# The Impact of Entrepreneurial Self-Efficacy on Entrepreneurial Intention of College Students in Henan Province of China: A Study of Mediating Role of Entrepreneurial Attitudes

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## Abstract

**Purpose:** This study aims to explore the impact of self-efficacy on entrepreneurial intention among college students in Henan Province, China, and examine the mediating role of entrepreneurial attitude. **Methods:** Quantitative analysis was employed in this study. A total of 1351 participants were selected through cluster sampling. The data collected were processed using SPSS 25.0 and Process 3.5, including the removal of invalid questionnaires and adjustment of missing values and outliers. Harman's single-factor test was conducted to examine the common method bias, while reliability, validity, and the mediating effect in Process were also assessed. **Results:** The analysis of the data revealed that the correlation coefficient between self-efficacy and entrepreneurial attitude was 0.238 ($p<0.01$), and the correlation coefficient between self-efficacy and entrepreneurial intention was 0.282 ($p<0.01$). Additionally, the correlation coefficient between entrepreneurial attitude and entrepreneurial intention was 0.211 ($p<0.01$). Tests of the mediating effects of self-efficacy, entrepreneurial attitude, and entrepreneurial intention showed that self-efficacy significantly predicted entrepreneurial intention. Furthermore, even after incorporating the mediating variable of entrepreneurial attitude, self-efficacy continued to predict entrepreneurial intention. **Conclusion:** There is a significant positive correlation among self-efficacy, entrepreneurial attitude, and entrepreneurial intention among college students in Henan Province, China. Entrepreneurial attitude plays a mediating role between self-efficacy and entrepreneurial intention. Based on the data results in Table 7, the mean values of self-efficacy, entrepreneurial attitude, and entrepreneurial intention were 3.225, 3.196, and 3.181, respectively, with standard deviations of 1.019, 0.917, and 0.935. The correlation analysis results indicated that the correlation coefficient between self-efficacy and entrepreneurial attitude was 0.238 ($p<0.01$), and the correlation coefficient between self-efficacy and entrepreneurial intention was 0.282 ($p<0.01$). Additionally, the correlation coefficient between entrepreneurial attitude and entrepreneurial intention was 0.211 ($p<0.01$).

**Keywords:** College Students; Self-Efficacy; Entrepreneurial Attitude; Entrepreneurial Intention; Mediating Effect.

* Received: June 28 2027; Revised: July 12 2024; Accepted: July 13 2024

## Introduction

In recent years, with the rapid development of China's economy and the acceleration of social change, entrepreneurship has become an important way for college students to pursue personal achievement and development (Han Huiping, 2024). In this process, college students in ordinary colleges and universities in Henan Province are no exception. College students' entrepreneurial self-efficacy, that is, their confidence in their ability in the entrepreneurial process, is considered to be one of the important factors affecting their entrepreneurial intention(Li Huiyu, 2023). Entrepreneurial attitude is considered to be a mediating factor in the formation of college students' entrepreneurial intention (Wang Yashu, 2023). However, the current research on the relationship between entrepreneurial self-efficacy and entrepreneurial intention of college students in ordinary colleges and universities in Henan Province is still relatively limited (Jiao Weiwei, 2021).

Despite the growing interest in student entrepreneurship, several challenges persist in the current research landscape. Firstly, there is a lack of comprehensive studies that specifically focus on the entrepreneurial intentions of students in ordinary colleges and universities in Henan Province. This gap is significant given the unique economic and social context of the region (chen, 1998). Secondly, while previous studies have examined entrepreneurial self-efficacy and entrepreneurial intention separately, few have explored the intricate relationship between these factors and the potential mediating role of entrepreneurial attitude in this specific context (Jill, 2005). This limited understanding hinders the development of effective entrepreneurship education programs and support policies tailored to the needs of students in Henan Province.

Furthermore, there is a pressing need for empirical research that can inform policy-making and educational practices in promoting student entrepreneurship. As China continues to emphasize innovation and entrepreneurship as drivers of economic growth, understanding the factors that influence students' entrepreneurial intentions becomes crucial (Xue Hanke, 2022). Specifically, there is a need to investigate how entrepreneurial self-efficacy and attitude interact to shape entrepreneurial intentions among students in ordinary colleges and universities, who may face different challenges and opportunities compared to their counterparts in more prestigious institutions (Zhou Wei, 2018).

Therefore, this study aims to explore the relationship between entrepreneurial self-efficacy and entrepreneurial intention of college students in ordinary colleges and universities in Henan Province, and further examine the mediating role of entrepreneurial attitude in it. By deeply analyzing the above relationship, we can better understand the psychological motivation of college students' entrepreneurial behavior and provide useful reference for the formulation and practice of relevant policies. Based on this, this study will use a questionnaire survey to collect relevant data from college students in ordinary colleges and universities in Henan Province, and use statistical analysis methods to verify the research hypothesis. Through a systematic study of the relationship between entrepreneurial self-efficacy, entrepreneurial intention and entrepreneurial attitude, it provides empirical evidence and targeted suggestions for the development of college students' entrepreneurship education and entrepreneurship support policies. The study aims to fill the research gap in the field of entrepreneurship among college students in Henan Province, China, to explore the relationship between entrepreneurial self-efficacy and entrepreneurial intention, and to reveal the mediating role of entrepreneurial

attitude. Through this study, we hope to contribute to the promotion of entrepreneurial intention and improvement of entrepreneurial environment among college students in Henan Province.

