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Research Article

The Influencing Factors of Application-oriented University Students' Entrepreneurship Education on Entrepreneurship Behavior under the Background of "Internet+"

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ABSTRACT

The purpose of this study is to investigate the influence of entrepreneurship education on the entrepreneurial behavior of applied college students in the context of "Internet +," and to propose guiding suggestions to facilitate college students' entrepreneurial endeavors. The study employs a quantitative research method. In the initial stage, data collection was conducted through a questionnaire. Subsequently, the structural equation model was applied to test the research hypotheses. The results indicate that, in the backdrop of "Internet +," entrepreneurial education for applied university students positively impacts entrepreneurial behavior, with entrepreneurial ability playing an intermediary role. Consequently, given the continually expanding employment group, entrepreneurship has emerged as a new engine for sustained economic growth. The ultimate objective of this study is to present practical recommendations for individuals, application-oriented universities, and the government.

1. Introduction

In the context of "Internet Plus," there is a virtuous circle between entrepreneurship and economic development. Entrepreneurship can promote economic activities, which, in turn, promotes the development of entrepreneurship (Mig-Angel & Mendez, 2019). In the era of "Internet Plus," scientific and technological innovation achievements are integrated into various fields of the social economy, providing a new platform for the development of innovation and entrepreneurship (Huang Sisi & Wang Xinhong, 2022).

However, with the total number of college graduates expected to exceed 10 million in 2022, college student employment has become an urgent social problem. As the main training base for college students, colleges and universities should cultivate mid- to advanced-level technical talents and new entrepreneurial talents with entrepreneurial ability (Weihe Jun, 2021). In the context of "Internet Plus," entrepreneurship education is considered to be one of the important factors for cultivating and developing the entrepreneurial ability and behavior of the young generation (Huang Sisi & Wang Xinhong, 2022). As a result, governments have begun to pay high attention to the ability and development of college student potential entrepreneurs (Xinzhe Wang & Xueling Nie, 2020).

According to existing research, the top-level design of entrepreneurship education has been completed at the national level, and relevant research is also deepening (Mig-Angel & Mendez, 2019). However, several problems persist in the entrepreneurial behavior of application-oriented college students. These include the influence of traditional ideas, the absence of a cultural atmosphere for innovation and entrepreneurship education, a lack of entrepreneurial ability, and unclear entrepreneurial intentions. These challenges make it difficult for application-oriented college students to effectively implement innovation and entrepreneurship education. It is crucial to enhance the linkage mechanism between schools and enterprises, and local governments and businesses should fully implement entrepreneurship incentive policies (Kang Meiyang, 2017).

Kang Meiyang (2017) observed that most college entrepreneurs fail to fully leverage the "Internet +" platform to address practical challenges during the entrepreneurial process. Application-oriented colleges and universities should seize the opportunities of the times and refine their curricula. This paper, using Taiyuan Institute of Technology as an example and considering the "Internet +" era background, analyzes the influencing factors of entrepreneurial education on the entrepreneurial behavior of applied university students. The aim is to provide practical solutions to the challenges that may arise during the entrepreneurship process for application-oriented college students.

2. Objectives

Under the support and guidance of national policies, college students in application-oriented universities possess unique advantages for starting their own businesses, leveraging their distinctive discipline knowledge and proficiency in Internet technology. Particularly in recent years, with the global sweep of the COVID-19 epidemic, entrepreneurship has emerged as a crucial means to address the employment challenges faced by college students. Given this backdrop, the purpose of this study is twofold:

To examine the relationship between entrepreneurial education and the entrepreneurial behavior of applied university students within the context of "Internet +."

To investigate the mediating relationship between the entrepreneurial ability of applied university students and both entrepreneurial education and entrepreneurial behavior under the backdrop of "Internet +."

