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Article

The theory of planned behavior explored in entrepreneurial intentions among university students in Shandong province, China

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Abstract: This study, based on the Theory of Planned Behavior (TPB), aims to explore the entrepreneurial intentions of university students in Shandong Province, China, and analyze the major factors influencing these intentions. Structural Equation Modeling was applied to data collected from 680 students across five universities in Shandong Province. The findings reveal that attitudes, subjective norms, and perceived behavioral control significantly influence the students' entrepreneurial intentions. Specifically, a positive attitude towards the outcomes of entrepreneurship emerged as the strongest factor influencing their intentions, indicating that positive perceptions and expectations of entrepreneurship significantly enhance students' entrepreneurial inclinations. Perceived behavioral control also showed a strong influence, suggesting that enhancing students' self-efficacy and awareness of accessible resources is crucial for fostering entrepreneurial intentions. However, the influence of subjective norms was weaker, which may relate to specific cultural and social environmental factors. This study not only provides an empirical basis for entrepreneurship education and policy-making in Shandong Province and beyond but also offers new insights into the application of TPB in the field of entrepreneurship research.

Keywords: theory of planned behavior; entrepreneurial intentions; university students; attitude; subjective norms; perceived behavioral control

1. Introduction

1.1. Research background

In the global economic context, entrepreneurship has become a key driver of economic growth, social innovation, and job creation. Particularly in China, with the rapid development of the market economy and strong governmental support for an innovative economic structure, entrepreneurial activities are increasingly seen as a new engine of economic growth (Naseer et al., 2023). Shandong Province, as one of China's major economic powerhouses, not only boasts a strategic location and solid economic foundations but also rich educational resources and a vibrant economic environment, all of which provide favorable external conditions for university student entrepreneurship. However, despite these favorable conditions, university students in Shandong still face numerous challenges in their entrepreneurial pursuits, such as lack of funds, absence of practical experience, fierce market competition, and a high sensitivity to risk, all of which significantly impact their entrepreneurial intentions and success rates. Additionally, although universities have recently begun to emphasize entrepreneurship education by introducing courses and establishing entrepreneurial practice platforms to foster students' entrepreneurial spirit and capabilities, the actual effectiveness and long-term impact of these measures still require further study and

optimization. In the educational field, while significant progress has been made in providing entrepreneurship education, how to effectively enhance university students' entrepreneurial will and capabilities, as well as how to design more targeted and practical educational policies and measures, remains areas requiring deep exploration by both the academic and practical sectors. Furthermore, the entrepreneurial intentions of university students in Shandong Province are influenced by a variety of factors including personal traits, family background, socio-cultural environment, and educational experiences, the specific mechanisms and interrelationships of which have not been fully studied. Particularly, the role and importance of psychological factors in the formation process of entrepreneurial intentions need to be clarified through more systematic and in-depth research. This is not only helpful for understanding the mechanisms behind the formation of entrepreneurial intentions but also crucial for guiding the development and implementation of supportive policies.

1.2. Research significance and objectives

The academic significance of this study first lies in applying and testing the suitability of the Theory of Planned Behavior (TPB) in the specific socio-cultural context of China. Although TPB has been widely used in psychological and social behavior studies in Western countries, its effectiveness in explaining and predicting the entrepreneurial intentions of university students in Shandong Province, China, has not been fully validated. Through this study, we can gain a deeper understanding of how the core components of TPB—attitude, subjective norms, and perceived behavioral control—manifest in the Chinese cultural context and how they specifically influence entrepreneurial intentions. This contributes significantly to the field of international psychology and entrepreneurship research, facilitating the global application and localization of the theory. From a practical standpoint, the findings of this study will provide valuable data and insights for educators and policymakers. By identifying and analyzing the key psychological factors affecting the entrepreneurial intentions of university students in Shandong Province, this study will help educational institutions and government departments design more effective entrepreneurial education courses and policy measures. Particularly in the current context of widespread entrepreneurial enthusiasm and the popularization of entrepreneurship education among university students, optimizing the content of entrepreneurship education and strengthening the cultivation of students' entrepreneurial psychological qualities will not only increase the success rate of student entrepreneurship but also promote social innovation and economic development (Mok et al., 2021).

The main objective of this study is to delve into the psychological factors influencing the entrepreneurial intentions of university students in Shandong Province. The research will focus on three main aspects:

1) Attitudes towards entrepreneurship: The study will assess students' perceptions, emotional tendencies, and value concepts related to entrepreneurship, exploring how these attitudes influence their entrepreneurial intentions.
2) Perceived social support (subjective norms): Analyzing the impact of family, friends, society, and the educational environment on students' entrepreneurial

decisions, and how this influence is formed through societal expectations.

3) Self-assessment of entrepreneurial capabilities (perceived behavioral control): Examining students' assessments of their own management abilities, resource acquisition capabilities, and problem-solving skills, and how these self-assessments directly influence their entrepreneurial intentions.

Through the quantitative analysis of these variables and the study of their interrelationships, this project aims to establish a comprehensive theoretical and empirical foundation to support effective interventions in entrepreneurship education and related policies, ultimately fostering the healthy development of entrepreneurial spirit among university students (Lou and Hao, 2023). This comprehensive research perspective not only helps enhance the specificity and effectiveness of educational practices but is also expected to provide referable experiences and strategies for a wider region.

2. Literature review

2.1. Development and application of the theory of planned behavior

The Theory of Planned Behavior (TPB) and its predecessor, the Theory of Reasoned Action (TRA), were developed by psychologist Icek Ajzen and his colleague Martin Fishbein. These theories aim to explain the psychological drivers behind individual behaviors. They provide a robust framework for understanding and predicting how individuals form behavioral intentions and ultimately take action in various environments.

According to the TPB model shown in **Figure 1**, the theory posits that an individual's behavior is directed by their behavioral intentions, which are influenced by three key psychological variables: attitude, subjective norms, and perceived behavioral control.

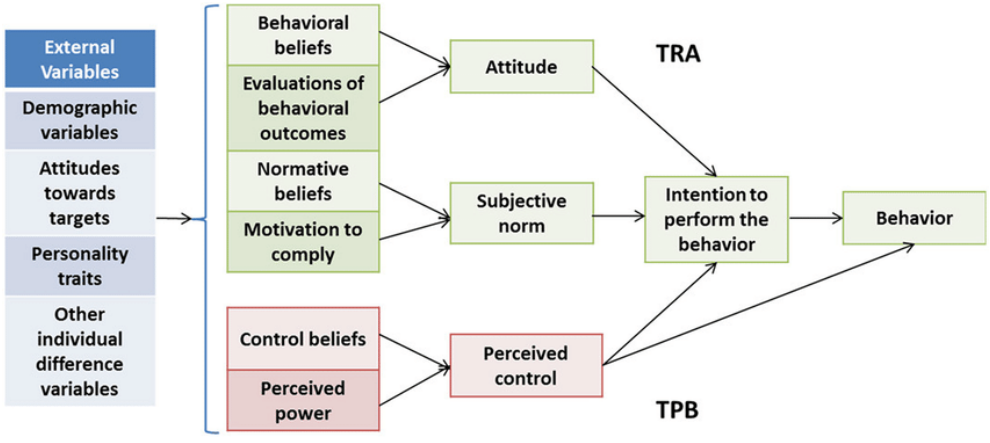

Figure 1. The theory of reasoned action and planned behavior.