## Research Objectives

1、To examine the relationship between entrepreneurial self-efficacy and entrepreneurial intention among college students in ordinary universities in Henan Province, China.

2、To investigate the mediating role of entrepreneurial attitude in the relationship between entrepreneurial self-efficacy and entrepreneurial intention.

3、To provide empirical evidence and practical recommendations for enhancing entrepreneurship education and support policies for college students in Henan Province based on the findings of the study.

## Research Methodology

1. Research subjects

The subjects of this study are college students from 8 ordinary colleges and universities in Henan Province, China. A total of 1458 questionnaires were distributed using the cluster sampling method, with 1351 valid responses, resulting in an effective recovery rate of 92.66%.

The sample group's basic characteristics are as follows:

- Gender: Males 51.3%, Females 48.7%
- Grade distribution: Ranging from 20% to 27.8% across all grades
- Professional background: Diverse, ranging from 20.3% to 22.4% across various fields
- Growth environment: Urban 50.6%, Rural 49.4%
- Student cadre experience: Yes 14.4%, No 85.6%
- Only child status: Yes 37.3%, No 62.7%
- Participation in entrepreneurial activities: 68.2% have participated in various forms, 31.8% have not participated

This sample composition ensures a wide representation of students across different demographics, academic backgrounds, and entrepreneurial experiences, providing a solid foundation for the study.

Table 1 Descriptive analysis of basic information of college students

| variable | category | frequency | percentage |
|---|---|---|---|
| Gender | Male | 693 | 51.3 |
| | Female | 658 | 48.7 |
| Grade | Freshman | 318 | 23.5 |
| | Sophomore | 270 | 20 |

| | | | |
|---|---|---|---|
| Professional background | Junior | 272 | 20.1 |
| | Senior | 376 | 27.8 |
| Growing environment | Graduate | 115 | 8.5 |
| | Literature, History, and Philosophy | 302 | 22.4 |
| Student cadre experience | Science, Engineering, Agriculture, and Medicine | 286 | 21.2 |
| | Business Law | 339 | 25.1 |
| Only child | Arts and Sports | 274 | 20.3 |
| | Other | 150 | 11.1 |
| Participation in entrepreneurial activities | Urban | 684 | 50.6 |
| Gender | Rural | 667 | 49.4 |
| | Yes | 195 | 14.4 |
| Grade | No | 1156 | 85.6 |
| | Yes | 504 | 37.3 |
| Professional background | No | 847 | 62.7 |
| | Participated in starting a company | 210 | 15.5 |
| | Owned part of the property rights of a company | 184 | 13.6 |
| | Participated in the operation of a company | 121 | 9 |
| | Tried to start a small business (set up a street stall, opened an online store, etc.) | 406 | 30.1 |
| | Never participated in entrepreneurial activities | 430 | 31.8 |

2. Measurement tools

(I) Entrepreneurial self-efficacy Based on Chen's research and Jill et al.'s work , this study adopts a two-dimensional approach to measure college students' entrepreneurial self-efficacy: innovation efficacy and interpersonal relationship coordination efficacy. The scale consists of 12 questions using a Likert 5-point scale.

(II) Entrepreneurial attitude The entrepreneurial attitude scale is based on Phillip H. Phan's method, with modifications to suit the Chinese context (Phillip,2002). It includes 19 questions divided into three dimensions: attitude towards fame and fortune, personal spiritual pursuit, and social responsibility attitude. This scale has been proven to have good reliability and validity in the Chinese environment by scholars such as Zhou Wei and Xiang Chun (2011).

(III) Entrepreneurial intention The entrepreneurial intention scale is adapted from Gao Longzheng's (2018) work , divided into three dimensions: conscious preparation, action plan, and subjective psychology. It consists of 17 items using a Likert 5-point scale.

3、Research Methods

This study employs quantitative analysis methods, using a questionnaire survey for data collection. The sample population consists of college students from 8 ordinary universities in Henan Province, China. Cluster sampling was used. The questionnaire includes basic population information and scales for entrepreneurial self-efficacy, entrepreneurial attitude, and entrepreneurial intention.

Data analysis was conducted using SPSS25.0 and process3.5. Harman's single-factor test was used to check for common method bias, and correlation and process mediation effect tests were performed.

4. Research Hypothesis

Hypothesis 1: Entrepreneurial self-efficacy has a significant positive impact on entrepreneurial intention;

Hypothesis 2: Entrepreneurial self-efficacy has a significant positive impact on entrepreneurial attitude;

Hypothesis 3: Entrepreneurial attitude has a significant positive impact on entrepreneurial intention;

Hypothesis 4: Entrepreneurial attitude plays a mediating role between entrepreneurial self-efficacy and entrepreneurial intention.

