

Building a school support system to empower teachers' professional development

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Abstract: In the second half of the 20th century, the rapid development of the global economy made people realize the fundamental, global, and leading role of education in the national economy. The hope for the future lies in education, and the hope for education lies in teachers. The growth and development of teachers are related to the development of students, schools, and even the entire education industry. How to build a support system for teacher development is a major issue that every school manager should seriously consider.

1. Introduction

With the increasing number of fresh graduates year by year, universities are facing enormous employment pressure brought about by the supply and demand relationship in the talent market while conducting talent cultivation. Affected by the COVID-19, China's small and medium-sized enterprises are not as good as before in terms of business performance, and their ability to absorb fresh graduates is not as good as before. Looking at the whole country, the employment situation is still severe, and the contradictions in employment are prominent. In light of the tense employment situation, China must continue to steadfastly advocate for mass entrepreneurship and innovation in the new era. As a key subject for implementing relevant national policies, universities are important venues for nurturing innovative and entrepreneurial talents, and undertake the basic functions of serving society and delivering talents to society. The current reform of innovation and entrepreneurship education in Chinese higher education institutions is shifting towards a new stage of development. Therefore, it is particularly important to create an innovative and entrepreneurial cultural ecology in major universities and build a high-quality team of innovative and entrepreneurial teachers.

The teacher-student ratio for innovation and entrepreneurship education nationwide is approximately 1:2000. Therefore, in promoting the reform of innovation and entrepreneurship education in depth, Chinese universities must ensure the quality of education. The key measure to enhance college students' innovation awareness and entrepreneurial ability, promote the development of innovation and entrepreneurship education to a higher level, is to strengthen the quality and strength of innovation and entrepreneurship teaching staff. College innovation and entrepreneurship teachers, as the first resource for students to acquire knowledge of innovation and entrepreneurship, play a crucial role in educational effectiveness and quality.

2. Research status

2.1 Review of Foreign Research

Overall, research and practice in innovation and entrepreneurship education in foreign countries predate that in China. In the 1950s, foreign scholars paid attention to innovation and entrepreneurship education and related fields and conducted extensive research. Based on the research conclusions of the theme of innovation and entrepreneurship teachers abroad, scholars mainly focus on two aspects: theoretical academic exploration and practical problem-solving. At the academic level, foreign scholars focus on exploring the professional development of innovation and entrepreneurship teachers, with a particular emphasis on the constituent elements of their professional competence and professional competence.

2.1.1 Professional development of innovation and entrepreneurship teachers

American scholar Jack Bo proposed in the 1990s that innovation and entrepreneurship teachers should possess professional basic education teaching abilities, the ability to lead development, and the ability to explore innovation and entrepreneurship education practice activities. But this research has not received much attention, and scholars' focus is mostly on the constituent elements of teachers' professional competence. In 1991, scholars such as Nancy Chizm from Ohio State University further quantified the professional development of teachers through years of research and proposed a competency model for university teachers and workers. They believe that as a university teacher, one must possess seven abilities including expression, design, planning, implementation, teaching, and communication in order to be considered a qualified university teacher.

Since the 20th century, based on research on the composition of teachers' professional abilities in innovative education, teachers' professional abilities have been increasingly valued. Alan White, Judith Miller, and others constructed a descriptive foundational model corresponding to teacher competence through observational research and Delphi method, clarifying the role of teacher development in university teaching and the corresponding competency elements of the position. Kristin Stanley proposed a new model of teacher competence, which includes basic elements such as a teacher's teaching style, a leader's style of handling things, how to handle interpersonal relationships properly, and whether they can listen to students. A task model involving teaching and leadership styles has opened up new research directions for an increasing number of researchers and pushed the study of teacher professional competence to a climax. In 2002, Durham University, as a higher education institution in the UK, proposed the concept and development model of school education, suggesting that national administrative departments, school education institutions, and individual teachers' teaching should be interconnected. Emphasize that teacher training is the core content and actively promote entrepreneurial projects. Biskov proposed a two factor model theory for teacher competence, analyzing various constituent factors through questionnaire surveys, including students' learning environment, teachers' focus on their majors, and the basic knowledge they have acquired in the teaching process. Education and collaboration are selected as the main reference items in competence.