Behavioral Beliefs and Attitude: Behavioral beliefs refer to an individual's assessment of the likely outcomes of a specific behavior. If an individual believes that a behavior will lead to positive outcomes, they may form a favorable attitude toward that behavior. For example, if university students in Shandong Province believe that entrepreneurship can lead to financial freedom and personal career satisfaction, their

attitude towards entrepreneurship may be positive (Bouarir et al., 2023).

Normative Beliefs and Subjective Norms: Normative beliefs involve an individual's perception of social pressure, i.e., what they believe significant others think they should or should not do. Subjective norms are thus formed, guiding individual behavior. This suggests that if university students perceive that their social circle (such as family, friends, classmates) supports entrepreneurship, they may be more inclined to form an entrepreneurial behavioral intention.

Control Beliefs and Perceived Behavioral Control: Control beliefs concern an individual's perceptions of the ease or difficulty of performing a specific behavior, and their belief in having the resources and opportunities to perform that behavior. Individuals with high perceived behavioral control may believe they have sufficient resources and capabilities to start a business, thereby enhancing their entrepreneurial intentions.

As illustrated in **Figure 1**, behavioral intentions, serving as the direct precursor to behavior, result from the interaction of these three factors. Additionally, external variables, including demographic characteristics, personal attitudes, personality traits, and other individual differences, may also indirectly influence behavioral intentions and behavior by affecting these three psychological variables. In entrepreneurship research, TPB has been widely applied to analyze and predict entrepreneurial intentions, particularly in exploring the psychological processes of university students in entrepreneurship. Studies indicate that by understanding the psychological mechanisms affecting university students' entrepreneurial intentions, educational programs and support systems can be more effectively designed to foster entrepreneurial spirit. The entrepreneurial intentions of university students in Shandong Province are influenced by a complex mix of factors, and by applying TPB, this study aims to identify and quantify these factors to provide targeted support strategies, thereby enhancing students' entrepreneurial intentions and capabilities (Ajzen, 1991).

In summary, the Theory of Planned Behavior not only provides a solid theoretical foundation for understanding how individuals form entrepreneurial intentions but also emphasizes the process of translating these intentions into actual behavior. The application of this theoretical framework enables researchers to delve deeper into the psychological and social factors affecting entrepreneurial behavior, providing a scientific basis for entrepreneurship education and policy formulation.

2.2. Theoretical framework

To ensure a comprehensive understanding of the factors influencing entrepreneurial intentions, it is essential to consider cultural differences, particularly those unique to China. Cultural attitudes towards entrepreneurship, social norms, and familial expectations can significantly impact entrepreneurial intentions. In China, the social and cultural environment may have distinct views and expectations on entrepreneurship. Traditional cultural values such as collectivism, respect for authority, and risk aversion can influence students' attitudes and intentions towards starting their own businesses. For instance, the support and approval of family and social circles are crucial in a collectivist culture, where societal expectations may either encourage or

deter entrepreneurial activities. Family plays a pivotal role in shaping entrepreneurial intentions in China. Parental influence, particularly their support or opposition, can greatly impact a student's decision to pursue entrepreneurship. In many cases, families may prioritize stable and secure career paths over the uncertainties of entrepreneurship, affecting the student's entrepreneurial motivation. The emphasis on education and the role of institutions also play a significant role in shaping entrepreneurial intentions. Chinese universities have increasingly integrated entrepreneurship education into their curricula, but the effectiveness of these programs can be influenced by how well they align with cultural expectations and support structures (Liñán and Chen, 2009). Incorporating these cultural factors into the theoretical framework can provide a more holistic understanding of the factors influencing entrepreneurial intentions among university students in Shandong Province. This broader perspective can enhance the explanatory power of the Theory of Planned Behavior in this specific context and contribute to the development of more effective educational programs and policy measures.

2.3. Research progress on university students' entrepreneurial intentions

Globally, the entrepreneurial intentions of university students have become a focal point in economic, educational, and sociological research. The importance of this research theme stems from its extensive contributions to economic development and social innovation, especially as higher education institutions play an increasingly prominent role in cultivating future entrepreneurs. According to the Theory of Planned Behavior, university students' entrepreneurial intentions are influenced by multiple factors, including personal attitudes, subjective norms, and perceived behavioral control (Lumpkin et al., 2021). Domestic and international studies have demonstrated how these factors influence university students' entrepreneurial intentions across different cultural and educational backgrounds. For example, **Table 1** presents an analytical framework that categorizes the various factors influencing university students' entrepreneurial intentions:

Table 1. Main variables of the theory of planned behavior and their influencing factors.

Variable	Description	Influence Factor
Behavioral Attitude	An assessment of how much an individual likes or dislikes performing a particular behavior.	Behavioral beliefs: A large number of beliefs held by an individual about the possible consequences of an action, divided into the strength of the behavioral belief and the evaluation of the behavioral outcome, which together determine the behavioral attitude.
Subjective Norm	The influence of the surrounding environment perceived by an individual when deciding whether to carry out a certain behavior reflects the influence of the environment, significant others or groups on the individual's behavior and decision making.	(1). Normative belief: An individual's expectation that the environment is important and that others or groups will expect him or her to perform a particular behavior: (2) Motivation to comply: the intention of an individual to comply with reports made by significant others or groups.
Perceived Behavioral Control	The degree of difficulty an individual perceives to perform a particular behavior reflects the individual's perception of the factors that promote or hinder the completion of the actual behavior.	(1) Control beliefs, images that individuals perceive that may promote or hinder the implementation of actual behaviors; (2) Perceived power: The degree to which an individual perceives the influence of these factors on behavior.

Behavioral Attitude: Includes students' expectations of wealth, social reputation, and self-fulfillment from entrepreneurship.

Subjective Norms: Encompasses support from family and friends, opinions from

university mentors, and the role model effect of peers.

Perceived Behavioral Control: Involves students' assessments of their professional abilities, entrepreneurial capabilities, entrepreneurial experience, and personality traits.