According to the above hypothesis, there is a mutual influence among the entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention of college students in ordinary universities in Henan Province, China, which is a model with a mediating effect (see Figure 1).

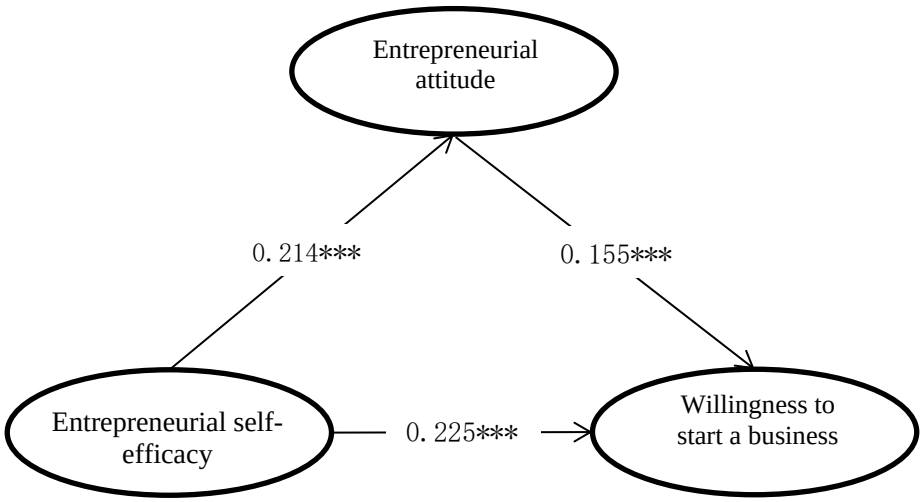


Figure 1 Model diagram of the mediating effect of entrepreneurial attitude between entrepreneurial self-efficacy and entrepreneurial intention

## Research Result

1. Common method bias test

The common method bias (CMB) test is a test used to detect problems between predictor variables and criterion variables that are artificially covaried in research. Common method bias is a common and serious problem in questionnaire surveys. It may lead to large errors in statistical analysis results and cause deviations in the relationship between variables. Common method bias mainly comes from four aspects: item description, number of items, common evaluators, and survey time and location. This study used the single factor method to assess the risk of common method bias (Shi Songqi, 2019). The Harman single factor test method was used to perform a principal component factor analysis without rotation on the items of the questionnaire. As a result, 8 principal component factors with eigenvalues greater than 1 were extracted. The variance explanation rate of the first factor was 10.038%, which was less than the critical value of 40%, indicating that there was no significant common method bias in this study. This paper uses exploratory factor analysis, and the results are shown in Table 2 below:

Table 2 Index values of measurement items

| Element | Extracting the sum of squares of loads | | | Sum of squares of rotating loads | | |
|---|---|---|---|---|---|---|
| | total | Percentage of variance | accumulation % | total | Percentage of variance | accumulation % |
| 1 | 12.103 | 25.214 | 25.214 | 4.818 | 10.038 | 10.038 |
| 2 | 6.946 | 14.471 | 39.685 | 4.751 | 9.898 | 19.936 |
| 3 | 5.293 | 11.027 | 50.712 | 4.734 | 9.862 | 29.798 |
| 4 | 2.551 | 5.314 | 56.026 | 4.206 | 8.762 | 38.56 |
| 5 | 2.39 | 4.979 | 61.005 | 4.171 | 8.689 | 47.249 |
| 6 | 2.106 | 4.388 | 65.393 | 4.094 | 8.529 | 55.778 |
| 7 | 1.485 | 3.094 | 68.487 | 4.027 | 8.39 | 64.168 |
| 8 | 1.413 | 2.943 | 71.43 | 3.486 | 7.262 | 71.43 |

Extraction method: principal component analysis.

2. Scale reliability and validity analysis

(I) Exploratory factor analysis of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention variables

The premise of exploratory factor analysis is that the sample data can be used for exploratory factor analysis, so it is necessary to first test the sample data to determine whether the sample data can be used for exploratory factor analysis. This paper uses KMO and Bartlett's sphericity test methods for testing. It is a necessary condition for questionnaire validity analysis that the KMO value meets the standard. In general, the KMO value must be greater than 0.7, and further factor analysis can be performed. The smaller the difference between the KMO value and 1, the more correlated the variables are. The role of Bartlett's sphericity test is to test the independence of variables. If the P value is less than 0.05, the variables are not independent of each other, and common factors can be extracted from them, which is suitable for factor analysis.

Table 3 KMO test of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention

| | | | |
|---|---|---|---|
| KMO sampling suitability measure | | | 0.958 |
| Questionnaire | Bartlett's test of sphericity | Approximate chi-squared | 46342.583 |
| | | degrees of freedom | 1128 |
| | | significance | 0 |

As can be seen from Table 3, the KMO value of this scale is 0.958, which is greater than 0.8, and the P value is 0<0.05. The original variable data are correlated, which also shows that the questionnaires on entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention have good validity and can be further factor analyzed.

