Empirical Research on Connotation and Elements of Small and Micro Entrepreneurial Ability of Students in Vocational Colleges

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Abstract: Higher vocational college students’ entrepreneurial ability is based on the characteristics of higher vocational students and that of vocational colleges. It has similarities in entrepreneurial ability, but also has their own characteristics. Different from emphasis on scientific and technological entrepreneurship, higher vocational college students focus on the fields such as service and sales, and the small and micro entrepreneurial ability of higher vocational students emphasizes the use of skills and opportunity development. This paper makes an empirical study on the small and micro entrepreneurial ability of higher vocational students, and finds that their entrepreneurial ability is composed of skills practice ability, opportunity development ability, entrepreneurial operation ability and failure handling ability. The small and micro entrepreneurship of higher vocational students is an important part of college students’ entrepreneurship. The development of their ability will improve the employment competitiveness of higher vocational students and the success rate of entrepreneurship.

1. Introduction
In the era of mass entrepreneurship and innovation, the upsurge of college students’ entrepreneurship is emerging. According to the survey of Mycos on the graduates’ entrepreneurship from 2012 to 2017, the proportion of graduates’ entrepreneurship has increased steadily in the past five years, from 2.0% in 2012 to 2.9% in 2017. College students’ entrepreneurship is widely accepted by the society, and the environment of college students’ entrepreneurship is improving year by year. The research of college students’ entrepreneurship involves many aspects, such as factors affecting entrepreneurship, entrepreneurial willingness, entrepreneurial ability, entrepreneurial performance, entrepreneurial environment construction, and entrepreneurial support service system. The professional background of college students’ entrepreneurship involves economics, engineering, art and other majors. Although there are many studies on college students’ entrepreneurship, the research on entrepreneurship of higher vocational college students is not deep enough. The reason is that the entrepreneurship of college students involves more technological and innovative entrepreneurship, while the entrepreneurship of higher vocational college students mostly focuses on small and micro entrepreneurship such as skills and services, and there are not enough focus of social attention and support on it. On the other hand, the existing entrepreneurship research in higher vocational colleges is more based on the concept and category of undergraduate students’ entrepreneurship, lacking analysis on entrepreneurial characteristics and creation of higher vocational students. Difference between
entrepreneurship of higher vocational students and that of undergraduates cannot be clearly revealed, which makes the topic of entrepreneurship of higher vocational students lack legitimacy. Therefore, the concept and scope of higher vocational students’ entrepreneurship needs to be clarified before its unique problems being discussed. The research on small and micro entrepreneurship can maximize the advantages of practical skills of vocational students and find out the knowledge shortcomings and capacity bottlenecks of vocational students’ entrepreneurship, and make up for the weaknesses in order to promote the cultivation of vocational students’ entrepreneurial ability and improve the success rate of these students.

2. Literature review

2.1 Entrepreneurial Ability of College Students

The cultivation of college students’ entrepreneurial ability is a key issue in college entrepreneurship education. The entrepreneurial ability of college students determines the overall level of entrepreneurship and the success rate of entrepreneurship [1]. College students usually experiences opportunity mining, organizational operation, relationship coordination and so on in the process of starting a business. The smooth operation of these processes depends on the use of their entrepreneurial ability. Therefore, the connotation of college students’ entrepreneurial ability has been widely studied.

The perspective of entrepreneurship mainly includes perspective of trait, opportunity and management. The perspective of trait focuses on the personality, perseverance, ability and knowledge of entrepreneurs; the perspective of opportunity focuses on the ability of entrepreneurs to identify and develop opportunities; and the perspective of management focuses on the ability of entrepreneurs to manage enterprises [2]. The entrepreneurship itself includes opportunities, strategies, networks, leadership and other related abilities [3]. College students’ entrepreneurial ability is based on the perspective of common entrepreneurial ability, but on this basis, it also has the characteristics of students’ entrepreneurship, emphasizing the integration of specialty and entrepreneurship, the learning of entrepreneurship methods, and the bearing of failure.