In the international arena, research on entrepreneurial intentions often focuses on the impact of psychological, social, and behavioral factors. For example, studies in Western countries typically find that individuals' positive attitudes toward entrepreneurship and high perceived behavioral control significantly positively influence their entrepreneurial intentions, while the supportive socio-cultural background enhances the role of subjective norms. Moreover, cultural differences in entrepreneurial intentions are also a hot topic in international research. Studies show that in individualistic cultural backgrounds, university students generally have higher entrepreneurial intentions, which relates to the individualistic culture's emphasis on personal autonomy and competition. Conversely, in collectivistic cultures, family and societal expectations have a more significant impact on individuals' entrepreneurial intentions. In China, as the economy rapidly develops and the entrepreneurial environment continuously improves, research on university students' entrepreneurial intentions has gradually increased. Chinese studies emphasize the impact of educational policies and the social environment on university students' entrepreneurial intentions. For instance, the proliferation of entrepreneurship education and support from business incubation projects are considered effective ways to enhance university students' entrepreneurial intentions. Additionally, family background, especially the entrepreneurial experiences and supportive attitudes of parents, also significantly influence university students' entrepreneurial intentions in the Chinese cultural context. Some studies in China also focus on the impact of regional economic development levels on entrepreneurial intentions, finding that students in economically more developed areas display higher entrepreneurial intentions. This may be related to the richer resources and higher success rates of entrepreneurship in these areas. Although domestic and international studies differ in methods and focuses, they collectively emphasize the important role of the education system, cultural background, and economic environment in shaping university students' entrepreneurial intentions (Ajzen and Fishbein, 1969). Future research needs to further explore the specific factors influencing entrepreneurial intentions among students from different backgrounds, especially in the rapidly changing global economic environment. Additionally, as technology advances, the potential impacts of emerging technologies such as digital tools and social media on university students' entrepreneurial intentions also warrant in-depth study. Through these research efforts, more targeted strategies for entrepreneurship education can be provided for higher education institutions, and data support can be offered to policymakers to effectively cultivate future entrepreneurs and promote sustained economic and social development.

3. Methodology

3.1. Research design

This study employs a comprehensive research design aimed at exploring and validating the "College Students' Entrepreneurial Intention—Behavior Extended Model" as shown in **Figure 2** within the higher education environment of Shandong Province, China. This model intricately depicts the complex relationships from entrepreneurial attitudes, subjective norms, and perceived behavioral control to entrepreneurial intentions, and then to entrepreneurial behaviors, considering the impact of human capital, reference groups, and external contextual factors such as entrepreneurial education and policy environment.

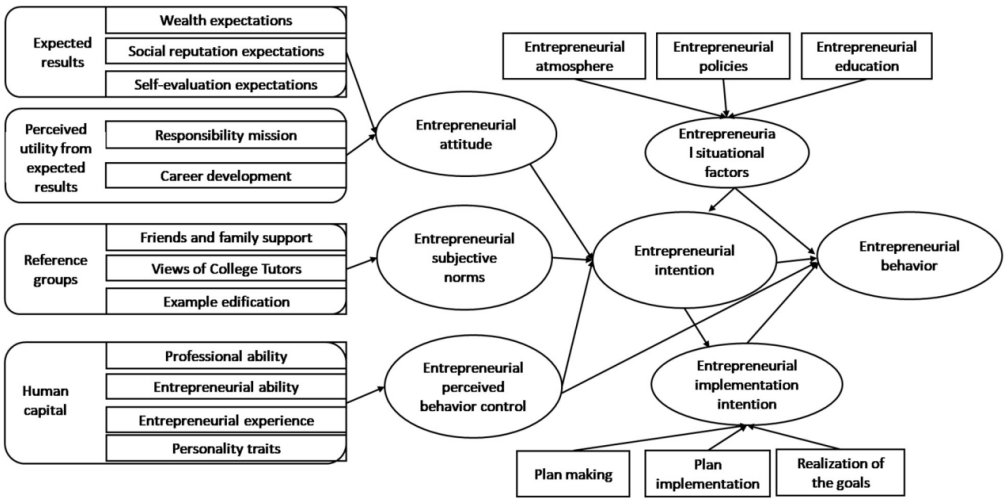

Figure 2. The college students' entrepreneurial intention—Behavior extended model.

Uniquely, the model subdivides entrepreneurial behavior into entrepreneurial intentions, implementation intentions, planning, and implementation processes, providing a refined framework for understanding. This study plans to use this model as a theoretical basis and proceed with the following specific steps:

Uniquely, the model subdivides entrepreneurial behavior into entrepreneurial intentions, implementation intentions, planning, and implementation processes, providing a refined framework for understanding. This study plans to use this model as a theoretical basis and proceed with the following specific steps:

(1) Operational Definitions and Measurement of Variables

In this study, entrepreneurial attitude is measured through designed survey questions that inquire about students' views and expectations on aspects such as wealth growth, social reputation enhancement, and personal achievement through entrepreneurship. This measurement aims to capture students' positive or negative perceptions of the potential outcomes of entrepreneurship and how these perceptions influence their entrepreneurial motivation. The measurement of subjective norms will include assessments of support from family and friends, views of university mentors, and peer demonstration effects, obtained through specific items in the survey designed to understand the social pressures and expectations perceived by the students and

explore how these social factors shape their entrepreneurial behaviors. Perceived behavioral control will be measured by asking students to self-assess their professional skills, entrepreneurial experience, capabilities, and personality traits, evaluating their preparedness and potential barriers when actually engaging in entrepreneurial activities. Additionally, entrepreneurial intentions and implementation intentions will be assessed through specially designed questionnaires that measure the intensity of students' intentions to start new businesses and the detail of their specific entrepreneurial plans and preparations, providing insights into the comprehensiveness of students' entrepreneurial readiness (Ajzen and Fishbein, 1980).

(2) Sample Selection and Data Collection Methods

To ensure the generalizability and representativeness of the research findings, this study selects students from several higher education institutions within Shandong Province as the study subjects. A stratified random sampling method is used to ensure that students from different types of institutions such as comprehensive universities, technical colleges, and business schools are included. This method helps to obtain a diverse sample, making the research findings more universally applicable. Data collection will be conducted through two primary means: electronic and paper questionnaires. Electronic questionnaires facilitate rapid and wide-reaching data collection, particularly suitable for tech-savvy students frequently using digital devices; paper questionnaires, on the other hand, help include students who may not regularly use electronic devices or have reservations about electronic surveys. This dual approach to data collection maximizes response rates, ensuring that the collected data is highly representative and reliable. Through this comprehensive data collection strategy, the research aims to gather sufficient data to effectively validate and analyze the model.

(3) Data Analysis Strategy

To ensure the accuracy and scientific integrity of the research findings, this study will employ a two-stage data analysis strategy. Initially, descriptive statistics will be used to outline the basic characteristics of the sample, including but not limited to participants' age, gender, educational background, and other relevant demographic characteristics. Descriptive statistics will also be used to preliminarily observe the distribution of variables such as entrepreneurial attitudes, subjective norms, perceived behavioral control, and entrepreneurial intentions, as well as the means and standard deviations of these variables. This step is crucial for understanding the data structure, checking data completeness, and preparing for subsequent analyses.