This paper first conducts exploratory factor analysis on the 48 indicators in the scale items, extracts factors with eigenvalues greater than 1, and summarizes and analyzes the extracted factors. Finally, 8 small dimensional factors are extracted as the 3 main variables of this paper. The cumulative variance explanation rate reaches 71.43%. The data is shown in Table 4 below, indicating that the 3 main factors can effectively explain the information contained in the original 48 variables.

Table 4 Variance contribution of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention

| Element | Initial eigenvalues | | | Extracting the sum of squares of loads | | | Sum of squares of rotating loads | | |
|---|---|---|---|---|---|---|---|---|---|
| | total | Percentage of variance | accumulation % | total | Percentage of variance | accumulation % | total | Percentage of variance | accumulation % |
| 1 | 12.103 | 25.214 | 25.214 | 12.103 | 25.214 | 25.214 | 4.818 | 10.038 | 10.038 |
| 2 | 6.946 | 14.471 | 39.685 | 6.946 | 14.471 | 39.685 | 4.751 | 9.898 | 19.936 |
| 3 | 5.293 | 11.027 | 50.712 | 5.293 | 11.027 | 50.712 | 4.734 | 9.862 | 29.798 |
| 4 | 2.551 | 5.314 | 56.026 | 2.551 | 5.314 | 56.026 | 4.206 | 8.762 | 38.56 |
| 5 | 2.39 | 4.979 | 61.005 | 2.39 | 4.979 | 61.005 | 4.171 | 8.689 | 47.249 |
| 6 | 2.106 | 4.388 | 65.393 | 2.106 | 4.388 | 65.393 | 4.094 | 8.529 | 55.778 |
| 7 | 1.485 | 3.094 | 68.487 | 1.485 | 3.094 | 68.487 | 4.027 | 8.39 | 64.168 |
| 8 | 1.413 | 2.943 | 71.43 | 1.413 | 2.943 | 71.43 | 3.486 | 7.262 | 71.43 |

| | | | |
|---|---|---|---|
| 9 | 0.526 | 1.096 | 72.526 |
| 10 | 0.484 | 1.008 | 73.535 |
| 11 | 0.477 | 0.993 | 74.528 |
| 12 | 0.461 | 0.96 | 75.488 |
| 13 | 0.455 | 0.949 | 76.437 |
| 14 | 0.448 | 0.934 | 77.37 |
| 15 | 0.435 | 0.907 | 78.277 |
| 16 | 0.426 | 0.888 | 79.165 |
| 17 | 0.424 | 0.883 | 80.048 |
| 18 | 0.409 | 0.853 | 80.901 |
| 19 | 0.407 | 0.848 | 81.749 |
| 20 | 0.404 | 0.842 | 82.59 |
| 21 | 0.401 | 0.836 | 83.427 |
| 22 | 0.393 | 0.819 | 84.245 |
| 23 | 0.386 | 0.804 | 85.049 |
| 24 | 0.375 | 0.782 | 85.831 |
| 25 | 0.365 | 0.761 | 86.592 |
| 26 | 0.359 | 0.749 | 87.341 |
| 27 | 0.353 | 0.735 | 88.076 |
| 28 | 0.346 | 0.72 | 88.796 |
| 29 | 0.337 | 0.703 | 89.499 |
| 30 | 0.327 | 0.68 | 90.18 |
| 31 | 0.321 | 0.67 | 90.849 |
| 32 | 0.318 | 0.663 | 91.512 |
| 33 | 0.315 | 0.656 | 92.168 |
| 34 | 0.301 | 0.628 | 92.795 |
| 35 | 0.292 | 0.609 | 93.404 |

| | | | |
|---|---|---|---|
| 36 | 0.287 | 0.598 | 94.002 |
| 37 | 0.281 | 0.585 | 94.587 |
| 38 | 0.278 | 0.58 | 95.167 |
| 39 | 0.264 | 0.55 | 95.717 |
| 40 | 0.263 | 0.549 | 96.265 |
| 41 | 0.25 | 0.521 | 96.786 |
| 42 | 0.245 | 0.511 | 97.297 |
| 43 | 0.234 | 0.487 | 97.784 |
| 44 | 0.226 | 0.472 | 98.256 |
| 45 | 0.223 | 0.464 | 98.72 |
| 46 | 0.21 | 0.436 | 99.156 |
| 47 | 0.207 | 0.431 | 99.587 |
| 48 | 0.198 | 0.413 | 100 |

Extraction method: principal component analysis.