Literature Reviews

Entrepreneurship Education and Entrepreneurial Behavior

Entrepreneurial education directly influences entrepreneurial behavior. According to Curavic (2019), entrepreneurship education can foster the entrepreneurial action ability of college students. Additionally, in a study by Chen Dongli (2022) on the impact of regional economic development and college innovation and entrepreneurship education on college students' entrepreneurial behavior, a positive correlation between entrepreneurial education and entrepreneurial behavior was identified. Building on these previous studies, this paper asserts that entrepreneurship education is a crucial preparatory step for entrepreneurial behavior.

The advent of the Internet has dismantled original knowledge barriers, expanded the sources of knowledge, facilitated the sharing of knowledge achievements, and made early knowledge acquisition more accessible. This, in turn, allows individuals to better explore new development fields, presenting new opportunities for themselves and society (Kang Meiyuan, 2017). Therefore, we can draw the following conclusions:

Hypothesis 1: In the context of "Internet +", entrepreneurial education of applied university students has a significant positive impact on entrepreneurial behavior.

Entrepreneurship Education and Entrepreneurial Ability

Lai Zeyuan (2020) proposed that enhancing the entrepreneurial ability of college students requires establishing an effective, interactive, and three-dimensional working mechanism. This necessitates collaborative efforts from the students themselves, their families, colleges, and society to create a united front of support and assurance. Such a collaborative approach is crucial for better stimulating and activating the desire, awareness, and entrepreneurial ability of college students to venture into business. This suggests that external environmental factors significantly impact the effectiveness of entrepreneurship education (Lai Zeyuan, 2020).

Weihe Jun (2021) employed a structural equation model to investigate the influence of entrepreneurship education on college students' entrepreneurial behavior. Jun argued that entrepreneurial ability functions as an intermediary between entrepreneurship education and entrepreneurial behavior. Entrepreneurship education is a process of accumulating knowledge reserves, and only by translating theoretical achievements into practical outcomes can it improve the likelihood of successful entrepreneurship among college students (Weihe Jun, 2021). Building on this, the paper asserts that entrepreneurship education plays a pivotal role in fostering entrepreneurship ability and proposes the following hypotheses:

Hypothesis 2: In the context of "Internet +", applied entrepreneurship education for college students has a significant positive impact on their entrepreneurial ability.

Entrepreneurial Ability and Entrepreneurial Behavior

From the perspective of studying entrepreneurial behavior, previous literature has defined entrepreneurial ability to encompass various elements related to behaviors. These include the capacity to identify and seize opportunities, integrate resources, propose ideas, implement innovation, manage entrepreneurial teams, and operate in the market. According to Huang Sisi & Wang Xinhong (2022), entrepreneurial ability can be classified into broad and narrow senses. The narrow sense refers to the specific skills an entrepreneur must possess to undertake a particular task (Huang Sisi & Wang Xinhong, 2022). In a broader sense, it denotes the synthesis of an individual's knowledge, attitudes, and skills related to task completion, measurable by normative standards and subject to improvement through training and development (Huang Sisi & Wang Xinhong, 2022). Kang Meiyan (2017) posits that entrepreneurial ability is a dynamic set of knowledge, skills, and attitudes possessed by entrepreneurs to facilitate the success of entrepreneurship.

Drawing on previous research, this study defines entrepreneurial ability as the comprehensive capability of knowledge, attitude, and skills that potential entrepreneurs should possess when undertaking specific entrepreneurial behaviors. This includes commitment ability, resource integration ability, emotional control ability, team-building ability, and fund preparation ability (Huang Sisi & Wang Xinhong, 2022). Therefore, entrepreneurial ability plays a pivotal role in entrepreneurial behavior. The following conclusions can be drawn:

Hypothesis 3: In the context of "Internet +", the entrepreneurial ability of applied college students significantly positively influences their entrepreneurial behavior.

