entrepreneurship education in local universities lie in the demand of entrepreneurship education are not fully grasped, the curriculum system design is unscientific and the teaching implementation process is fuzzy. Therefore, this paper explores the teaching quality design and quality improvement of implementation process of entrepreneurship education based on QFD theory. First of all, the customer needs have been gradually launched as "characteristics of entrepreneurship education teaching measures", "characteristics of entrepreneurship education

teaching elements" and "quality assurance measures for entrepreneurship education". We can construct "teaching quality design of entrepreneurship education", "teaching quality implementation of entrepreneurship education" and "teaching quality control of entrepreneurship education" series of house of quality (HoQ), and then get the QFD model of teaching quality improvement of entrepreneurship education(as shown in **Figure 1**). In all aspects of entrepreneurship education, the establishment of the implementation process and the stage goal of a series, through the realization of these goals to ensure the final effect of entrepreneurship education, so as to realize students of customer needs, develop to meet the social needs of new personnel and have the entrepreneurial potential needs of local economic development.



**Figure 1** QFD model of teaching quality improvement in Entrepreneurship Education

1) The teaching quality measures of entrepreneurship education correspond to the house of quality in teaching quality design, Whose aim is to change the customer's demand for entrepreneurship education into teaching measures including training plan, teaching process and assessment system, and then find the key direction of quality demand through quality design and planning.

2) The implementation factors of teaching quality in entrepreneurship education corresponding to the house of quality in teaching quality implementation. The training plan, teaching process and assessment system in the quality design will be transformed into curriculum, teachers and support activities, so as to get the key link and target of improving the quality of entrepreneurship education.

3) The quality assurance measures of entrepreneurship education correspond to the house of quality in teaching quality control. Teaching quality control is based on the teaching quality implementation of entrepreneurship education, the ultimate goal of entrepreneurship education in accordance with customer demands, to train the students to meet the needs of society in the knowledge structure of entrepreneurship, entrepreneurial ability etc.

#### 4 Teaching quality control of entrepreneurship education

The main tasks of the teaching quality control phase of entrepreneurship education are to realize the demands of teaching quality implementation design management and control measures. The purpose of teaching quality control in enterprise education is to ensure the implementation of module quality control objectives, and to carry out each module goal to specific solutions. Combined with the nature of entrepreneurship education and the current situation of entrepreneurship education in local universities, the corresponding guarantee measures are put forward for each module of entrepreneurship education, as shown in **table 1**. So, to improve customer demand for entrepreneurship education has shifted to the functional unit of the teaching of each link are clear on the objectives and requirements, which makes the quality of entrepreneurship education improved more purposiveness and quality, to improve the whole process of entrepreneurship education.

**Table 1** the target values of each module and quality assurance measures during implementation process of entrepreneurship education

Implementation factors of teaching quality	Target values	Quality assurance measures
Curriculum system	building perfect curricula system of entrepreneurship education	Establish a systematic and specialized entrepreneurial curriculum system
Entrepreneurial idea education	Adhere to the "mission oriented" entrepreneurial concept	Teach students the spirit of humanity, culture, philosophy, and the historical responsibility of China
Entrepreneurial academic background	Teachers have a systematic expertise in Entrepreneurship and are able to advance with the times	Regular training and training of teachers, exchanges with scholars at home and abroad, able to grasp the forefront of knowledge
Entrepreneurial practice experience	Teachers have complete entrepreneurial practice experience	Hire a successful entrepreneur as a part-time teacher in the field of entrepreneurship education
enterprise management experience	Teachers are familiar with the process of enterprise management, and can guide students to practice	Can employ enterprise managers as part-time teachers, but also allows full-time teachers into the enterprise exercise
Effective teaching methods	Able to combine entrepreneurial knowledge with students' expertise	It can adopts the mode of "professional classroom plus second classroom" and "heuristic case teaching"
Entrepreneurial practice platform	Provide students with a variety of platforms to support entrepreneurship practices	stablish business associations, establish business incubators, etc.
Entrepreneurial practical activity	Organize a variety of entrepreneurial practices	Activities such as entrepreneurship design competition and entrepreneurial experience exchange will be held.
Financial support	Provide adequate financial support for entrepreneurial practices and entrepreneurship competitions	School grants, social donations, the establishment of venture funds, etc.
System guarantee	Establish a sound guarantee system of entrepreneurship system	Establish and perfect various systems to support the practice of entrepreneurship
School-enterprise cooperation.	Strengthen the links between schools and enterprises and provide more internship opportunities for students	Widely established training base, and invited entrepreneurs to school part-time teachers

## 5 CONCLUSION AND RECOMMENDATION

Through the implementation of QFD model in teaching quality improvement of entrepreneurship education, the improvement of teaching quality in entrepreneurship education is embodied in the following aspects:

### 5.1 The process of entrepreneurship education is systematic and standardized.

Through the layers of the house of quality, the customer demands of entrepreneurship education is deployment from teaching quality design, implementation and control, layer by layer, determine the corresponding executant, valuator; etc. thus, make a clear division of responsibilities. Which makes the teaching process of entrepreneurship education is more systematized and standardized

