

AHP-based Study on the Influencing Factors of Forming a Compound College Students' Entrepreneurship Team

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Abstract—As the key link of the college students' entrepreneurship, the formation of a team plays a vital role in the success or failure of the entrepreneurship. Compound college students' entrepreneurship team has strong comprehensive strength and can improve the success rate of entrepreneurship. Therefore, it is particularly important to analyze the influencing factors of its formation. In order to provide basis for college students and improve the rate of their success, this paper summarizes the four categories and 14 specific factors affecting the formation, establishes the hierarchical model structure of the factors by using the analytic hierarchy process, and ranks the importance of each factor.

Keywords—college student; compound; Entrepreneurial teams; Analytic hierarchy process

I. INTRODUCTION

In recent years, with the encouragement and support of the government and society, more and more college students begin to take entrepreneurship as a way to achieve their personal goals and aspirations. As a well-educated group, college students have more active thinking, more solid professional knowledge and strong sense of innovation. They are also rich in passion and lofty ideals, which are their unique advantages. However, college students also have disadvantages such as the lack of social experience, resources, funds and capability of managing. These problems are very common among college entrepreneurs. Therefore, in order to survive the fierce competition in the market, college entrepreneurs must strengthen themselves through rational team building.

By gathering college entrepreneurs with kindred spirits and with their cooperation, the compound entrepreneurship team can effectively make up for the shortcomings of individuals, make team members complement each other in technology, knowledge, ability and resources, maximize the collective advantage, enhance the ability of integrating resources, improve the quality of innovation and entrepreneurship, help the team overcome all kinds of difficulties and improve the success rate of college students' entrepreneurship. The formation of the compound team plays such an important role in the success of college students' entrepreneurship, that it is necessary to study the influencing factors of it.

II. FACTORS OF THE FORMATION OF COMPOUND COLLEGE STUDENTS' ENTREPRENEURIAL TEAMS

The formation of college students' entrepreneurial teams is a key part of successful entrepreneurship. It is subject to many factors and there are many problems. Many entrepreneurial teams today, generally formed by adopting the principle of "being free, spontaneous, and voluntary", are confronted with many ills when starting their own business, which leads to failure. In order to avoid the risk of entrepreneurial failure caused by the irregular team building, college students need to learn to build startup teams with the thread of forming compound entrepreneurial teams. At present, the factors affecting the formation of compound college students' entrepreneurial teams mainly include the following aspects:

A. Quality Factors of Entrepreneurial Team

1) Leadership of entrepreneurial team

A team leader is the core of the team and plays a decisive role in the decision of organizational structure design, staffing, and rules and regulations. When forming compound entrepreneurial teams, team leaders need to analyze their own strengths and weaknesses objectively, and focus on selecting members who can make up for these weaknesses to join, so that not only to ensure that team leaders have the ability to control the big picture, but also to enhance the comprehensive strength of their teams.

2) The entrepreneurial competence of the entrepreneurial team

In the evaluation of entrepreneurial competency of college students' entrepreneurial team members, the factors with greater weight are listed as follows from the largest to the smallest: cooperative spirit, learning ability, management ability, coordination and communication ability, innovation ability and execution ability [1]. For college students entrepreneurial teams, the scope of business involves more widely, so it is very important to the division of labor cooperation between team members, so the inspection team members in the entrepreneurial teams need to competence, to have people of all abilities and skills together, create complex entrepreneurial teams, improve the ability of team work.

3) Professional background of entrepreneurial team

At the beginning of starting a business, many college students choose to find some close friends, friends, alumni and even teachers to share ideas and set up a team. Relevant investigation shows that 38.2% of college students tend to choose classmates when choosing team members, who are similar in age, grade and major and have similar educational background [2]. The entrepreneurial team formed in this way has a high degree of homogeneity of professional knowledge, which is difficult to meet the needs of the entrepreneurial team in technology, marketing, finance, management and other aspects, so the integrated ability of the team is relatively weak. With the development of the team, many problems and contradictions will be caused by this team building method, which will lead to the failure of the business. Therefore, when establishing an entrepreneurial team, it is necessary to fully analyze the strengths and weaknesses of the team members, so as to select the members suitable for establishing a compound talent entrepreneurial team.