Subsequently, the study will utilize Structural Equation Modeling (SEM) to test the main hypotheses, as SEM is an ideal tool for analyzing complex relationships between latent variables and multiple dependent variables. Structural Equation Modeling allows for the estimation of multiple regression equations simultaneously, suitable for the needs of this study as the model shown in **Figure 2** includes multiple interrelated factors and pathways. Additionally, the application of SEM can effectively handle measurement errors and allows for direct testing of causal relationships between variables. In this study, SEM will be used to explore how entrepreneurial attitudes, subjective norms, and perceived behavioral control influence entrepreneurial intentions, and how entrepreneurial intentions further affect entrepreneurial behaviors. By testing the path relationships in the model, the validity of theoretical hypotheses

can be verified, and a deeper understanding of how different factors jointly influence the entrepreneurial behaviors of university students can be achieved.

Furthermore, to add depth to the analysis, the study also plans to use multi-group analysis to explore differences in the formation process of entrepreneurial intentions among different subgroups (such as by gender, academic background, etc.). This will help reveal potential differential responses among different groups, providing a basis for targeted education and policy formulation. Additionally, interaction terms will be included in the SEM to explore potential interactions between variables such as the interplay between subjective norms and perceived behavioral control, or how entrepreneurial attitudes may moderate the effect of perceived behavioral control on entrepreneurial intentions. Including these interaction terms will reveal more complex relationships and provide a comprehensive understanding of the factors influencing entrepreneurial intentions.

In summary, the data analysis strategy of this study will ensure that the maximum amount of information is extracted from the data while verifying the applicability of the theoretical model and the validity of the hypotheses. This rigorous analysis approach will enhance the credibility of the research findings, providing solid scientific support for entrepreneurship education and policy formulation. Through this research design, the study not only aims to validate the applicability of the theoretical model presented in **Figure 2** but also expects to provide concrete, empirically-based guidance for the practice of entrepreneurship education. Specifically, the study will help optimize educational content and adjust the policy environment, thereby more effectively promoting entrepreneurial activities among university students in Shandong Province. This research design is expected to deepen our understanding of the formation and transformation processes of university students' entrepreneurial intentions, particularly in the unique socio-cultural context of China (Godin and Kok, 1996).

3.2. Data collection and sample

This study targets university students in Shandong Province, China, particularly those with entrepreneurial intentions among undergraduates and vocational students. According to previous research (Wu et al., 2018), older students typically exhibit more maturity and depth in thinking and handling complex issues. Therefore, this study specifically selects juniors and seniors as the main research subjects. This choice strategy aims to capture the entrepreneurial intentions of students nearing the end of their undergraduate studies, expecting that students at this stage can provide profound insights into their motivations and preparedness for entrepreneurship. Additionally, the sample includes students from various comprehensive universities and professional colleges across Shandong Province, ensuring that the research results are highly generalizable and extendable. To comprehensively collect data on entrepreneurial intentions, this study employs a structured questionnaire survey method, which includes questions measuring behavioral attitudes, subjective norms, and perceived behavioral control. The questionnaires are designed to be distributed widely across universities in Shandong Province in both electronic and paper formats, ensuring broad coverage of the student population and maximizing response rates. To

ensure the quality of the data and the validity of the questionnaires, each questionnaire is meticulously designed, including multiple-choice questions and some open-ended questions, to deeply understand students' entrepreneurial intentions and related motivations. As shown in **Table 2**, during the questionnaire distribution process, a total of 1000 questionnaires were collected, of which 986 were valid and 14 were invalid. The effective response rate of the questionnaires reached 98.6%, reflecting the reasonableness of the questionnaire design and the high participation of students. Below are the key statistical data from the survey:

Table 2. Key statistical data from the questionnaire survey.

Parameter	Value
Total Questionnaires	1000
Valid Questionnaires	986
Invalid Questionnaires	14
Questionnaire Recovery Rate	98.6%

The sample of this study primarily consists of juniors and seniors from various universities in Shandong Province, covering multiple disciplines from engineering and business management to humanities. This interdisciplinary sample composition helps explore how disciplinary backgrounds affect students' entrepreneurial intentions. The diverse sample not only enhances the general applicability of the research but also provides rich data for analyzing differences in entrepreneurial preparation and motivation among students from different disciplinary backgrounds. Through this detailed data collection and sample selection strategy, the study aims to provide profound insights into the formation of university students' entrepreneurial intentions, offering empirical support and scientific guidance for future entrepreneurship education and policy formulation. This data will further be used to validate the research hypotheses, exploring the key psychological and societal factors that affect entrepreneurial intentions, and how they operate in different educational and cultural contexts (Duan and Jiang, 2008).

3.3. Data analysis methods

To ensure the scientific accuracy and precision of the analysis in this study, we employed SPSS statistical software to process the questionnaire data. The analysis will include descriptive statistics, analysis of variance (ANOVA), correlation analysis, and multiple regression analysis (Lee and Peterson, 2000). These statistical methods will help validate the research hypotheses and explore the relationships and influences among different variables. Detailed data analysis steps and tools are as follows:

In the preliminary phase of this study, a detailed descriptive statistical analysis will be conducted to assess the basic attributes of the collected data set. This includes calculating the mean, median, mode, standard deviation, minimum, and maximum values for each variable. This step is crucial as it not only helps us understand the central tendency and variability of the data but also reveals any potential data entry errors or outliers that could affect the outcomes and interpretations of subsequent analyses. Analysis of variance (ANOVA) is a key technique used in this study to

explore whether there are statistically significant differences between different groups in entrepreneurial intentions and their influencing factors (such as entrepreneurial attitude, subjective norms, and perceived behavioral control). ANOVA calculates the *F*-value by comparing the variance between groups (differences among different groups) and within groups (differences within the same group):

$$F = \frac{Mean\ Square\ Within\ Groups}{Mean\ Square\ Between\ Groups}$$

If the *F*-value reaches a statistically significant level, we can infer that there are significant differences between different groups in the key variables affecting entrepreneurial intentions. This helps identify student groups that may need particular attention or support. Using the Pearson correlation coefficient (r) to assess the linear relationships between variables is an important step in understanding how variables interact. The correlation coefficient formula is:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}}$$

The Pearson correlation coefficient r is used to assess the linear relationships between variables, helping to understand how factors such as entrepreneurial attitude, subjective norms, and perceived behavioral control are interconnected. The range of the correlation coefficient is from −1 to +1, where values closer to ± 1 indicate a stronger relationship between the variables. This analysis will reveal the interconnections between factors such as entrepreneurial attitude, subjective norms, and perceived behavioral control. For example, whether a student's entrepreneurial attitude is positively correlated with their perception of a support network (such as support from family and friends) and how these variables jointly affect entrepreneurial intentions. In this phase, the study will use a multiple linear regression model to assess the impact of multiple predictor variables on one dependent variable (entrepreneurial intentions). The regression model is as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \cdots + \beta_n X_n + \epsilon$$

Here, Yrepresents entrepreneurial intentions, X_1, X_2,…, X_n represent influencing factors such as entrepreneurial attitude, subjective norms, and perceived behavioral control, β_0, β_1,…, β_n, are the regression coefficients indicating the impact of each variable on entrepreneurial intentions, and ϵ is the error term of the model. Through multiple regression analysis, we can more precisely quantify the independent contributions of each variable to entrepreneurial intentions while controlling for the influence of other variables. This helps identify the strongest predictors of entrepreneurial intentions, providing data support for targeted educational interventions. Additionally, this analysis can also reveal potential interactive effects between variables, offering deeper insights into the complex motivations behind behaviors (Ji and Sun, 2021).