According to relevant literature, there are several types of entrepreneurial ability of college students. Firstly, professional competence plus general competence. Gao Guijuan and Su Yang divide college students’ entrepreneurial ability into professional ability, methodological ability and social ability through empirical research [4]. This classification not only takes into account the general entrepreneurial ability, but also takes into account the particularity of students’ major. Secondly, students’ entrepreneurial ability are based on process of starting a business. Yang Daojian etc. divide entrepreneurial ability of college students into opportunity discovery ability, strategic decision-making ability, resource integration ability, organizational management ability, innovation and creativity ability and frustration tolerance ability through case studies [5]. This classification combines entrepreneurial ability and the process of starting a business, which shows the practicality and complexity of startup process. Thirdly, based on the competency of entrepreneurship, Wang Hui and Zhang Huihua combine case studies and empirical studies, and divide entrepreneurial ability of college students into opportunity grasp, relationship competency, innovation creativity, practical learning and resource integration [6]. As the core competence for starting businesses, entrepreneurial competence is the premier indicator to judge whether students’ businesses can succeed or not in the future. Fourthly, entrepreneurial ability of students with different majors. For example, Zhang Wenqiang points out that entrepreneurial ability of college students majoring in finance, politics and law includes professional knowledge, professional skills, innovative ability and professional ability [7]. Through empirical research, Gao Shuyu and Zou Xiaodong found that the entrepreneurial ability of engineering science and technology talents includes technological innovation ability, market-grasping ability, team leadership ability and self-management ability [8]. Since the knowledge background and technology level of each specialty are different, the evolution mode of entrepreneurship path is also different, which results in different entrepreneurship abilities. Fifth, entrepreneurial ability from the perspective
of failure. Wang Fei puts forward the ability of psychological rehabilitation of entrepreneurship, that is, the ability of college entrepreneurs to recover quickly from failures [9]. Scholars also discussed the repeated willingness of college students after their failure to start a business [10]. Entrepreneurial failure is common in students’ entrepreneurship. Coping with entrepreneurial failure well is an important part of students’ entrepreneurship learning. The above five perspectives reflect the entrepreneurial ability of college students from various aspects. To summarize, we can find that the entrepreneurial ability of college students not only includes the ability of opportunity identification, resource integration and management execution, but also includes the professional ability, practical learning ability, frustration resistance and other elements with distinct characteristics of college students’ entrepreneurial ability.

2.2 Entrepreneurial Ability of Higher Vocational College Students.

The research on the entrepreneurial ability of students in higher vocational colleges mainly focuses on its connotation and constituent elements. Firstly, basic ability plus special ability. Hong Xiao and Ding Wei divide the entrepreneurial ability of higher vocational students into basic ability, special ability and development ability [11]. Basic ability involves goal management, active control and opportunity mining; special ability includes professional, social and management competence; Development ability includes innovation competence, strategic competence and resource integration competence. Secondly, based on the competency of entrepreneurship, Lu Xiaoli divided the entrepreneurship of higher vocational students into interpersonal communication ability, opportunity recognition ability, innovation creativity, resource integration ability and practical learning ability through questionnaire survey [12]. Finally, entrepreneurial ability from the perspective of entrepreneurship. For example, Chen Shihui proposes that we should cultivate entrepreneur talents in Higher Vocational Colleges under the guidance of entrepreneurship, emphasizing dedication, creative thinking, cooperation and leadership [13].

The entrepreneurial ability of higher vocational students basically follows the research ideas and methods of college students’ entrepreneurial ability. But due to insufficient research, the research results rarely show the unique requirements and constraints of higher vocational students’ entrepreneurial ability. In general, students’ entrepreneurial ability cannot reflect the process of starting small and micro businesses, and the influencing factors cannot be revealed. Therefore, characteristics of vocational college students’ small and micro entrepreneurial ability needs to be deeply analyzed, and the connotation of it should be clarified more accurately to reflect the content of small and micro entrepreneurial ability.