4) The resource abundance of entrepreneurial team

When the college students' entrepreneurial team is formed, each team will have more or less problems such as lack of funds, contacts, experience and other resources. Therefore, when the compound college entrepreneurial team is formed, it is necessary to focus on choosing members of the background have different resources, which can build a deep network and rich team entrepreneurship resources, so that provides protection for the entrepreneurial team to solve the difficulties encountered in the entrepreneurial process.

B. Management Factors of Entrepreneurship Team

1) Goal planning of entrepreneurial team

The goal planning of the entrepreneurial team plays a decisive role in the formation of the entrepreneurial team. Through clear goal planning, a compound entrepreneurial team can choose from the beginning to bring together people who are determined, have the same goals and beliefs, and have similar interests, so as to motivate each member to fully realize their self-worth. Inject the impetus for the realization of the goal and finally realize the sustainable development of the entrepreneurial team.

2) Rules and regulations of entrepreneurial team

For the compound college student entrepreneurship team, strict and rigorous regulations can clearly allocate power and responsibility to each position, corresponding to everyone, so that when the benefits are distributed, there can be evidence to be based on, and when the performance is evaluated, there can be a certificate to test, so as to avoid favoring either side because of the relationship.

3) Organizational culture of entrepreneurial team

In order to improve the stability of entrepreneurial team organization, in addition to the explicit regulations that can constrain and guide members, the role of intangible organizational culture is also indispensable. In the process of compound entrepreneurial team personnel mobility, in order to maintain the team's compound talent structure, it is necessary to inherit the excellent organizational culture of the

entrepreneurial team, so as to ensure that the team can continue to develop steadily under the condition of personnel flow.

4) Values of the entrepreneurial team

Team values play an important role in the overall development and interests of start-up companies. Especially when entrepreneurial teams have differences in company development concepts, management, and equity interests, common values can give team members the willingness to contribute and sacrifice to the team. When conflicts arise, they will be resolved through win-win cooperation. At the same time, inclusive and open team values can help the entrepreneurial team attract more talents and enhance the overall strength of the team.

C. Entrepreneurial Project Factors

1) Start-up capital of entrepreneurial project

Capital is the fundamental basis for all businesses to continually operate. For a start-up enterprise, whether it can raise enough capital is the key to the success of a start-up enterprise [3]. According to relevant statistics, about 80% of college students' entrepreneurial teams are faced with the problem of lack of venture capital [4]. For the entrepreneurial team of college students, the lack of venture capital will lead to the failure of the team to maintain normal operation, resulting in large turnover of team members and low ability of team members, which seriously affects the establishment of the compound entrepreneurial team and greatly increases the risk of entrepreneurial failure.

2) The technical content of entrepreneurial project

Due to a lack of venture capital to technology research and development, so many college students entrepreneurial teams will choose low-tech and relatively easy-to-start projects, such as campus services, education and training, network electric commerce, catering, etc., Because of the low threshold and low capacity required, most college entrepreneurial teams are formed by a whim. Without full analysis of advantages and disadvantages, the entrepreneurial team of college students will be deficient in abilities, resources and other aspects. The organizational structure of the entrepreneurial team is single, and the degree of composition of the entrepreneurial team is low, which leads to the weak comprehensive ability of the team. On the contrary, the higher the threshold of entrepreneurial projects, the higher the technical requirements, and the higher the requirements for team composition.

3) Innovation of entrepreneurial project

With the continuous development of social economy and the continuous improvement of the level of science and technology, the market competition in all walks of life is more and more fierce. As an inexhaustible driving force for the development of an enterprise, innovation is more and more widely concerned and valued by the society. College students' entrepreneurial teams must be aware of the importance of innovation in entrepreneurship, through cultivating their innovative thinking, combined with the team's own strengths and weaknesses, make use of the technology innovation, business model innovation, marketing innovation, and other methods to choose the appropriate innovation projects, improve the competitiveness of the startup project. Therefore, the higher

the innovation of the entrepreneurial project, the higher the requirement for the compound degree of the entrepreneurial team members.

D. External Environment Factors

1) Economic and social backgrounds

With the continuous development of the internet information technology, an economy integrating new economic factors including internet, AI and big data and entity economy has formed in the whole world. As the new economy enlarges its scale constantly, traditional economy is facing huge impact and challenge while new economy is becoming the new power of economic and social development [5]. In the era of new economy, entrepreneurial activities are facing higher innovation requirements, especially university students' innovative undertaking is more needed to base on technical innovation and depend on internet and big data, therefore, building compound type entrepreneurial team is the important guarantee for university students to realize entrepreneurial success under the background of new economy.