4. Research results

4.1. Variable selection process

In this study, the selection of variables was guided by an interdisciplinary

approach, combining theories from economics, psychology, sociology, and cultural studies to ensure comprehensive variable selection. The variables included in the analysis were entrepreneurial attitude, subjective norms, perceived behavioral control, entrepreneurial intentions, and demographic factors such as gender and educational background. The rationale for selecting these variables is rooted in the Theory of Planned Behavior (TPB), which posits that attitudes, subjective norms, and perceived behavioral control are key determinants of behavioral intentions. Additionally, literature from economics highlights the importance of financial resources and economic stability, while psychological theories emphasize self-efficacy and resilience. Sociological perspectives underscore the role of social support and cultural norms. During the variable selection process, some variables were considered but ultimately excluded due to insufficient data or lack of relevance in the context of this study. For example, variables such as regional economic development levels and specific entrepreneurial education programs were initially considered. However, they were excluded because the available data did not provide consistent or significant insights relevant to the research questions in this study. This exclusion was based on preliminary analyses that showed these variables did not significantly contribute to the explanatory power of the model.

4.2. Descriptive statistics

In this study, data from 986 college students in Shandong Province was collected to assess their entrepreneurial intentions. The distribution of male and female students participating in the survey was 437 (45.1%) and 531 (54.9%), respectively, reflecting a relatively balanced gender ratio. Below are detailed descriptive statistics for the four main scales:

Table 3. Descriptive statistics.

Variable	Number of Items	Mean (M)	Standard Deviation (SD)
Entrepreneurial Intentions Overall Scale	10	3.943	0.589
Subjective Norms Overall Scale	3	3.742	0.563
Perceived Behavioral Control Overall Scale	6	3.801	0.603
Entrepreneurial Attitude Overall Scale	5	3.912	0.675

As the **Table 3** shows, the average scores for all scales exceed the theoretical mid-level (2.5 points), indicating that the surveyed college students in Shandong Province have relatively positive attitudes and intentions towards entrepreneurship (Davidsson,1995). Specifically:

(1) The Entrepreneurial Intentions Scale had an average score of 3.943 with a standard deviation of 0.589, indicating high entrepreneurial intentions among students.

(2) The Subjective Norms Scale had an average score of 3.742 with a standard deviation of 0.563, reflecting that students perceive high expectations and support for entrepreneurship from significant others.

(3) The Perceived Behavioral Control Scale had an average score of 3.801 with a standard deviation of 0.603, suggesting students perceive themselves as having

some entrepreneurial abilities and resource control.

(4) The Entrepreneurial Attitude Scale had an average score of 3.912 with a standard deviation of 0.675, indicating students hold positive attitudes towards entrepreneurship.

These results not only reveal the overall positive outlook of participants on entrepreneurship but also, through the relatively low standard deviations, indicate that this positive attitude is relatively consistent among the student population, showing no extreme dispersion of opinions. This provides a solid foundation for further analysis to explore how these attitudes and perceptions translate into actual entrepreneurial actions (Linán and Chen, 2009).

4.3. Reliability analysis

To ensure the reliability and validity of the study results, we conducted reliability analyses on the scales to assess the strength of internal consistency in the survey questionnaire. The reliability analysis results showed that all the scales used demonstrated high internal consistency, with Cronbach's Alpha values all exceeding the generally accepted standard of 0.7, indicating that the scales reliably measure the target constructs. Below are detailed reliability data for the main scales:

Table 4. Reliability analysis data results.

Variable	Number of Items	Cronbach's Alpha
Entrepreneurial Intentions Scale	6	0.909
Subjective Norms Scale	3	0.937
Perceived Behavioral Control Scale	6	0.912
Entrepreneurial Attitude Scale	5	0.946

In this study, the reliability analysis results of the scales demonstrated high internal consistency in measuring different constructs, ensuring the reliability of data analysis. As The **Table 4** shown, The Entrepreneurial Intentions Scale, comprising 6 items, reached a Cronbach's Alpha value of 0.909, showing very high internal consistency. This result indicates that the scale is very stable and reliable in assessing students' entrepreneurial intentions, accurately reflecting students' overall willingness and motivation for entrepreneurship. The high reliability also indicates that the survey items effectively capture students' serious consideration and preparation for entrepreneurship. The Subjective Norms Scale, involving 3 items, has a Cronbach's Alpha value of 0.937, showing that it reliably measures students' perceived social support and expectations. This high reliability ensures that the scale can accurately assess the impact of the social environment on students' entrepreneurial intentions, including expectations from family, friends, and social networks. Thus, this scale is crucial for understanding how social factors shape students' entrepreneurial motivations. The Perceived Behavioral Control Scale includes 6 items and has a Cronbach's Alpha value of 0.912, showing high consistency in assessing students' perceptions of their entrepreneurial resources and abilities. This scale effectively identifies students' self-assessments of their entrepreneurial skills and resources, which are key to predicting their entrepreneurial behavior and potential success. The

high reliability further enhances its accuracy and reliability in measuring students' self-efficacy. The Entrepreneurial Attitude Scale consists of 5 items and has a Cronbach's Alpha value of 0.946, the highest among all scales, indicating it is very reliable in measuring students' attitudes toward entrepreneurship. High reliability reflects a high degree of cohesion among the scale items, enabling a comprehensive and accurate capture of students' emotional tendencies and value judgments towards entrepreneurship, positively reflecting their overall views on entrepreneurship. These reliability analysis results not only validate the reliability of the scales but also provide a solid foundation for subsequent data processing and analysis, ensuring the scientific and practical value of the study results. Through these carefully designed scales, this study is able to deeply explore the multiple factors influencing entrepreneurial intentions among college students in Shandong Province, providing important theoretical and empirical support for understanding and promoting entrepreneurship among college students (Ma and Huang, 2019).

4.4. Difference analysis

The results indicate that cultural factors unique to China play a significant role in shaping the entrepreneurial intentions of university students. The strong influence of subjective norms can be attributed to the collectivist culture in China, where family and societal expectations heavily impact individual decisions. Additionally, the relatively high scores in perceived behavioral control suggest that students feel empowered by the support structures within their educational institutions, reflecting the increasing emphasis on entrepreneurship education in Chinese universities. In this study, *t*-tests were conducted to explore the impact of gender on entrepreneurial intentions, subjective norms, perceived behavioral control, and entrepreneurial attitudes (Wu et al., 2018). This analysis aimed to identify significant statistical differences between male and female students in entrepreneurship-related variables, providing insights for gender-sensitive entrepreneurship support strategies. As **Table 5** shown, below are the detailed results of the difference analysis:

Table 5. Difference analysis results.