3. Empirical Study

On the basis of theoretical exploration of students’ small and micro entrepreneurial ability in higher vocational colleges, empirical research is needed to support and verify the composition of entrepreneurial ability. Based on the existing research scales of entrepreneurship and students’ entrepreneurship, this study designs the scales combined with field interviews and expert opinions of relevant enterprises, and uses the form of Lickert 5-level scale to determine the ranks, from “disagreement” to “consent”, expressed in 1-5 respectively(see Table 1). Subsequently, empirical research was carried out through questionnaire, data collection and analysis. Questionnaires are mainly distributed in vocational colleges, science and technology entrepreneurship parks, college students’ entrepreneurship incubators and senior students in Wuxi, Suzhou and Nanjing in China. A total of 310 questionnaires were distributed and 262 were done and returned. 61 invalid questionnaires were excluded and 201 valid questionnaires were obtained. The validity rate of the questionnaires was 76.7%.
Table 1. Questionnaire on Small And Micro entrepreneurial Ability

| Dimension                  | Item                                                                 | Journal Title          |
|----------------------------|----------------------------------------------------------------------|------------------------|
| Skills Practical Ability   | I can continue to learn in Entrepreneurship (Learning)               | Han Guijuan, Su Yang[4]; Wang Hui, Zhang Huibua[6]; Zhang Wenqiang[7] |
|                            | I have enough knowledge of entrepreneurship (Knowledge)               |                        |
|                            | When I have difficulties in starting a business, I can stick to it(Perserverance) |                        |
|                            | I have an open mind and can maintain the flexibility of entrepreneurship (Flexibility) |                        |
| Opportunity Development Ability | I'm looking for ways to identify entrepreneurial opportunities (Opportunity Identification) | Yang Daojian et al. [5]; Lu Xiaoli [12] |
|                            | I will look for ways to assess entrepreneurial opportunities (Opportunity Assessment) |                        |
| Entrepreneur Operating Ability | I will integrate and utilize entrepreneurial opportunities for Entrepreneurship (Opportunities Utilization) | Chen Shihui[13]; Hong Xiao, Ding Wei[11] |
|                            | I have the ability of organization and management (Organization)      |                        |
| Failure Handling Ability   | I will establish and maintain good business relations through various channels (Relation) |                        |
|                            | I pay attention to the long-term development of start-up enterprises and have strategic awareness (Strategy) |                        |
|                            | I can learn from the failure of entrepreneurship (Failure Learning)   | Wang Fei[9]; Jia Tianming, Lei Liangcai[10] |
|                            | When I fail to start a business, I will start a second business (Second Start-up) |                        |
|                            | I can handle the emotions of business failure (Failure Emotion)       |                        |

3.1 Exploratory Factor Analysis
In order to test the structural validity of small and micro entrepreneurial ability of higher vocational students, the dimension structure of entrepreneurial ability is determined by exploratory factor analysis, and then the factor structure model of entrepreneurial ability and the appropriateness of the collected data are determined by confirmatory factor analysis. Therefore, 62 questionnaires were randomly selected from 201 valid questionnaires for exploratory factor analysis. Before factor analysis, the correlation between indicators is tested. The results of KMO is 0.776, higher than 0.7, and Bartlett sphericity test value is 471.018, corresponding probability P value is 0.000, lower than the significance level of 0.001, indicating that it is suitable for factor analysis. Principal component method is used for Factor extraction to extract the factors whose eigenvalue is greater than 1, and the maximum variance method is used for rotation. Through SPSS23 software analysis, a total of four factors were extracted, and the cumulative explanatory variation of these four factors is 75.85%. The factor load of each item is greater than 0.5. The results are shown in Table 2. Later, the reliability of the scale is tested, and the Cronbach’s Alpha coefficient is calculated by calculating the overall correlation coefficient (CITC) of four variables (see Table 3), all the CITC coefficients are greater than 0.35 and the clonal Cronbach’s Alpha coefficients is greater than 0.7, which shows that the items have good internal consistency and the scale has good reliability.