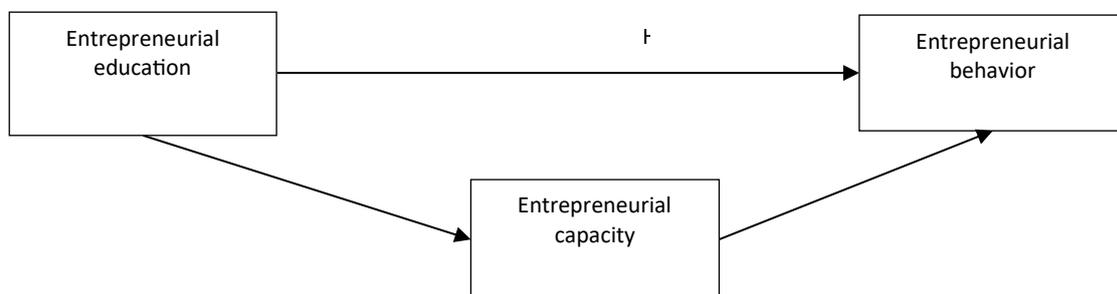


Figure 1 Conceptual framework

3. Research Methodology

The quantitative research method is adopted in this study. Given the unavailability of the actual total number of graduates from application-oriented universities, the Cochran formula is utilized to estimate the total number of samples in this paper. Consequently, 688 questionnaires were collected from students at Taiyuan Institute of Technology to ensure more accurate research data. Of these, 663 questionnaires were deemed valid, accounting for 96.36 percent.

The questionnaire used in this study comprises four parts: demographic data of the respondents, the scale of college students' entrepreneurial education, entrepreneurial ability, and entrepreneurial behavior. A Likert-5 scale was employed for these three variables (Likert,

1967). The independent variable, entrepreneurship education, is based on the work of Li Xuhui, Hu Xiaomei, Wang Xin (2016), with the Cronbach α coefficient indicating excellent reliability at 0.970. The three dimensions of entrepreneurship education are entrepreneurship practice (EP), entrepreneurship course (EC), and entrepreneurship support (ES). The model fitting parameters for the scale of entrepreneurship education, such as $\chi^2/df=3.14$, RMSEA=0.073, CFI=0.903, NFI=0.913, IF=0.913, meet the fitting standard, suggesting that the latent model of the scale aligns well with the data. Confirmatory factor analysis results affirm the convergence validity of the scale, with a composite reliability of 0.964, 0.996, and 0.985, all exceeding 0.9, indicating excellent intrinsic quality. The Average Variance Extraction (AVE) of the scale is 0.819, 0.980, and 0.903, respectively, all above 0.8, signifying good convergent validity (Bagozzi, 1988), reinforcing the scale's internal quality.

The dependent variable, entrepreneurial behavior, follows the scale used by Yao Xiaolian (2014) and consists of five questions. The Cronbach α coefficient for entrepreneurial behavior is 0.978, indicating exceptional reliability. Model fitting parameters for the entrepreneurial behavior scale, such as $\chi^2/df=2.616$, RMSEA=0.045, CFI=0.989, NFI=0.992, IF=0.992, meet the fitting standard, indicating that the latent model of the scale matches the data well. Confirmatory factor analysis affirms the convergence validity of the scale, with a composite reliability of 0.979, exceeding 0.9, signifying excellent intrinsic quality. The Average Variance Extraction (AVE) of the scale is 0.901, exceeding 0.8, indicating good convergent validity (Bagozzi, 1988), further emphasizing the scale's internal quality.

The scale for the intermediate variable, entrepreneurial ability, is based on the work of Chai Xudong (2010) and Qu Jiayin (2015). The Cronbach α coefficient for entrepreneurial ability is 0.975, indicating very good reliability. The scale includes five dimensions: commitment ability (COA), resource integration ability (RIC), emotional control ability (EMC), team building ability (TCA), and fund preparation ability (FC). Model fitting parameters for the scale of entrepreneurial ability, such as $\chi^2/df=2.159$, RMSEA=0.08, CFI=0.917, NFI=0.927, IF=0.927, meet the fitting standard, indicating that the latent model of the scale aligns well with the data. Confirmatory factor analysis results affirm the convergence validity of the scale, with combined reliability for the five dimensions (COA, RIC, EMC, TCA, FC) of 0.938, 0.921, 0.892, 0.922, 0.951, respectively, all exceeding 0.9, indicating excellent intrinsic quality. The AVE of the scale is 0.75, 0.796, 0.735, 0.8, and above 0.765, all above 0.8, signifying good convergent validity (Bagozzi, 1988), emphasizing the scale's internal quality.