### 5.2 The focus of entrepreneurship education teaching is more prominent.

From an importance degree of view, the biggest value is the curriculum system settings, practice teaching related to the teacher's entrepreneurial practice experience, entrepreneurial practice platform, which shows that the practice of entrepreneurship education is very strong. Therefore, we should set up a more practical curriculum system, strengthen the training of teachers' practical ability, and provide the appropriate platform for practical teaching. In addition, the teaching mode in local universities is mainly based on classroom instruction, which needs to be improved in the enterprise education

### 5.3 Establish a customer oriented approach to problem solving

These articles aims at the problems existing in the teaching process of entrepreneurship education, through the investigation of students, teachers, entrepreneurs and other customers, and then fully tap the demands of customers, make clear the direction of entrepreneurship education in local universities. The application of quality function deployment theory, which systematically develop customer demand for entrepreneurship and development to the teaching quality design, teaching quality implementation, teaching quality control process, methods are given to solve the problem, so as to improve the teaching quality of entrepreneurship education, and achieved good results.

Aiming at the existing problems in the teaching process of entrepreneurship education, through the investigation of students, teachers, entrepreneurs and other customers, to fully tap the customer needs, a clear direction of entrepreneurship education in Colleges and universities, the application of quality function deployment theory, systematically develop customer demand for entrepreneurship and development to the quality of teaching design, teaching implementation, teaching quality the quality control process, methods are given to solve the problem, so as to improve the teaching quality of entrepreneurship education, and achieved good results.

However, with the social and economic environment changes, the entrepreneurial environment is constantly changing. For example, in twentieth Century 80s the entrepreneurship is survival type, low cost oriented type in 90s, the international entrepreneurship follow type in the

last 10 years. At present the entrepreneurship is in need of innovation leading type. This paper considers that one-time requirement transformation only reflects a static requirement transformation process, not the end of QFD task. Therefore, in this mode, we need to change more customer needs and increase the feedback channels of entrepreneurship education to meet the needs of the situation. And according to the change of business environment, adjust and improve to form a dynamic improvement mechanism. This will be the direction of future research.

## Acknowledgment

This work is financially supported by outstanding scholars of philosophy and Social Sciences in Henan Province higher education in 2018, 2018-YXXZ-06; Henan philosophy and Social Sciences Planning Project in 2019, 2019BJJ003; Intellectual property soft science research project of Henan Province in 2021, 20210106014; Guangdong Education Science Planning Project, building an efficient and intelligent supply chain system to promote the high-quality economic development of Guangdong-Hong Kong-Macao Greater Bay Area, 2019GXJK072; Henan philosophy and Social Sciences Planning Project in 2019, 2019BJJ032; Key scientific and technological projects of Henan Province in 2021, 212102310051, Research on emergency decision-making mechanism and key technologies of major public emergencies; the key scientific research project of colleges and universities in Henan Province in 2021, 21A620002; General Topics of Henan Province Educational Science "13th Five-Year Plan" in 2020, Research on the dynamic mechanism of the integration of industry and education in Henan Province, 2020YB0146; Guangdong higher education reform project in 2020, No. 642, innovative research and practice of logistics personnel training mode based on new information technology under the background of new business. Thanks for the help.

## References

1. Ahmed, T., Ahmed, T., Chandran, V. G. R., Chandran, V. G. R., Klobas, J., & Klobas, J. (2017). Specialized entrepreneurship education: does it really matter? Fresh evidence from Pakistan. *International Journal of Entrepreneurial Behavior & Research*, 23(1), 4-19.
2. Entrialgo, M., & Iglesias, V. (2016). The moderating role of entrepreneurship education on the antecedents of entrepreneurial intention. *International Entrepreneurship and Management Journal*, 12(4), 1209-1232.
3. Jiang, H., Xiong, W., & Cao, Y. (2017). Research on the Mechanism of Entrepreneurial Education Quality, Entrepreneurial Self-efficacy and Entrepreneurial Intention in Social Sciences, Engineering and Science Education. *Eurasia Journal of Mathematics, Science & Technology Education*, 13(7), 3709-3721.
4. Karimi, S., Biemans, H. J., Lans, T., Aazami, M., & Mulder, M. (2016). Fostering students' competence in identifying business opportunities in entrepreneurship education. *Innovations in Education and Teaching International*, 53(2), 215-229.
5. Swallehe, O. (2011). New Course Design for Total Customer Satisfaction: Application of Quality Function Deployment (QFD) in Postgraduate Programme Restructuring at Faculty of Commerce, Mzumbe University. *Management Convergence*, 1(1), 49-55.
6. Täks, M., Tynjälä, P., & Kukemelk, H. (2016). Engineering students' conceptions of entrepreneurial learning as part of their education. *European Journal of Engineering Education*, 41(1), 53-69.
7. Webster, R. D., & Kopp, R. (2017). Case Study Of A Small Scale Polytechnic Entrepreneurship Capstone Course Sequence. *American Journal of Engineering Education (AJEE)*, 8(1), 35-44.