Variable	Male Mean	Male SD	Female Mean	Female SD	*t*-value	*p*-value
Entrepreneurial Intentions	4.154	0.679	3.900	0.633	5.950	0.009
Subjective Norms	3.893	0.691	3.757	0.615	3.889	0.003
Perceived Behavioral Control	3.946	0.631	3.800	0.533	3.574	< 0.001
Entrepreneurial Attitudes	3.932	0.598	3.401	0.573	4.913	0.005

The *t*-tests in this study investigated the influence of gender differences on entrepreneurial intentions, subjective norms, perceived behavioral control, and entrepreneurial attitudes. The results showed that male students scored higher on average across all measured variables compared to female students, and these differences reached statistical significance. These findings suggest how gender might impact college students' attitudes and behaviors related to entrepreneurship (Bergner, 2021). Specifically, male students scored significantly higher in entrepreneurial intentions, which may reflect societal and cultural expectations encouraging or

anticipating males to engage in entrepreneurial activities more than females. This difference may stem from traditional gender roles where males are often seen as economic providers, thus having more motivation and pressure to pursue entrepreneurship. In terms of subjective norms, males also scored higher, indicating they might feel greater social support and expectations. This perception could be due to traditional expectations of males to be successful and self-fulfilled in their careers. Regarding perceived behavioral control, male students also scored higher, suggesting they have greater confidence in their ability to manage resources and capabilities needed for entrepreneurship (Ma and Huang, 2019). This could be due to males having better access to relevant resources and opportunities, or societal expectations of males having superior technical and managerial skills. Lastly, males showed more positive attitudes towards entrepreneurship, possibly reflecting a more positive overall view of entrepreneurship, perhaps because male success is often closely linked to their career achievements in the societal and cultural context. Overall, these gender differences are crucial for understanding how to design educational and support strategies for college entrepreneurship, especially in considering how to balance gender impacts and provide equal opportunities. By recognizing these differences, policymakers and educators can more effectively tailor interventions to promote entrepreneurial spirit and support, particularly in enhancing the entrepreneurial intentions and confidence of female students (Cortis et al., 2023).

4.5. Correlation analysis and analysis of gender differences

In this study, a correlation analysis was conducted to assess the interrelationships among entrepreneurial attitude, subjective norms, entrepreneurial intention, and perceived behavioral control. The analysis results in **Table 6** show that there is a strong positive correlation between these variables, and the value of the phase relationship ranges from 0.404 to 0.826, indicating the close degree of interaction between the various dimensions. The following is a detailed table of correlation results:

Table 6. Correlation analysis results.

Variable	Entrepreneurial Attitude	Subjective Norms	Entrepreneurial Intention	Perceived Behavioral Control
Entrepreneurial Attitude	1	0.826*	0.561*	0.404*
Subjective Norms	0.826*	1	0.710*	0.558*
Entrepreneurial Intention	0.561*	0.710*	1	0.457*
Perceived Behavioral Control	0.404*	0.558*	0.457*	1

T-tests were conducted to explore the impact of gender on entrepreneurial intentions, subjective norms, perceived behavioral control, and entrepreneurial attitudes (Wu et al., 2018). This analysis aimed to identify significant statistical differences between male and female students in entrepreneurship-related variables, providing insights for gender-sensitive entrepreneurship support strategies. Below are the detailed results of the difference analysis:

Table 7. Difference analysis results.

Variable	Male Mean	Male SD	Female Mean	Female SD	*t*-value	*p*-value
Entrepreneurial Intentions	4.154	0.679	3.900	0.633	5.950	0.009
Subjective Norms	3.893	0.691	3.757	0.615	3.889	0.003
Perceived Behavioral Control	3.946	0.631	3.800	0.533	3.574	< 0.001
Entrepreneurial Attitudes	3.932	0.598	3.401	0.573	4.913	0.005

As shown in **Table 7**, The *t*-tests in this study investigated the influence of gender differences on entrepreneurial intentions, subjective norms, perceived behavioral control, and entrepreneurial attitudes. The results showed that male students scored higher on average across all measured variables compared to female students, and these differences reached statistical significance. These findings suggest how gender might impact college students' attitudes and behaviors related to entrepreneurship (Bergner, 2021).

This correlation analysis provides deep insights into how various factors affecting entrepreneurial intention interact with each other. Specifically, the following points highlight the correlations and their potential implications: Firstly, the correlation coefficient between entrepreneurial attitude and subjective norms is as high as 0.826, indicating a close association between entrepreneurial attitude and the social environment. This strong positive correlation suggests that when individuals have a positive attitude towards entrepreneurship, they often perceive strong support and encouragement from significant others, such as family, friends, and social networks (Vamvaka, 2020). This social support not only enhances individuals' confidence in entrepreneurship but may also encourage them to view entrepreneurship as a viable and worthwhile career path. Next, the correlation coefficient between entrepreneurial attitude and entrepreneurial intention is 0.561, indicating a significant positive relationship. This means that students with a positive attitude towards entrepreneurship are more likely to develop strong entrepreneurial intentions. This relationship underscores the critical role of a positive mindset in stimulating and sustaining entrepreneurial motivation, implying that educators and policymakers should particularly focus on attitude development when promoting entrepreneurship education (Yordanova, 2010). Additionally, the correlation coefficient between subjective norms and entrepreneurial intention is 0.710, reaffirming the significant role of social influence in the formation of entrepreneurial behavior. This high correlation shows that social support and expectations not only strengthen individuals' resolve to engage in entrepreneurship but directly affect their formation of actual entrepreneurial intentions. These findings suggest that creating a supportive social environment may be key to enhancing entrepreneurial activities. Lastly, the correlation between perceived behavioral control and other variables is relatively lower, with coefficients of 0.404 with entrepreneurial attitude, 0.558 with subjective norms, and 0.457 with entrepreneurial intention. Although these relationships are positively correlated, the relatively lower coefficients may indicate that while perceived behavioral control impacts entrepreneurial intention, its effect is not as strong as that of entrepreneurial attitude or the social environment. This indicates that although an individual's perception of their ability to manage resources and execute

entrepreneurial activities is important, it is not as influential as their internal attitudes and external social expectations on their entrepreneurial intentions. These analyses allow us to better understand and evaluate entrepreneurship education and support strategies, particularly in terms of enhancing students' entrepreneurial intentions and actions, by considering the interactions among these different factors.

4.6. Regression analysis data table

In this study, multiple linear regression analysis was employed to examine the effects of entrepreneurial attitude, subjective norms, perceived behavioral control, and gender on entrepreneurial intention. The results indicated that all these factors had a significant positive impact on entrepreneurial intention, confirming the research hypotheses and revealing the role these variables play in forming entrepreneurial intentions. As shown in **Table 8**, the specific regression analysis results are as follows:

Table 8. Regression analysis.