3.2 Confirmative Factor Analysis
After exploratory factor analysis, the remaining 139 questionnaires from 201 valid questionnaires are
analyzed by confirmatory factor analysis to determine whether the structural model of entrepreneurial ability fits the actual data. Firstly, reliability analysis is carried out, and the reliability is judged by calculating CITC and Cronbach’s Alpha. The results are shown in Table 4 that the reliability of the scale is good. AMOS23 software is used to carry out confirmatory factor analysis. The results are shown in Figure 1. The standardized load of items in the dimensions measured is greater than 0.5, and it is highly significant in statistics, indicating that each item has a high convergence validity. The fitness index of the model and data is shown in Table 5. CMIN/DF is 1.525, GFI, TLI, CFI, NFI and IFI are all higher than 0.9. AGFI is very close to 0.9, RMSEA is 0.062 and less than the standard 0.1. It is shown that the observed data and structure model are well fitted. The division and measurement of this study are effective.

4. Result and Enlightenment

4.1 Research Result

| Component                        | 1   | 2   | 3   | 4   |
|----------------------------------|-----|-----|-----|-----|
| Learning                         | .742| .113| .319| .259|
| Knowledge                        | .764| .270| .043| .315|
| Perseverance                     | .795| .112| .096| .273|
| Flexibility                      | .889| .082| .015| .092|
| Opportunity Identification       | -.015| .077| .852| -.007|
| Opportunity Assessment           | .183| .071| .840| .097|
| Opportunities Utilization        | .130| -.001| .840| .171|
| Organization                     | .413| .198| .163| .719|
| Relation                         | .257| .176| .115| .806|
| Strategy                         | .175| .132| .049| .838|
| Failure Learning                 | .188| .807| .072| .246|
| Second Start-up                  | .139| .870| .044| .162|
| Failure Emotion                  | .091| .875| .046| .052|

| Component                        | Corrected Item-Total Correlation | Cronbach’s Alpha if Item Deleted | Cronbach’s Alpha |
|----------------------------------|----------------------------------|---------------------------------|------------------|
| Learning                         | .707                             | .85                             | .875             |
| Knowledge                        | .748                             | .834                            | .836             |
| Perseverance                     | .732                             | .841                            | .841             |
| Flexibility                      | .745                             | .836                            | .836             |
| Opportunity Identification       | .642                             | .785                            | .785             |
| Opportunity assessment           | .683                             | .744                            | .744             |
| Opportunities Utilization        | .698                             | .726                            | .726             |
| Organization                     | .706                             | .745                            | .745             |
| Relation                         | .694                             | .755                            | .755             |
| Strategy                         | .66                              | .788                            | .788             |
| Failure Learning                 | .706                             | .798                            | .798             |
| Second Start-up                  | .76                              | .752                            | .752             |
| Failure Emotion                  | .707                             | .783                            | .783             |
Through literature research on students’ entrepreneurial ability and higher vocational students’ entrepreneurial ability, combined with field interviews, the scale of entrepreneurial ability for small and micro businesses of higher vocational students is designed.

The scale divides it into four dimensions: skills practice ability, opportunity development ability, entrepreneurial operation ability and failure handling ability. Using large-scale questionnaire survey, exploratory factor analysis and confirmatory factor analysis were carried out on the questionnaire data.

**Table 4. Reliability Test of Confirmatory Factor Analysis**

| Dimension                      | Corrected Item-Totol Correlation | Cronbach’s Alpha if Item Deleted | Cronbach’s Alpha |
|-------------------------------|----------------------------------|----------------------------------|------------------|
| Learning                      | .725                             | .839                             |                  |
| Knowledge                     | .764                             | .824                             | .874             |
| Perseverance                  | .701                             | .848                             |                  |
| Flexibility                   | .731                             | .839                             |                  |
| Opportunity Identification    | .668                             | .825                             |                  |
| Opportunity assessment        | .743                             | .761                             | .847             |
| Opportunities Utilization     | .732                             | .765                             |                  |
| Organization                  | .699                             | .774                             |                  |
| Relation                      | .715                             | .763                             | .842             |
| Strategy                      | .701                             | .784                             |                  |
| Failure Learning              | .692                             | .812                             |                  |
| Second Start-up               | .773                             | .727                             | .849             |
| Failure Emotion               | .690                             | .814                             |                  |

**Figure 1. Measurement Results of Confirmatory Factor Analysis**
Table 5. Fitting Index of Confirmative Factor Analysis

| Item | CMIN/DF | GFI  | AGFI | TLI  | CFI  | RMSEA | NFI  | IFI  |
|------|---------|------|------|------|------|-------|------|------|
| Number | 1.525  | .906 | .855 | .957 | .967 | .062  | 0.912| .968 |

The results show that the scale has passed the reliability test, and has good content validity and structural validity. This research deeply excavates the connotation of students starting small and micro businesses, which will help to analysis the key influencing factors and follow-up performance of students’ small and micro entrepreneurship in the future.