St Jean pointed out that as a teacher engaged in innovation and entrepreneurship education in universities, one should first have comprehensive experience in entrepreneurship and innovation, possess certain guidance abilities, and be able to provide targeted entrepreneurial suggestions and ideas based on the individual conditions of the entrepreneur; Aitier J proposed that teachers engaged in innovation and entrepreneurship education in universities should possess the ability to seize opportunities, broaden their horizons, and have management skills to assist entrepreneurs in growing into entrepreneurs; In 2015, Maria et al. pointed out that the competence of innovation and

entrepreneurship teachers in universities specifically includes advanced scientific educational and teaching concepts, critical thinking in dealing with things, flexible teaching methods in course arrangements, and the ability to tolerate errors in understanding problems.

2.1.2 Teacher school support

For a long time in the past, research on school support in foreign countries usually appeared in the relevant strategies for teacher professional development, and there were relatively few studies on school support alone. Since the 1970s, the United States has protected education teachers through legislation. After 1965, the national government successively issued laws such as the Higher Education Act and the National Preparation for the Training of 21st Century Teachers: The Country is in Crisis. These laws have a common focus on the healthy and sustainable professional development of teachers themselves. As a result of the implementation of laws and regulations in the United States, teacher training has become more diverse in various forms and types in schools across the country, providing teachers with different choices and supporting their professional development. In Asia, Japan has ensured the sustainable development of teachers through legislation, clearly strengthening their social role status. At the same time, the quality of teachers has been improved through the promotion of laws. After 1945, Japan successively introduced the Basic Law of Education and the School Education Law.

In addition, through empirical research such as surveys, foreign scholars have studied effective systems for teacher professional development. In the book "Improving Teacher Quality: Professional Development Insights from the Implementation of the Professional Growth and Effectiveness System for Rural High School Teachers in Kentucky," scholars mentioned that they have established a teacher effectiveness testing system in Kentucky. During the implementation of the system, scholars have constructed a scientifically rigorous evaluation procedure that can comprehensively evaluate the effectiveness of teacher professional development. Through the implementation of systems and evaluation procedures, the relationship between effective teacher professional development and student performance is studied. An effective system for teacher professional development requires schools to provide support for teachers at the institutional level.

2.2 Review of Domestic Research

Innovation and entrepreneurship education started relatively late in China, and there are certain differences in innovation and entrepreneurship education among different universities in China. Some universities are just starting out, while others are gradually becoming more systematic, and their rigor and feasibility need to be tested in practice. The research on innovation and entrepreneurship teachers in China is relatively weak, and there is a large research space.

2.2.1 Innovation and Entrepreneurship Teacher

Around the main body of innovation and entrepreneurship teachers in universities, domestic scholars are currently focusing on the scale, structure, and construction of the teaching staff.

In terms of the scale of innovation and entrepreneurship teachers, domestic scholars use survey research methods to explore the number of innovation and entrepreneurship teachers in universities. In 2007, Li Chunqin conducted a survey of universities in Jilin Province and concluded that there were less than 10 innovation and entrepreneurship teachers in Jilin Province, which seriously constrained the quality of education. In 2011, Jiang Deqin believed that although there was no public survey on the total number of teaching staff, he pointed out the problem of a lack of teaching staff for innovation and entrepreneurship education in China, based on the situation of Beihang University training courses and various practices. In 2017, Chen Chunxiao's analysis of the 2015 education

statistics data released by S Province also confirmed the views of the first two scholars [1]. He presented the results more clearly by comparing specific data. The author points out that there are 1672 substitute teachers for entrepreneurship education and 2421 mentors for entrepreneurship practice courses. Compared to the total number of students, there is a shortage of innovation and entrepreneurship teachers, and the student teacher ratio is insufficient, resulting in an imbalanced structure. In summary, in the study of scale, scholars have empirically quantified the quantitative relationships between universities, innovation and entrepreneurship teachers, students, and other related entities. By presenting the relationships between entities, they have compared and analyzed the current problems and drawn conclusions [2].