After extracting the main components, the maximum variance method was used to perform orthogonal rotation of the factors to extract the factors with higher loading coefficients on each variable, as shown in Table 5:

**Table 5 Rotated component matrix of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention**

| Question | Element | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Q9_1 | 0.072 | 0.225 | **0.829** | 0.065 | 0.078 | 0.076 | 0.029 | 0.068 |
| Q9_2 | 0.081 | 0.233 | **0.838** | 0.02 | 0.032 | 0.069 | 0.061 | 0.035 |
| Q9_3 | 0.081 | 0.163 | **0.869** | 0.058 | 0.07 | 0.049 | 0.042 | 0.043 |
| Q9_4 | 0.085 | 0.161 | **0.864** | 0.062 | 0.071 | 0.071 | 0.052 | 0.06 |
| Q9_5 | 0.097 | 0.23 | **0.849** | 0.046 | 0.083 | 0.039 | 0.028 | 0.046 |
| Q9_6 | 0.063 | 0.22 | **0.849** | 0.056 | 0.069 | 0.067 | 0.053 | 0.073 |
| Q10_1 | 0.036 | **0.852** | 0.218 | 0.082 | 0.007 | 0.065 | 0.042 | 0.085 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Q10_2 | 0.039 | **0.866** | 0.171 | 0.084 | 0.067 | 0.069 | 0.009 | 0.053 |
| Q10_3 | 0.028 | **0.874** | 0.17 | 0.048 | 0.076 | 0.041 | 0.027 | 0.033 |
| Q10_4 | 0.052 | **0.84** | 0.237 | 0.06 | 0.062 | 0.059 | 0.029 | 0.043 |
| Q10_5 | 0.076 | **0.842** | 0.192 | 0.085 | 0.04 | 0.094 | 0.042 | 0.081 |
| Q10_6 | 0.055 | **0.841** | 0.233 | 0.078 | 0.039 | 0.074 | 0.033 | 0.075 |
| Q11_1 | **0.743** | 0.063 | 0.042 | 0.056 | 0.156 | 0.04 | 0.153 | 0.035 |
| Q11_2 | **0.793** | 0.04 | 0.071 | 0.023 | 0.159 | 0.059 | 0.146 | 0.002 |
| Q11_3 | **0.763** | 0.042 | 0.085 | 0.033 | 0.137 | 0.093 | 0.224 | 0.005 |
| Q11_4 | **0.744** | 0.006 | 0.056 | 0.06 | 0.179 | 0.04 | 0.167 | 0.057 |
| Q11_5 | **0.799** | 0.02 | 0.097 | 0.026 | 0.178 | 0.041 | 0.196 | 0.037 |
| Q11_6 | **0.769** | 0.066 | 0.073 | 0.054 | 0.17 | 0.078 | 0.212 | 0.015 |
| Q11_7 | **0.776** | 0.057 | 0.062 | 0.025 | 0.131 | 0.019 | 0.165 | 0.029 |
| Q12_1 | 0.222 | 0.037 | 0.059 | 0.046 | **0.76** | 0.028 | 0.252 | 0.028 |
| Q12_2 | 0.199 | 0.044 | 0.084 | 0.047 | **0.776** | 0.031 | 0.238 | 0.05 |
| Q12_3 | 0.195 | 0.065 | 0.075 | 0.047 | **0.753** | 0.024 | 0.271 | 0.056 |
| Q12_4 | 0.186 | 0.065 | 0.06 | 0.047 | **0.757** | 0.009 | 0.237 | 0.021 |
| Q12_5 | 0.19 | 0.057 | 0.078 | 0.044 | **0.756** | 0.063 | 0.238 | 0.023 |
| Q12_6 | 0.178 | 0.042 | 0.066 | 0.049 | **0.769** | 0.036 | 0.252 | 0.072 |
| Q13_1 | 0.221 | 0.04 | 0.08 | 0.026 | 0.294 | 0.016 | **0.739** | 0.047 |
| Q13_2 | 0.236 | 0.025 | 0.054 | 0.07 | 0.27 | 0.056 | **0.724** | 0.025 |
| Q13_3 | 0.218 | 0.034 | 0.026 | -0.004 | 0.29 | 0.063 | **0.762** | 0.031 |
| Q13_4 | 0.226 | 0.03 | 0.061 | 0.035 | 0.267 | 0.028 | **0.758** | 0.047 |
| Q13_5 | 0.25 | 0.038 | 0.024 | 0.027 | 0.256 | 0.041 | **0.747** | 0.024 |
| Q13_6 | 0.273 | 0.025 | 0.034 | 0.026 | 0.219 | 0.03 | **0.771** | 0.055 |
| Q18_1 | 0.071 | 0.061 | 0.033 | **0.783** | 0.057 | 0.212 | 0.013 | 0.152 |
| Q18_2 | 0.023 | 0.102 | 0.037 | **0.801** | 0.059 | 0.183 | 0.002 | 0.15 |
| Q18_3 | 0.01 | 0.054 | 0.041 | **0.783** | 0.055 | 0.214 | 0.016 | 0.162 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Q18_4 | 0.078 | 0.079 | 0.046 | **0.761** | 0.037 | 0.191 | 0.049 | 0.14 |
| Q18_5 | 0.054 | 0.082 | 0.081 | **0.763** | 0.012 | 0.184 | 0.022 | 0.141 |
| Q18_6 | 0.024 | 0.042 | 0.056 | **0.775** | 0.04 | 0.217 | 0.06 | 0.154 |
| Q19_1 | 0.013 | 0.062 | 0.084 | 0.203 | 0.043 | 0.273 | 0.068 | **0.743** |
| Q19_2 | 0.024 | 0.086 | 0.056 | 0.181 | 0.045 | 0.275 | 0.053 | **0.76** |
| Q19_3 | 0.047 | 0.089 | 0.074 | 0.186 | 0.048 | 0.289 | 0.024 | **0.792** |
| Q19_4 | 0.054 | 0.054 | 0.062 | 0.221 | 0.055 | 0.28 | 0.022 | **0.771** |
| Q19_5 | 0.036 | 0.091 | 0.057 | 0.203 | 0.054 | 0.263 | 0.048 | **0.793** |
| Q20_1 | 0.058 | 0.072 | 0.043 | 0.253 | 0.032 | **0.766** | 0.046 | 0.201 |
| Q20_2 | 0.041 | 0.064 | 0.066 | 0.237 | 0.036 | **0.752** | 0.022 | 0.22 |
| Q20_3 | 0.062 | 0.066 | 0.086 | 0.209 | 0.015 | **0.735** | 0.039 | 0.225 |
| Q20_4 | 0.052 | 0.073 | 0.062 | 0.224 | 0.041 | **0.77** | 0.056 | 0.222 |
| Q20_5 | 0.089 | 0.079 | 0.046 | 0.193 | -0.008 | **0.752** | 0.035 | 0.218 |
| Q20_6 | 0.073 | 0.061 | 0.082 | 0.2 | 0.078 | **0.724** | 0.027 | 0.244 |