4.2 Research Enlightenment

4.2.1 Skills Practical Ability Needs to be Deepened. Higher vocational colleges lay emphasis on skill training courses, and the practical operation ability is much stronger. In the process of starting businesses, higher vocational students make use of their own advantages, relying on their skills and strengths, which is the extension and expansion of vocational students’ skill learning. Small and micro entrepreneurship activities can integrate students’ knowledge, encourage students to continue learning, and cultivate students’ perseverance in doing things. The twists and turns of starting businesses can also encourage students to reflect on themselves and improve their practical skills, flexibly adjust the process, and calmly face the uncertainty.

4.2.2 Opportunity Development Ability Need to be Strengthened. In more than 1,000 higher vocational colleges in China, majors focus mainly on technology and commerce (Zhang Zhixiang, 2012). The entrepreneurial opportunities of higher vocational students lie in skills and service-oriented small and micro businesses. Through analysis of their own knowledge and skills, higher vocational students can divide the feasible areas to start business and find their own advantageous opportunities. However, due to the diversity and complexity of entrepreneurship opportunities, students tend to be blind and conformist when evaluating and utilizing these opportunities. Therefore, colleges’ entrepreneurship guidance agencies and social entrepreneurship centers are needed to guide the students and screen the opportunities.

4.2.3 Entrepreneurial Operation Ability Needs to be Improved. Students have to experience gradual process to master operation ability of start-up enterprises, and they need to hone their skills in practice. In order to make up for students’ deficiencies in entrepreneurial operation ability, higher vocational colleges can adopt the way of gradual incubation to promote the growth of students’ enterprises. For example, through the process of college incubator - social Incubator - social accelerator, students have room for gradual growth. At the same time, the deficiencies in the relationship of start-up can be integrated and exploited through the relationship network of colleges and alumni resources, so as to help start-ups to quickly establish useful social network relationships. Defects in strategic management of start-up enterprises can be solved by introducing entrepreneurship mentors or consultants to guide enterprises to establish the direction of sustainable development. The improvement of organizational management of start-up enterprises requires that entrepreneurs gradually explore and grow in the real operation, and when necessary, external forces can be brought in to assist managers.

4.2.4 Failure Handling Ability Needs Attention. Higher vocational college students have a high failure rate in entrepreneurship, and their frustration tolerance is weak. Therefore, more frustration tolerance education and psychological counseling should be carried out when students start their own businesses. The course of entrepreneurship can emphasize its risk in the teaching, so that students can be prepared for the hardship and failure in the early stage. The simulation training of entrepreneurship can extend to the whole process of entrepreneurship, adding the situation of despair and failure, so that students can experience the whole process from rise to decline, and enhance students’ intuitive understanding of failure.
5. Conclusion
Higher vocational students’ entrepreneurship is an important part of college students’ entrepreneurship, which mainly focuses on service and retail and other small businesses. Through empirical research, it is found that vocational students’ small and micro entrepreneurial ability includes skills practice ability, opportunity development ability, entrepreneurial operation ability and failure handling ability, among which skills practice ability is the advantage of vocational students. The entrepreneurial ability of higher vocational students is the core factor of their success in startups. And it is also the quality skills that colleges focus on cultivating. By studying the connotation and composition of the entrepreneurial ability of higher vocational students, it is convenient for colleges to cultivate and improve their entrepreneurial weaknesses.

Acknowledgements
This paper is supported by Youth Fund Project of Humanities and Social Sciences of the Ministry of Education of China (14YJC880021), Talent Supporting Project of Wuxi City College of Vocational Technology.

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