Scholars such as Zhuang Yan pointed out that the proportion of full-time teachers is less than 15%, and more than half of the full-time teachers are composed of counselors Zhao Guojing and other scholars have pointed out through empirical research that doctoral degrees are rare, with more than half of innovation and entrepreneurship teachers having a master's degree, over 30% of teachers with less than two years of service, and over 30% of teachers holding intermediate professional titles Their research results are consistent with the characteristics of full-time entrepreneurship teachers in universities proposed by the research team of the Student Employment and Entrepreneurship Development Report, which are high educational level and low job titles. It can be seen that the current structure of innovation and entrepreneurship teachers is unbalanced, with master's degrees as the main education, low professional titles in universities, and insufficient full-time teachers to support innovation and entrepreneurship theory teaching. Overall, innovation and entrepreneurship teachers are mainly young and have a short employment time [3].

In terms of the construction of the teaching staff for innovation and entrepreneurship, Chinese scholars usually analyze from the perspective of problems. Scholars such as Zhu Xiaoyun have proposed strategies from four aspects: top-level design, teacher structure, training, and evaluation, by analyzing the practical difficulties of the teaching staff and combining them with foreign experience Scholars such as Yao Shengzhuo mainly analyze from the perspectives of government and universities, emphasizing the government's policy and funding support, as well as universities' teacher philosophy, training, assessment and incentive mechanisms. Scholars generally conduct countermeasure research on the construction of innovation and entrepreneurship teaching staff from the perspective of the national government, higher education institutions, and innovation and entrepreneurship teachers, or propose countermeasures based on a certain subject as the core.

2.2.2 Professional development of innovation and entrepreneurship teachers

Domestic scholars' research on the professional development of innovation and entrepreneurship teachers mainly focuses on two aspects: dilemma problems and countermeasures. In the exploration of countermeasures, scholars either draw on foreign experience, sort out specific countermeasures for the professional development of innovation and entrepreneurship teachers abroad, analyze and propose suggestions based on adaptability, or explore different subjects, striving to provide comprehensive guarantees for the professional development of innovation and entrepreneurship teachers.

Wu Guangyu and others attach great importance to improving the admission system for innovation and entrepreneurship teachers, strictly controlling the professional quality of teachers from the supply side, and pointing out the need to establish teacher qualification admission and standardize the professional standards for innovation and entrepreneurship teachers. Then, specific methods were proposed to strengthen professional support for innovation and entrepreneurship teachers from the school intermediary end, such as establishing targeted training systems and building a "diversified" evaluation system. From an international perspective, Zang Lingling introduced the training path for entrepreneurship PhDs in the international field. She mentioned that the professional development of

innovation and entrepreneurship teachers in China can refer to the entrepreneurship PhD training model to improve the quality level of theoretical teaching Tang Jian et al. summarized the experience of the American Baisan Business School through case analysis and proposed that the professional development of teachers in China can be carried out from the aspects of increasing the scale of teaching staff, building experience platforms, and improving relevant systems. In terms of countermeasures for the professional development of innovation and entrepreneurship teachers, scholars have conducted research from the perspective of managers from two aspects: development paths and incentive systems, providing useful insights for the path research in this article, especially emphasizing the important value of teacher incentive mechanisms for the professional development of innovation and entrepreneurship teachers [4].