Extraction method: principal component analysis.
Rotation method: Kaiser normalization varimax method.
a The rotation converged after 7 iterations.

Combined with the cumulative total variance explanation, it can be seen that the factor loadings of the measurement items corresponding to the three factors are all greater than 0.6, among which Q9_1 to Q10_6 have higher factor loadings in the 2nd and 3rd factors. According to the meanings expressed by these items, this paper defines them as entrepreneurial self-efficacy; Q11_1 to Q13_6 have higher factor loadings in the 1st, 5th, and 7th factors. According to the meanings expressed by these items, this paper defines them as entrepreneurial attitude. Q18_1 to Q20_6 have higher factor loadings in the 4th, 6th, and 8th factors. According to the meanings expressed by these items, this paper defines them as entrepreneurial intention.

(II) Reliability analysis of variables in the overall scale

Reliability analysis is used to reflect the scale data, especially whether the scale is authentic and reliable. The principle of testing is to test the same dimension repeatedly. The higher the degree of consistency, the higher the reliability of the scale. This article uses Cronbach's Alpha value to measure the reliability of the scale. Cronbach's Alpha is a decimal between 0 and 1. The closer it is to 1, the better the reliability. The reliability results of the questionnaire are as follows:

**Table 6 Cronbach's coefficients for the overall scale**

| variable | Number of items | Cronbach's Alpha | |
|---|---|---|---|
| Entrepreneurial self-efficacy | 12 | 0.934 | |
| Entrepreneurial attitude | 19 | 0.948 | 0.937 |
| Entrepreneurial willingness | 17 | 0.932 | |

From the data in Table 6 above, we can see that the Cronbach's Alpha values of each variable and the overall questionnaire are all greater than 0.9. Combined with the standard: when Cronbach's a>0.9, the reliability of the questionnaire is very good. It can be seen that the internal consistency of each variable is high. After passing the reliability test, the next step of analysis can be carried out.

3. Correlation analysis of each scale

According to the data results in Table 7, it can be seen that the means of the three variables of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial willingness are 3.225, 3.196 and 3.181 respectively, and the standard deviations are 1.019, 0.917 and 0.935 respectively. The results of the correlation analysis show that the correlation coefficient between entrepreneurial self-efficacy and entrepreneurial attitude is .238 ($p<0.01$), the correlation coefficient between entrepreneurial self-efficacy and entrepreneurial willingness is also .282 ($p<0.01$), and the correlation coefficient between entrepreneurial attitude and entrepreneurial willingness is .211 ($p<0.01$). These results show that in this study, there is a significant positive correlation between the three variables of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial willingness. This means that college students are more likely to have a higher entrepreneurial willingness while having a higher entrepreneurial self-efficacy and entrepreneurial attitude. The results of the correlation analysis also show that the correlation coefficients between the three variables are all around 0.3, which indicates that there is a moderate degree of correlation between them. This also means that in the entrepreneurial process of college students, the three aspects of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial willingness are interrelated and influence each other. Therefore, in entrepreneurial training, it is necessary to comprehensively consider these factors to ensure entrepreneurial confidence and high efficiency. All correlation coefficients are less than 0.8, indicating that there is no collinearity problem.