Variable	β	*t*-value	Significance
Gender (Male)	–0.042	–1.920	*
Entrepreneurial Attitude	0.107	2.146	*
Subjective Norms	0.571	11.441	*
Perceived Behavioral Control	0.050	1.801	*

The overall model statistics are *F*-value = 183.432, $R^2 = 0.529$, and adjusted $R^2 = 0.526$, indicating that the model has strong explanatory power, explaining approximately 52.9% of the variance in entrepreneurial intention. These data suggest that the relationships among the variables included in the model are clear, and the overall model is statistically significant, effectively revealing the key factors influencing college students' entrepreneurial intentions.

Impact of Gender: The analysis shows that gender has a slight negative impact on entrepreneurial intention, suggesting that male students in the sample have slightly lower entrepreneurial intentions than female students. This may be related to socio-cultural factors and expectations associated with gender roles (Najafi et al., 2023).

Influence of Entrepreneurial Attitude: The positive significant β value indicates that entrepreneurial attitude has a significant positive impact on entrepreneurial intention, emphasizing the crucial role of a positive entrepreneurial attitude in fostering the formation of entrepreneurial intentions.

Significant Impact of Subjective Norms: The highest β value for subjective norms indicates that social support and expectations have the most significant impact on entrepreneurial intention, highlighting the importance of the social environment and cultural background in stimulating entrepreneurial intentions.

Role of Perceived Behavioral Control: Although its impact is relatively minor, the positive effect of perceived behavioral control suggests that enhancing an individual's confidence in their entrepreneurial abilities can moderately increase their entrepreneurial intentions.

These regression analysis results provide valuable insights for educators and policymakers, aiding in the design of more effective educational programs and support

measures, especially in enhancing students' entrepreneurial intentions. By specifically enhancing entrepreneurial attitudes, optimizing social support networks, and boosting students' sense of behavioral control, it is possible to more effectively motivate and support future entrepreneurs.

5. Discussion

5.1. Analysis of gender differences in various variables

This study has shown significant gender differences in entrepreneurial-related variables, providing deep insights into how gender influences university students' entrepreneurial attitudes and behaviors.

5.1.1. Significant gender differences in entrepreneurial attitude

The significant gender differences in entrepreneurial attitudes among university students profoundly reveal how socialization processes and cultural factors crucially shape their entrepreneurial mindset. Specifically, male students have significantly higher scores in entrepreneurial attitudes than females, which can be interpreted from various socio-psychological perspectives. Firstly, from the perspective of gender role socialization, males are expected to exhibit more independence, competitiveness, and risk-taking from a young age. These societal expectations encourage males to take risks and embrace challenges, traits essential for entrepreneurship. In contrast, females are often encouraged to develop more conservative and dependent traits, such as cooperation and caution, which might limit their interest and participation in entrepreneurial activities to some extent. Secondly, gender biases in education and career guidance are also significant. For instance, in career guidance and educational practices, male students might be encouraged more frequently to explore fields like technology, engineering, and business management, closely related to entrepreneurship. In contrast, females might be steered more towards traditional "female professions" like education, nursing, or secretarial work. This differentiated career guidance could further deepen the gender differences in entrepreneurial attitudes. Additionally, cultural factors play a crucial role in gender differences. In many cultures, males are seen as the "pillars" of the family and society, with their success often closely linked to professional achievements, which could further motivate males toward entrepreneurial success. Females, however, may face more cultural restrictions on gender-appropriate behavior, making them more hesitant about entrepreneurship. To narrow the gender gap in entrepreneurial attitudes, it is necessary to combat gender stereotypes from early education, provide gender-equal career guidance, and promote recognition and support for female entrepreneurs at the social and cultural levels. This could not only inspire more females to tap into their entrepreneurial potential but also bring broader innovation and vitality to societal economic development.

5.1.2. Significant gender differences in subjective norms

Exploring the impact of gender on subjective norms, the study significantly reveals that male university students perceive higher social support and entrepreneurial expectations than females. This difference highlights how social and cultural factors shape entrepreneurial attitudes and intentions and illustrates how

gender forms different trajectories in societal expectations and career orientations. In many cultures and societies, males are widely expected to be the economic backbone of families and society. This role expectation educates them to possess competitiveness, adventurous spirit, and self-drive from an early age, key abilities needed for entrepreneurship. Thus, when the social environment shows higher entrepreneurial support for males, it is not only a reflection of these traditional roles but also an acknowledgment of their capabilities for entrepreneurship. This reinforced social support and expectation can make males more confident when facing entrepreneurial opportunities, as they feel that their actions align with societal expectations. Moreover, this gender difference in the perception of subjective norms might also reflect an uneven distribution of social resources (Kolvereid, 1993). Males are more likely to access entrepreneurial resources like funding, networks, and mentorship, crucial for successful entrepreneurship. Social networks and sponsors tend to support those who fit the traditional "entrepreneur" image, which often aligns with male characteristics. For females, although they may possess the capability and desire to engage in entrepreneurship, the lower perception of subjective norms indicates they may not be in the same supportive environment. This might be because female entrepreneurs are still not mainstream in some societies and cultures, facing more barriers and biases, hence feeling less social support and encouragement (Trafimow, 1993). Overcoming these differences requires more societal initiatives and policy support, such as providing specific resources and training for female entrepreneurs and emphasizing the importance of gender equality and diversity in the education system. Overall, these findings highlight the need for measures at social, educational, and policy levels to reduce gender disparities and provide equal entrepreneurial opportunities. Through these efforts, the potential of women can be stimulated and utilized more significantly in the field of entrepreneurship (Adeniyi, 2024).

5.2. Research limitations and future directions

While this study has provided significant insights into how gender affects university students' entrepreneurial attitudes and intentions, its limitations suggest directions for future research. Firstly, the sample was limited to university students from Shandong Province in China, which might affect the general applicability of the results. Students from different regions or cultural backgrounds might exhibit different entrepreneurial attitudes and intentions. Therefore, future studies should consider expanding the sample size to include a broader geographical area and a variety of cultural environments. Additionally, this study relied primarily on self-reported questionnaire data, a method susceptible to social desirability bias, especially on sensitive issues like gender roles and entrepreneurial expectations. To reduce subjective bias, future research could employ mixed methodologies, such as combining interviews, field observations, and longitudinal studies, to provide more comprehensive data and insights. Moreover, while the study covered variables like entrepreneurial attitude, subjective norms, and perceived behavioral control, it did not include other factors that might affect entrepreneurial intentions, such as economic status, educational level, or personal entrepreneurial experience. Future research could

incorporate these variables to explore their relationships with entrepreneurial intentions and how gender impacts these relationships. Lastly, future studies could design and evaluate specific interventions for university students, particularly female students, in entrepreneurship. By empirically testing the effects of these interventions, guidance can be provided for entrepreneurial education practices and policy-making, thereby fostering a more inclusive and supportive entrepreneurial environment. Through these approaches, future research can more comprehensively understand and promote entrepreneurship among university students, especially female students.