2.2.3 Teacher school support

Regarding school support for teachers, domestic literature mainly focuses on relationship research, intermediary mechanism research, and support system construction research. In terms of relationship research, the academic community generally agrees that school support is irreplaceable in the professional development of teachers. Scholar Wang Shuanglong concluded through quantitative analysis that the professional development of teachers requires a supportive atmosphere in schools, and good school support has a positive impact on them. Regarding the research on influencing factors or mediating mechanisms, scholars such as Cai Yonghong conducted a questionnaire survey of teachers from 41 schools and found that organizational innovation support and school support that meets psychological needs have a positive effect on teacher development. In terms of the school support system, Professor Zhu Yongxin attaches great importance to the improvement of relevant systems. He proposed that schools should establish a sound mechanism for teacher qualification admission and suggested legislative measures to ensure the implementation of the system. Scholar Cao Yanling proposed the important role of school support in addressing teachers' occupational burnout and difficulties, and provided a detailed explanation of the specific operational aspects of school support. Scholar Yu Mingtao emphasizes the importance of spirit on the basis of system, pointing out that the professional development of teachers should not only attach importance to the standardization of teacher management system, but also to the important role of ideological environment. Scholar Li Jinzhao advocates for the creation of a positive, democratic, and healthy school support atmosphere. He values the return of teachers to professional development and believes that schools should provide corresponding resources based on the specific needs of different teachers. Scholars such as Bai Liang emphasize the construction of a support system for teacher professional development from macro to micro levels, which not only optimizes the external top-level design at the macro level, but also considers the need to improve the targeted teacher education system, and attaches importance to the micro development environment of positive incentives [5].

Overall, research on innovation and entrepreneurship teachers in foreign countries is based on certain theoretical foundations, mainly focusing on the teaching ability and competence of teachers. But the research on innovation and entrepreneurship teachers in the West is based on the background of capitalist market economy, which is not suitable for the research in China. The relevant research in China is later than that in foreign countries, but the scope of research is broader and more in line with China's national conditions and existing problems. There are both comprehensive studies that focus on historical analysis and reflection on a certain issue in the field of innovation and entrepreneurship education, as well as problematic studies that focus on the current situation, influencing factors, and proposed countermeasures of innovation and entrepreneurship teachers in the construction process.

By summarizing the experience of studying domestic and foreign literature and combining it with specific problems in Shanxi Province, we can draw on and absorb domestic and foreign experiences

to promote the construction of a school support system for the professional development of innovation and entrepreneurship teachers in Shanxi universities. The current research areas on school support for the professional development of innovation and entrepreneurship teachers mainly have the following characteristics:

Firstly, the research on the group of innovation and entrepreneurship teachers in universities is increasingly valued, and there is a growing need to draw on the relatively sound school support system formed in foreign countries for teacher professional development to provide us with some successful experiences.

Secondly, although the importance and value of innovation and entrepreneurship teachers have been recognized by universities and even the entire education sector, there are still some obvious shortcomings in relevant articles based on existing research. For example, there is no consensus on the definition criteria for innovation and entrepreneurship teachers, which poses certain difficulties for further research.

3. Experience and reference of school support for the professional development of innovation and entrepreneurship teachers abroad

3.1 Organizational support

The motivation theory suggests that if teachers have a strong sense of belonging to the organization, they can transform external motivation into internal motivation, thereby promoting the sustainable development of innovative and entrepreneurial teachers. This sense of organizational belonging is necessary for the sustained, stable, and high-quality development of the innovation and entrepreneurship teaching staff in universities.

Both universities in the United States and the European Union attach great importance to enhancing the sense of belonging of entrepreneurship teachers, and have established entrepreneurship majors, giving full attention to the discipline of entrepreneurship, which enables full-time entrepreneurship teachers to have a sense of belonging to the discipline of entrepreneurship. In addition, almost all universities in the United States and the European Union have set up school level entrepreneurship organizations, positioned as specialized entrepreneurship centers for school level units. Within these organizations, there are also teacher advisory committees and entrepreneurship advisory committees for entrepreneurship teachers. Entrepreneurship organizations are more professional and refined, which further enhances the sense of departmental belonging of current entrepreneurship teachers. The two types of sense of belonging are intertwined and work together to promote the stable professional development of entrepreneurship education teachers in universities[6].