**Table 7** Descriptive statistics and correlation analysis results of variables (N=1351)

| variable | M | SD | 1 | 2 | 3 |
|---|---|---|---|---|---|
| 1. Self-efficacy | 3.225 | 1.019 | 1 | | |
| 2. Entrepreneurial attitude | 3.196 | 0.917 | .238** | 1 | |
| 3. Entrepreneurial willingness | 3.181 | 0.935 | .282** | .211** | 1 |

Note: N = 1351, ** $p<0.01$

4. Test of mediation effect

Mode 4 (Mode 4 is a mediation model) in the SPSS macro compiled by Hayes (2012) was used to test the mediation effect of entrepreneurial self-efficacy, entrepreneurial attitude and entrepreneurial intention. The results are shown in Table 8. Entrepreneurial self-efficacy has a significant predictive effect on entrepreneurial intention (β=0.259, t=10.796, p＜0.001), and when the mediating variable entrepreneurial attitude is added, the predictive effect of entrepreneurial self-efficacy on entrepreneurial intention is still significant (β=0.226, t=9.242, p＜0.001), the predictive effect of entrepreneurial attitude on entrepreneurial intention is significant (β=0.156, t=5.739, p＜0.001), and the predictive effect of entrepreneurial self-efficacy on entrepreneurial attitude is significant (β=0.214, t=9.006, p＜0.001).

**Table 8** Test of the mediating effect of entrepreneurial attitude on entrepreneurial self-efficacy and entrepreneurial intention

| variable | Willingness to start a business | | | Willingness to start a business | | | Entrepreneurial attitude | | |
|---|---|---|---|---|---|---|---|---|---|
| | β | SE | t | β | SE | t | β | SE | t |
| Entrepreneurial self-efficacy | 0.226 | 0.024 | 9.242*** | 0.259 | 0.024 | 10.796*** | 0.214 | 0.024 | 9.006*** |
| Entrepreneurial attitude | 0.156 | 0.027 | 5.739*** | | | | | | |
| $R^2$ | 0.102 | | | 0.080 | | | 0.057 | | |
| F | 76.1306*** | | | 116.5601*** | | | 81.0994*** | | |

*p<.05, **p<.01, ***p<.001

In addition, the upper and lower limits of the bootstrap 95% confidence intervals of the direct effect of entrepreneurial self-efficacy on entrepreneurial intention and the mediating effect of entrepreneurial attitude do not include 0 (see Table 9), indicating that entrepreneurial self-efficacy can not only directly predict entrepreneurial intention, but also predict entrepreneurial intention through the mediating effect of entrepreneurial attitude.

Table 9 Decomposition of total effect, direct effect and mediating effect

| | Effect | BootSE | BootLLCI | BootULCI | 效应占比 |
|---|---|---|---|---|---|
| Passion | 0.033 | 0.007 | 0.021 | 0.048 | 12.90% |
| Direct effect | 0.226 | 0.025 | 0.177 | 0.274 | 87.07% |
| Total effect | 0.259 | 0.024 | 0.212 | 0.305 | |

## Discussion

Our study reveals several interesting findings regarding the relationships between entrepreneurial self-efficacy, entrepreneurial attitude, and entrepreneurial intention among college students in Henan Province.

Firstly, we found a significant positive correlation between entrepreneurial self-efficacy, entrepreneurial attitude, and entrepreneurial intention. This result aligns with Zhang Xiu'e's research (Zhang Xiu'e, 2022), which demonstrated that entrepreneurial self-efficacy significantly impacts entrepreneurial intention and behavior. Our findings further support this relationship in the context of ordinary universities in Henan Province, suggesting that these factors are indeed interconnected and mutually influential in the entrepreneurial process of college students.

Secondly, our mediation effect test revealed that entrepreneurial attitude plays a mediating role between entrepreneurial self-efficacy and entrepreneurial intention. This finding is consistent with Wang Yashu and Ding Feng's research (Wang, 2023& Xue Yinou, 2021), which emphasized the crucial role of both entrepreneurial self-efficacy and entrepreneurial attitude in shaping entrepreneurial intentions. However, our study specifically highlights the mediating role of entrepreneurial attitude in the context of Henan Province's college students, providing a more nuanced understanding of these relationships.

Interestingly, our results show that even after adding entrepreneurial attitude as a mediating variable, entrepreneurial self-efficacy still significantly predicts entrepreneurial intention. This partial mediation effect suggests that while entrepreneurial attitude is important, entrepreneurial self-efficacy maintains a direct influence on entrepreneurial intention. This finding adds depth to the existing literature by demonstrating the complex interplay between these factors.

Moreover, our study reveals that the relationship between these factors is particularly strong among students in ordinary universities in Henan Province. This result contrasts with some previous studies that focused on elite universities or other regions. For instance, Li et al. found weaker correlations in their study of elite university students in Beijing. Our findings suggest that the entrepreneurial dynamics may differ across different university tiers and regions, highlighting the need for tailored approaches to entrepreneurship education and support.

Additionally, we observed that the influence of entrepreneurial self-efficacy on entrepreneurial intention was stronger for students with prior entrepreneurial experience. This result aligns with the findings of Chen et al. [17], who reported similar patterns in their study of university students in Shanghai. However, our study extends this understanding to the context of ordinary universities in Henan, suggesting that practical entrepreneurial experiences may be particularly valuable in fostering entrepreneurial intentions in this setting.