2) Entrepreneurship policy

Under the background of "mass entrepreneurship and innovation", for the purpose of encouraging and supporting university students' innovative undertaking, our country and various-level department have successively issued various preferential policies and support projects, involving capital, tax revenue, entrepreneurship cultivation and guidance, thus to provide good guarantee for university students' innovative undertaking [6]. Besides, the government and universities, as the powerful supporters of university students' innovative undertaking, can not only provide supports of site, technology and capital but also can provide services of entrepreneurship training lecturers, guidance of entrepreneurship tutors and entrepreneurship incubation park to help the entrepreneurs teams increase their theoretical knowledge of entrepreneurship, improve their entrepreneurship quality and cultivate compound type talents for them.

3) Entrepreneurial atmosphere

The regional entrepreneurial atmosphere, especially the entrepreneurial atmosphere in universities has large influence on the desire of university students participating in entrepreneurial practices. The regions and universities full of strong entrepreneurial atmosphere can enrich the entrepreneurial culture of university students, stimulate their entrepreneurship thirst, increase their entrepreneurship enthusiasm, largely motivate and inspire them to participate in entrepreneurial practices. Unfortunately, related survey data show that only 10.43% of university students enjoy the "welfare" brought from strong entrepreneurial atmosphere while 57% of university students think the entrepreneurial atmosphere of their universities is ordinary and 28.24% of university students think the entrepreneurial atmosphere is not helpful for university students to widen their views and cultivate their innovative thoughts thus to hinder university students to participate in entrepreneurial practices and restrict formation of compound type entrepreneur team.

III. WEIGHT ANALYSIS OF INFLUENCING FACTORS

A. Analytic Hierarchy Process

Analytic hierarchy process (AHP) is a decision-making method proposed by the famous American operations research scientists T.L.Satty et al in the 1970s to decompose the relevant elements of decision-making problems into the levels of goals, criteria, programs, etc., and conduct qualitative and quantitative analysis on this basis. The steps are as follows: 1) construct a hierarchical analysis model; 2) use 1-9 scale method to construct the judgment matrix; 3) check the consistency of the judgment matrix; 4) single hierarchical sorting; 5) total hierarchical ordering [8].

According to the relevant information, based on the characteristics of college students entrepreneurial team, combined with the questionnaire and face-to-face interview 10 outstanding university student entrepreneurs and five college students' innovative undertaking education experts, the author will attribute the influence factors of compound college students' entrepreneurial teams formed to quality factors of entrepreneurial team, management factors of entrepreneurship team, entrepreneurship project factors, external environment factors, 4 categories of primary indexes and 14 secondary impact factor indicators, as shown in Fig. 1.

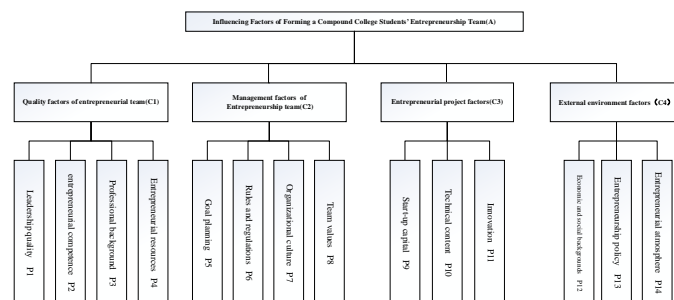


Fig. 1. Influencing factors of forming a compound college students' entrepreneurship team

B. Determination of the weight of indicators at all levels

1) Determination of first-order factor weight

According to the relative importance relative to the overall goal, according to the 1-9 scale method, the judgment matrix of the first-order factor is:

$$A = \begin{bmatrix} 1 & 4 & 1/2 & 3 \\ 1/4 & 1 & 1/4 & 1/3 \\ 2 & 4 & 1 & 3 \\ 1/3 & 3 & 1/3 & 1 \end{bmatrix}$$

The approximate eigenvector of the judgment matrix is obtained by using the root method:

$$W_A = [0.315 \quad 0.080 \quad 0.445 \quad 0.160]$$

The maximum characteristic root and consistency index of the judgment matrix are:

$$\lambda_{max} = \frac{1}{4} \sum_{i=1}^5 \frac{(MW_M)_i}{(W_M)_i} = 4.146$$

$$CI = \frac{\lambda_{max} - n}{n - 1} = 0.049$$

$$CR = \frac{CI}{RI} = 0.054 < 0.1$$

The consistency test is passed, so the relative weight of first-level factors is shown in TABLE I.