In terms of the members of the entrepreneurship teacher team, entrepreneurship teachers in universities in the United States and the European Union both include full-time and part-time teachers, and full-time teachers are very professional. Before taking up their positions, they have all received professional knowledge, namely entrepreneurship courses, and even demonstrated systematic learning as entrepreneurship PhDs in the United States; High attention has been paid to part-time teachers with rich practical experience, vigorously attracting talents from various industries in society to teach in universities. This move is a win-win situation for the entrepreneurial teaching team. On the one hand, it makes up for the lack of practicality of full-time teachers, and on the other hand, it lays the foundation for cooperation and exchange among diverse academic groups. For current entrepreneurship teachers, universities still attach great importance to the professional construction of entrepreneurship teacher teams, emphasizing the professional growth of teachers and encouraging all teachers to develop themselves in enterprises.

3.2 Management support

Due to regional and cultural differences, the United States and the European Union have their own characteristics in implementing entrepreneurship education, and also have their own strengths in managing entrepreneurship teachers. However, the common feature between the two is the systematic training of entrepreneurial teachers, forming a comprehensive management mechanism for entrepreneurial teachers from selection, training, assessment, and motivation.

The selection and admission mechanism for teachers is perfect and scientific. In terms of selection criteria, both have formed unified and strict standards and requirements for entrepreneurial teachers from top to bottom. Most of the introduced entrepreneurial teachers require high education, and many universities require entrepreneurial experience and standardized procedures. In terms of recruitment methods, emphasis is placed on a dual track approach of internal training and external recruitment. The selection scope is broad, with an international perspective, actively recommending excellent teachers from home and abroad, and promoting international cooperation; In terms of recruitment structure, full consideration should be given to the proportion of full-time and part-time positions. On the one hand, it helps the entrepreneurial teacher team build a professional learning community, form a joint force for education, and establish a favorable communication and mutual assistance mechanism among teachers. On the other hand, it is also conducive to the overall management of entrepreneurial teacher resources both inside and outside the university.

Systematize the training system for entrepreneurial teachers. Systematic training includes two parts: overall guidance on the development direction of entrepreneurship teachers and the development of their abilities. The guidance of development direction is manifested in endowing entrepreneurship teachers with role positioning, enlightening their entrepreneurial awareness, and playing a crucial role in the construction of their professional consciousness and entrepreneurial spirit. It truly enables entrepreneurship teachers to recognize their profession and establish professional confidence. The development of abilities is manifested in training measures, which have formed three significant characteristics: whole process, targeted, and promoting communication. The entire process is the sustainable development of entrepreneurship teachers supported by universities, and entrepreneurship teacher training runs through the entire development process before, after, and after employment; Targeted training is conducted to identify the professional development needs of teachers at different stages and types during the training process. Among them, the renowned Baisan Business School tailors entrepreneurship education training for young teachers with excellent teaching potential but lacking entrepreneurial experience; Promoting communication is about emphasizing the exchange between teachers. Entrepreneurial teachers can only achieve true professional development and growth by being placed in a teacher community that facilitates communication and cooperation, and in a well-functioning entrepreneurial ecosystem. In short, training in the United States and Europe is mainly conducted regularly and in various ways, including projects, lectures, platforms, etc., emphasizing the guidance of entrepreneurial awareness, entrepreneurial spirit, and other concepts. For the training of entrepreneurial teachers, universities take multiple measures, emphasizing not only the improvement of teachers' professional abilities, but also the cultivation of their innovative and entrepreneurial attitudes and awareness. It is practical and highly operable [7].

In terms of performance evaluation and incentives, universities in the United States and Europe have fully considered the professional specificity of entrepreneurship teachers, setting separate standards and incorporating teachers' entrepreneurship education performance into performance evaluation criteria; The government and the state have established a top-down mechanism for evaluating the effectiveness of entrepreneurship education, providing a template system for evaluating teachers in universities.