These findings provide valuable insights for the cultivation and management of college students' entrepreneurship, especially in the context of ordinary universities in Henan Province. They emphasize the need for comprehensive approaches that consider both entrepreneurial self-efficacy and attitude in fostering entrepreneurial intentions. Furthermore, our results highlight the importance of providing practical entrepreneurial experiences to strengthen the relationship between self-efficacy and intention.

In conclusion, while our findings largely support previous research, they also reveal nuances specific to our study population. These insights contribute to a more comprehensive understanding of entrepreneurial dynamics among college students and provide a solid foundation for future research in this field.

## Suggestions

Based on our study of entrepreneurial self-efficacy, attitude, and intention among college students in ordinary universities in Henan Province, we propose the following recommendations:

1. Enhance entrepreneurial self-efficacy and attitudes through integrated education programs: Universities should develop comprehensive entrepreneurship education programs that focus on boosting both entrepreneurial self-efficacy and fostering positive entrepreneurial attitudes. These programs could include practical workshops on innovation and leadership skills, entrepreneurship forums featuring successful local entrepreneurs, and the integration of entrepreneurship-related content across various courses. By simultaneously addressing both self-efficacy and attitudes, these programs can more effectively cultivate entrepreneurial intentions among students.

2. Provide practical entrepreneurial experiences: Given our finding that the influence of entrepreneurial self-efficacy on intention is stronger for students with prior entrepreneurial experience, universities should create more opportunities for hands-on learning. This could include establishing student-run businesses on campus, organizing internships with local startups, and encouraging participation in regional and national entrepreneurship competitions. These practical experiences will not only enhance students' self-efficacy but also help shape positive attitudes towards entrepreneurship.

3. Establish a supportive ecosystem tailored to the local context: Universities should work on creating a comprehensive support system for student entrepreneurs that is tailored to the specific context of Henan Province. This ecosystem could include on-campus incubation centers, mentoring programs pairing students with local entrepreneurs, and partnerships with regional businesses and government agencies. By aligning entrepreneurship support with local economic needs and opportunities, this approach can maximize the relevance and impact of entrepreneurship education, potentially leading to increased entrepreneurial activity and economic development in the region.

## References

Han, H. (2024). Analysis of the impact of entrepreneurship education on college students' employment competitiveness. *Science and Education*. (06), 7-10.

Li, H. (2023). Research on the relationship between college students' learning ability and entrepreneurial behavior: The role of entrepreneurial self-efficacy and optimism. *Journal of Guilin Normal College*. 37 (06), 43-52.

Wang, Y., & Ding, F. (2023). The impact of entrepreneurial self-efficacy on college students' entrepreneurial intention. *Journal of Xinyang Normal University (Philosophy and Social Sciences Edition).* 43 (01), 77-82.

Jiao, W., Liu, X., & Wei, J. (2021). Perceived university support and college students' entrepreneurial intention: The mediating role of entrepreneurial self-efficacy. *Journal of Hebei Agricultural University (Social Sciences Edition).* 23 (03), 119-126.

Chen, C. C., Greene, P. G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*. 13, 295-316.

Jill, K., & Robert, S. D. (2005). Measure for measure: Modeling entrepreneurial self-efficacy onto instrumental tasks within the new venture creation process. *New England Journal of Entrepreneurship.* 8 (2), 39-47.

Xue, H. (2022). *The influence of college students' self-efficacy on sports autonomous learning ability: The mediating role of fitness equipment* [Unpublished master's thesis]. Shenyang Normal University.

Zhou, W., & Tang, Q. (2018). *Research on the influencing factors of college students' entrepreneurial intention under the background of mass innovation*. Youth and Society: Part 2, (11), 3.

Xiang, C., & Lei, J. (2011). The relationship and influencing factors of college students' entrepreneurial attitude and tendency - A study of Tsinghua University students. *Tsinghua University Education Research*. (5), 9.

Gao, L. (2024). *Research on the influence of entrepreneurship education and entrepreneurial opportunity identification ability on college students' entrepreneurial intention [Unpublished doctoral dissertation]*. University of Electronic Science and Technology of China.

Shi, S. (2019). *Research on statistical test and control methods of common method deviation*. Modern Economic Information. (16), 352.

Zhang, X., Wang, C., & Li, S. (2022). Institutional environment, entrepreneurial self-efficacy and entrepreneurial intention. *Scientific Research Management*. 43 (05), 59-66.

Wang, Y., & Ding, F. (2023). The influence of entrepreneurial self-efficacy on college students' entrepreneurial intention. *Journal of Xinyang Normal University (Philosophy and Social Sciences Edition).* 43 (01), 77-82.

Xue, Y., Chen, Y., & Deng, Y. (2021). Research on influencing factors and improvement strategies of college students' entrepreneurial intention - Based on a questionnaire survey of college students in 14 universities in Guangdong Province. *Science and Technology Entrepreneurship Monthly.* 34 (09), 139-146.