6. Conclusion

This study, by analyzing key variables such as entrepreneurial attitudes, intentions, and perceived behavioral control among university students in Shandong Province, China, focused on how gender influences these factors (Mok, 2021). The findings revealed significant gender differences in entrepreneurial-related variables, providing profound insights into the mechanisms of motivation formation and development in university students' entrepreneurship. Firstly, the study found that male university students scored significantly higher than females in entrepreneurial attitudes, subjective norms, perceived behavioral control, and entrepreneurial intentions. These gender differences underscore the impact of sociocultural factors, particularly the gender role expectations formed during socialization. Males are typically encouraged to take risks and display leadership, whereas females may show less enthusiasm for entrepreneurial activities due to cultural and societal constraints. Secondly, the results highlight the importance of considering gender factors in entrepreneurial education and policy-making. To foster gender equality and enhance the effectiveness of entrepreneurial education, educators and policymakers need to design and implement measures aimed at addressing gender biases, providing equal opportunities for resource access, and supporting female entrepreneurship. Furthermore, the study also points out directions for further research, including expanding the study sample, using diversified data collection methods, and exploring additional factors influencing entrepreneurial intentions. Such research could not only enhance the universality and applicability of the findings but also help to understand the challenges and opportunities different genders may face in the entrepreneurial process. In summary, by revealing how gender differences affect the entrepreneurial behavior and intentions of university students, this study provides valuable insights for entrepreneurial education and lays a theoretical and empirical foundation for fostering a more inclusive entrepreneurial environment. Future efforts should continue to explore the realization of gender equality in entrepreneurship and how educational and policy interventions can more effectively support and motivate all university students in their entrepreneurial endeavors.

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References

Adeniyi, A. O., Gamede, V., & Derera, E. (2024). Individual entrepreneurial orientation for entrepreneurial readiness. Humanities and Social Sciences Communications, 11(1). https://doi.org/10.1057/s41599-024-02728-9

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

Ajzen, I., & Fishbein, M. (1969). The prediction of behavioral intentions in a choice situation. Journal of Experimental Social Psychology, 5, 400–416. https://doi.org/10.1016/0022-1031(69)90033-X

Ajzen, I., & Fishbein, M. (1980). Understanding attitudes and predicting social behavior. Englewood Cliffs, NJ: Prentice-Hall.

Bergner, S., Auburger, J., & Paleczek, D. (2021). The why and the how: A nexus on how opportunity, risk, and personality affect entrepreneurial intention. Journal of Small Business Management, 27(5), 663–671.

Bouarir, H., Diani, A., Boubker, O., et al. (2023). Key Determinants of Women's Entrepreneurial Intention and Behavior: The Role of Business Opportunity Recognition and Need for Achievement. Administrative Sciences, 13(2), 33. https://doi.org/10.3390/admsci13020033

Cortis, N., Blaxland, M., & Charlesworth, S. (2023). Care theft: Family impacts of employer control in Australia's retail industry. Critical Social Policy, 44(1), 106–128. https://doi.org/10.1177/02610183231185766

Davidsson, P. (1995). Determinants of entrepreneurial intentions. RENT XI Workshop.

Duan Wenting & Jiang Guangrong. (2008). A review of the theory of planned behavior. Advances in Psychological Science, 2008(2), 315–320.

Godin, G., & Kok, G. (1996). The Theory of Planned Behavior: A Review of its Applications to Health-Related Behaviors. American Journal of Health Promotion, 11(2), 87–98. https://doi.org/10.4278/0890-1171-11.2.87

Ji Mengchao & Sun Junhua. (2021). The relationship between entrepreneurship education, entrepreneurial role models, and college students' entrepreneurial intentions-Based on the theory of planned behavior. Journal of Yangzhou University (Higher Education Study Edition), 2021(5), 99–107.

Kolvereid, L., Shane, S., & Westhead, P. (1993). Is it equally difficult for female entrepreneurs to start businesses in all countries? Journal of Small Business Management, 31(4), 112–118.

Lee, S. M., & Peterson, S. J. (2000). Culture, entrepreneurial orientation, and global competitiveness. Journal of World Business, 35(4), 401–416. https://doi.org/10.1016/S1090-9516(00)00045-6

Liñán, F., & Chen, Y. (2009). Development and Cross–Cultural Application of a Specific Instrument to Measure Entrepreneurial Intentions. Entrepreneurship Theory and Practice, 33(3), 593–617. https://doi.org/10.1111/j.1540-6520.2009.00318.x

Lou Bingqiong & Hao Lei. (2023). Research on the problems and countermeasures of entrepreneurship and employment education management for college students. Strait Science and Industry, 36(3), 92–94.

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the Entrepreneurial Orientation Construct and Linking It to Performance. The Academy of Management Review, 21(1), 135. https://doi.org/10.2307/258632

Ma, R., & Huang, Y.-C. (2019). An opportunity-based explanation of entrepreneurial intention: evidence from global sourcing suppliers in China. Journal of Small Business & Entrepreneurship, 32(4), 379–400. https://doi.org/10.1080/08276331.2019.1641661

Mok, K. H., Xiong, W., & Ye, H. (2021). COVID-19 crisis and challenges for graduate employment in Taiwan, Mainland China and East Asia: A critical review of skills preparing students for uncertain futures. Journal of Education and Work, 34(3), 247–261. https://doi.org/10.1080/13639080.2021.1922620

Najafi, S., Mohammadkhah, F., Harsini, P. A., et al. (2023). Effect of educational intervention based on theory of planned behavior on promoting preventive behaviors of oral cancer in rural women. BMC Women's Health, 23(1). https://doi.org/10.1186/s12905-023-02411-2

Naseer, S., Khalid, S., Parveen, S., et al. (2023). COVID-19 outbreak: Impact on global economy. Frontiers in Public Health, 10. https://doi.org/10.3389/fpubh.2022.1009393

Qiao, X., & Hua, J.-H. (2019). Effect of College Students' Entrepreneurial Self-Efficacy on Entrepreneurial Intention: Career Adaptability as a Mediating Variable. International Journal of Educational Methodology, 5(3), 305–313.

https://doi.org/10.12973/ijem.5.3.305

Trafimow, D., & Finlay, K. A. (1996). The Importance of Subjective Norms for a Minority of People: between Subjects and within-Subjects Analyses. Personality and Social Psychology Bulletin, 22(8), 820–828. https://doi.org/10.1177/0146167296228005

Vamvaka, V., Stoforos, C., Palaskas, T., et al. (2020). Attitude toward entrepreneurship, perceived behavioral control, and entrepreneurial intention: dimensionality, structural relationships, and gender differences. Journal of Innovation and Entrepreneurship, 9(1). https://doi.org/10.1186/s13731-020-0112-0

Wu, C. H., Childs, L., & Hsu, I. (2018). Using educational technology to enhance the three modes of communication. Journal of Technology and Chinese Language Teaching, 9(1), 62–77.

Yordanova, D. I., & Tarrazon, M.-A. (2010). Gender Differences in Entrepreneurial Intentions: Evidence from Bulgaria. Journal of Developmental Entrepreneurship, 15(03), 245–261. https://doi.org/10.1142/s1084946710001543