TABLE I. RELATIVE WEIGHT OF FIRST-ORDER FACTORS

Factors	The Weight
Quality factors of entrepreneurial team	0.315
Management factors of Entrepreneurship team	0.08
Entrepreneurial project factors	0.445
External environment factors	0.16

2) Determination of the weight of secondary factors according to the same method, the weight of secondary factors relative to primary factors can be calculated respectively.

- For the entrepreneurial team quality:

$$C1 = \begin{bmatrix} 1 & 3 & 5 & 2 \\ 1/3 & 1 & 2 & 1/3 \\ 1/5 & 1/2 & 1 & 1/7 \\ 1/2 & 3 & 7 & 1 \end{bmatrix}$$

$$\lambda_{max} = 4.101, CI = 0.034$$

$$CR = 0.038 < 0.1$$

- For the management of entrepreneurial team:

$$C2 = \begin{bmatrix} 1 & 3 & 1/2 & 1/3 \\ 1/3 & 1 & 1/5 & 1/7 \\ 2 & 5 & 1 & 1/2 \\ 3 & 7 & 2 & 1 \end{bmatrix}$$

$$\lambda_{max} = 4.019, CI = 0.006$$

$$CR = 0.07 < 0.1$$

- For entrepreneurial projects:

$$C3 = \begin{bmatrix} 1 & 1/3 & 1/5 \\ 3 & 1 & 1/2 \\ 5 & 2 & 1 \end{bmatrix}$$

$$\lambda_{max} = 3.004, CI = 0.002$$

$$CR = 0.003 < 0.1$$

- For the external environment:

$$C4 = \begin{bmatrix} 1 & 4 & 6 \\ 1/4 & 1 & 3 \\ 1/6 & 1/3 & 1 \end{bmatrix}$$

$$\lambda_{max} = 3.054, CI = 0.027$$

$$CR = 0.047 < 0.1$$

All the above judgment matrices have passed the consistency check, so the relative weight of each level of factors is shown in TABLE II.

TABLE II. THE TOTAL RANKING OF EACH INFLUENCING FACTOR

	The weight of First-order factor	The weight of Secondary factor	The total weight
The establishment of compound college students entrepreneurship team	Quality factors of entrepreneurial team 0.315	Leadership quality 0.45	0.142
		entrepreneurial competence 0.132	0.042
		Professional background 0.068	0.022
		Entrepreneurial resources 0.35	0.11
	Management factors of Entrepreneurship team 0.08	Goal planning 0.162	0.013
		Rules and regulations 0.06	0.005
		Organizational culture 0.288	0.023
		Team values 0.489	0.039
	Entrepreneurial project factors 0.445	Start-up capital 0.11	0.049
		Technical content 0.309	0.138
		Innovation 0.581	0.259
	External environment factors 0.16	Economic and social backgrounds 0.685	0.11
		Entrepreneurship policy 0.221	0.035
		Entrepreneurial atmosphere 0.093	0.015

IV. CONCLUSION

According to the above analysis and calculation, among the factors that affect the formation of compound entrepreneurial team, the quality factor of the entrepreneurial team and the factor of the entrepreneurial project play a decisive role, accounting for 76% of the total factors. Whether college students can build compound entrepreneurial team depends on the correct understanding and analysis of these two factors. In terms of the weight proportion of secondary factors, the innovation of the entrepreneurship project accounted for the largest proportion, accounting for 25.9% of the total factors. This means that the higher the degree of innovation of entrepreneurship projects, the more diverse the demands on the ability of entrepreneurship team members, and the higher the degree of team composition. The leadership quality of the

entrepreneurial team ranked second with 14.2% of the total factors, which means that the team leader plays a very important role in the formation of the compound team. Therefore, sufficient attention should be paid to these two factors when setting up compound entrepreneurial teams. Of course, the economic and social background, technical content of entrepreneurial projects and entrepreneurial resources of entrepreneurial teams also account for a certain proportion, which cannot be ignored in the establishment of compound entrepreneurial teams.

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