4. Results

The characteristics of samples are mainly from 663 undergraduate students of Taiyuan Institute of Technology. See Table 2 for details of the samples.

Table 2 Sample Descriptive Statistics

Grade (%)	Gender (%)	Place of birth (%)	Professional (%)	Student cadre experience (%)	Family business experience (%)	Professional Ranking (%)	Entrepreneurship Competition Participation (%)
Freshman year (35%)	Male (43%)	Large and medium-sized cities (16%)	Department of Mechanics (0.6%)	Yes (59%)	Yes (32%)	Top 10% (16%)	No (58%)
Sophomore year (12%)	Female (57%)	County-level cities (28%)	Department of Electrical Engineering (0.9%)	No (41%)	No (68%)	10%-20% (28%)	1 time (31%)
Junior year (17%)		Towns and townships (9%)	Department of Automation (2.7%)			After 20% (56%)	Multiple times (11%)
Senior year (36%)		Rural (47%)	Department of Chemical Engineering (2.8%)				
			Computer Science (3.3%)				
			Department of Science (4.4%)				
			Department of Management (65%)				
			Foreign Languages department (6%)				
			Department of Materials (14%)				
			Department of Art and Design (6.3%)				
			Physical Education department (0.6%)				

Findings of this Study is under the background of "Internet +", applied the college students' entrepreneurship education and entrepreneurial behavior "of the direct impact of path, using AMOS22.0 software through a structural equation model of latent variable path analysis to explore the entrepreneurship education and its breakdown dimension (entrepreneurial practice, entrepreneurship and entrepreneurial support) directly influence mechanism of entrepreneurial action. The path coefficient diagram (overall dimension) of the direct impact of entrepreneurial education on entrepreneurial behavior is shown in Figure 2.

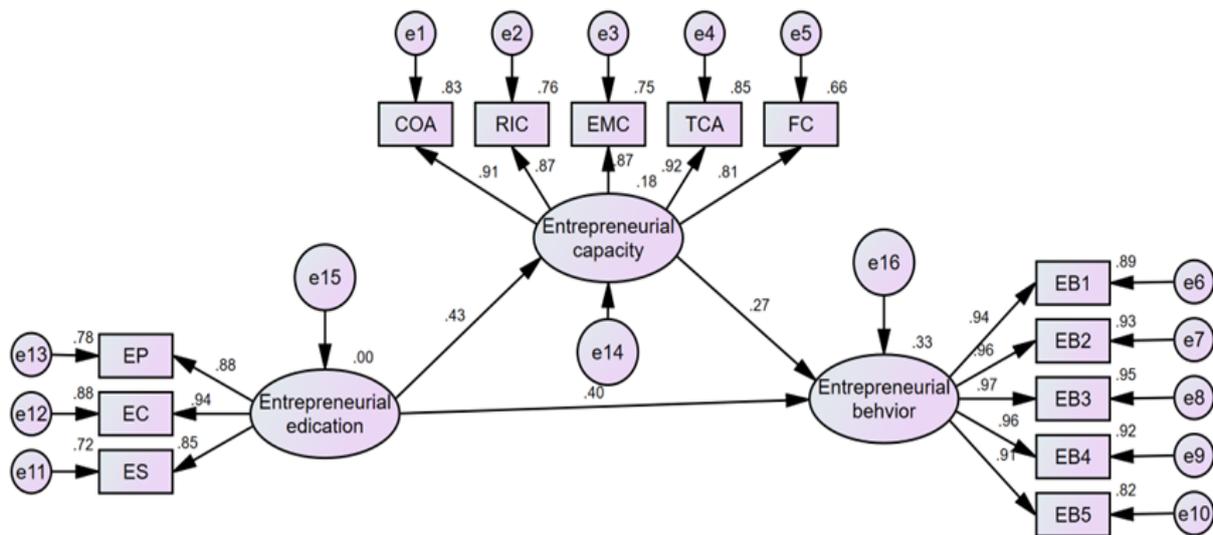


Figure 2 Structural equation model

In order to test the fitting degree of the model, the fitting indicators of the model "Path Coefficient Diagram (overall dimension) of the direct influence of entrepreneurial education on entrepreneurial behavior of applied college students" are sorted out as shown in Table 3.