3.3 Cultural support

Many universities in the United States and Europe do not treat entrepreneurship as a simple major, but instead build the entrepreneurial spirit into the DNA of school transformation and development. The act of entrepreneurship is not only a task that entrepreneurship education and entrepreneurship teachers need to complete, but also internalized in the school's educational purpose, reflected in various fields and stages of development, creating sufficient cultural support for entrepreneurship teachers.

From a cultural tradition perspective, the entrepreneurial culture of the United States and the European Union is very profound, from national to specific universities. Especially the close cooperation between schools and enterprises formed during World War II, which has continued to this day, the "government enterprise school property" linkage and mutual assistance mechanism of universities has become relatively mature. Timely integration of cutting-edge knowledge such as technology and market into courses is conducive to the transformation of entrepreneurial achievements in universities, and the development of entrepreneurship in universities is guided, further promoting the development of entrepreneurial theory and practice among university teachers and students. At the same time, universities are good at promoting this cultural tradition and using it to provide cultural support for entrepreneurial teachers, further actively developing cooperation with the government and enterprises. The mature and stable cooperation between universities in the United States and the European Union, as well as other universities, social enterprises, and national governments, ensures the quality of entrepreneurship education implementation and provides a dynamic mechanism for the professional development of innovation and entrepreneurship teachers.

On the cultural carrier, universities are manifested in the construction of rich and diverse activities and entrepreneurial practice bases. The activity support of universities almost covers all aspects of real business activities, most of which are supported by real enterprises. Therefore, teachers and students living in these activities are like living in a realistic entrepreneurial environment, with a strong entrepreneurial culture atmosphere; In the construction of entrepreneurship bases, emphasis is placed on the practical transformation of entrepreneurial achievements, and attention is paid to patent applications and protection for teachers and students.

3.4 Material support

Universities have established special funds for entrepreneurship education, with significant investment, providing sufficient teaching, training, and research funds for the professional development of entrepreneurship teachers. According to the data, the funding sources for entrepreneurship in universities in the United States and the European Union are extensive. In the case of the United States, there is support from the national government, such as the establishment of a national entrepreneurship education fund; There is also support from social organizations such as the Kaufman Foundation, and data shows that the number of full-time entrepreneurial teachers in universities supported by the foundation is rapidly increasing; At the same time, universities attach great importance to the development of entrepreneurship teachers, such as Harvard University investing one billion yuan annually to develop entrepreneurship education. In the European Union, universities actively raise funds from relevant stakeholders to support entrepreneurial teachers through various platforms. In addition to special funds for entrepreneurship, university entrepreneurship teachers also participate in various types of project funds.

In terms of teacher work, universities have established specialized entrepreneurship centers with abundant educational resources and complete infrastructure, providing a good working environment for entrepreneurial teachers and expanding their development space. Empowering entrepreneurial teachers with the right to development and teaching freedom, enhancing their professional autonomy,

and supporting the professional development of entrepreneurial teachers. Universities provide high professional title benefits for entrepreneurship teachers, especially in Germany where a lifetime professorship system is established, offering generous salaries to frontline entrepreneurship teachers. European Union universities have also raised the status of entrepreneurship teachers in the entire school and society through publicity and education, improving the quality of work and life of entrepreneurship teachers. Whether it is the external environment or the personal treatment of teachers, the EU provides a high level of welfare benefits, providing a guarantee system for the professional development of entrepreneurial teachers.

4. Conclusion

In the new era of transformation and development, the whole society must focus on promoting the high-quality development of innovation and entrepreneurship education. "The education plan is teacher oriented", and the construction of the innovation and entrepreneurship teacher team is urgent. A professional innovation and entrepreneurship teacher team is the first resource to ensure the development of innovation and entrepreneurship education in universities. Enhancing the faculty of innovation and entrepreneurship and improving the professional level of innovation and entrepreneurship teachers not only requires the efforts of teachers, but also the support of society, especially the extensive participation and support of schools.

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