Table 3 Test results

Fitting index	X ² /df	RMSEA	NFI	IFI	CFI
Fitting the standard	<3	<0.08	>0.90	>0.90	>0.90
Operation results	2.616	0.045	0.989	0.992	0.992

Main effect test. In order to more clearly see the degree of influence among variables, the significance of standardized path coefficients in "Path Coefficient Diagram (Overall dimension) of the Direct Influence of Entrepreneurial Education on Entrepreneurial Behavior of applied college Students" is summarized as shown in Table 4. It can be found from the table that, The influence coefficient of entrepreneurship education on entrepreneurial behavior (standardized path coefficient) reached the significant level: entrepreneurship education → entrepreneurial behavior ($\beta = 0.61$, $P < 0.05$). The results show that applied college students' entrepreneurial education has a positive and significant impact on entrepreneurial behavior under the background of "Internet +", that is, applied college students' entrepreneurial education can directly and significantly influence entrepreneurial behavior under the

background of "Internet +". It shows that the better the situation of entrepreneurship practice, entrepreneurship course and entrepreneurship support of applied college students under the background of "Internet +", the more it can promote the occurrence of individual entrepreneurship behavior.

To sum up, hypothesis 1: The entrepreneurship education of applied college students under the background of "Internet +" has a significant positive impact on the support of entrepreneurial behavior.

Table 4 Path coefficient of hypothetical model

	Path	Estimate	P
Entrepreneurship education	<---	Entrepreneurial behavior	0.61 ***

(*P<0.05 bilateral test **P<0.01 ***P<0.001 bilateral test)

Previous research shows that entrepreneurship education of applied college students has a positive and significant impact on entrepreneurial behavior under the background of "Internet +". Specifically, this part mainly analyzes the background of "Internet +" applied college students' entrepreneurship the segmentation dimensions (commitment, resources integration ability, emotional control ability, team ability, funding ability) for intermediary business education affect entrepreneurial behavior of indirect path coefficients figure (overall dimensions) as shown in figure 5.

To test the fitting degree of the model, the fitting indicators of the model "Path Coefficient Diagram (overall dimension) of the indirect influence of entrepreneurial education mediated by entrepreneurial ability on entrepreneurial behavior after modification" are summarized as shown in Table 5.

Table 5 Test results

Fitting index	X ² /df	RMSEA	NFI	IFI	CFI
Fitting the standard	<3	<0.08 (if<0.05 A; <0.08 B)	>0.90	>0.90	>0.90
Operation results	2.743 Conform	0.063 B	0.959 Conform	0.964 Conform	0.964 Conform

In order to more clearly see the degree of influence among variables, the significance of standardized path coefficients of "Revised Path Coefficient Diagram of Indirect Influence of entrepreneurial Education mediated by entrepreneurial ability on entrepreneurial Behavior (overall dimension)" is summarized in Table 6. It can be seen from the table that, Under the

background of "Internet +", the influence coefficient of entrepreneurial education on entrepreneurial ability (standardized path coefficient) and the influence coefficient of entrepreneurial ability on entrepreneurial behavior (standardized path coefficient) of application-oriented college students have reached the significance level: Entrepreneurial education \rightarrow entrepreneurial ability ($\beta= 0.43, P < 0.001$), entrepreneurial ability \rightarrow entrepreneurial behavior ($\beta= 0.27, P < 0.001$).

Therefore, hypothesis 2: Entrepreneurial education positively and significantly affects entrepreneurial ability is supported; hypothesis 3: Entrepreneurial ability positively and significantly affects entrepreneurial behavior "is also supported.

The mediating effect of entrepreneurship education on entrepreneurial behavior was $0.43 \times 0.27 = 0.12$, and the direct effect of entrepreneurship education on entrepreneurial behavior was significant ($\beta = 0.40, P < 0.001$). Therefore, entrepreneurship ability played a part in the mediating effect of entrepreneurship education on entrepreneurial behavior. The proportion of mediating effect in the total effect is $0.12 / (0.12 + 0.40) = 23.1\%$. Therefore, "Entrepreneurial ability has mediating effect in the influence mechanism of entrepreneurial education on entrepreneurial behavior" is supported.

Based on the results of model fitting parameters and the significance principle of influencing standardized path coefficients, as well as the procedure of latent variable path analysis and mediation effect test, it is shown in Table 6.

Table 6 Path coefficient of hypothetical model

	Path		Estimate	P
Entrepreneurship education	<---	Entrepreneurship capacity	0.43	***
Entrepreneurship capacity	<---	Entrepreneurial behavior	0.27	***
Entrepreneurship education	<---	Entrepreneurial behavior	0.40	***

(* $P < 0.05$ bilateral test ** $P < 0.01$ *** $P < 0.001$ bilateral test)

5. Discussion

Entrepreneurship is intricately linked to a country's sustainable economic growth, and individual entrepreneurial intention signifies potential entrepreneurial behavior (Mig-Angel & Mendez, 2019). In the context of "Internet +," a model of college students' entrepreneurial behavior is proposed for application-oriented universities, and the findings of this study hold significant implications for the government, universities, and families (Kang Meiyang, 2017). Huang Sisi & Wang Xinhong (2022) suggest that the government can offer preferential policies for college students or other individuals, such as tax incentives, resource support, financial

assistance, and social backing, to encourage entrepreneurship and enhance capability. For individual students and institutions, recognizing the importance of improving the entrepreneurial capacity of college students is crucial (Huang Sisi & Wang Xinhong, 2022). Entrepreneurship education equips college students with an understanding of the business environment, market opportunities, and real-life situations. Specific recommendations include the following:

First, improve the education system and promote entrepreneurship (Huang Sisi & Wang Xinhong, 2022): The results of this paper indicate that students from different majors' exhibit varying intentions towards entrepreneurial behavior (Kang Meiyang, 2017). Notably, significant differences in entrepreneurial behaviors exist among individuals with different majors, with scores of students majoring in economics and management and education surpassing those of other majors (Huang Sisi & Wang Xinhong, 2022).

Second, stimulate individual entrepreneurship ability through entrepreneurship education (Zhang Y, Duysters G & Clooict M, 2020): The analysis above demonstrates that the entrepreneurial education system positively impacts entrepreneurial behavior. Entrepreneurial education also has a positive influence on entrepreneurial ability, and the enhancement of entrepreneurial ability positively contributes to the realization of entrepreneurial behavior (Xinzhe Wang & Xueling Nie, 2020). Therefore, entrepreneurial ability serves as an intermediary between entrepreneurial education and entrepreneurial behavior (Wang Xinhong, 2022).

Third, enhance the level of entrepreneurial ability to improve the success rate of entrepreneurship: Entrepreneurial activity is a complex phenomenon with multi-level overlapping, multi-dimensional value, and multi-element coexistence (Ning D P, 2017). Forming this extensive set of complex entrepreneurial skills requires collaboration among various departments and institutions, even involving families and individuals, to integrate resources and form a collective force.

6. Conclusion

During the revision of the training program, industry technical and management personnel are actively involved throughout the entire process. This inclusive approach ensures that the expectations of industry enterprises regarding the quality, knowledge, and abilities of talents are seamlessly integrated into the curriculum system. The objective is to establish a close and substantive joint training mechanism between the educational institution and the industry. While there are various factors influencing entrepreneurship, such as entrepreneurial self-efficacy, entrepreneurial motivation, and entrepreneurial intention, future studies could explore the moderating effect of entrepreneurial self-efficacy. Additionally, it would be beneficial to consider the impact of entrepreneurial motivation and entrepreneurial education on entrepreneurial behavior in subsequent research.

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