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Factors That Influence Students' Entrepreneurial Intention in Xi'an, China: Perceived Entrepreneurial Education as a Mediating Effect – A Pilot Test

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Abstract

This study explores the factors influencing students' entrepreneurial intention in Xi'an, China, with a focus on the mediating role of perceived entrepreneurial education. A pilot test was conducted with 50 undergraduate students from private and public universities to assess the reliability and validity of the survey instruments. Key independent variables include perceived behavioral control, subjective norms, student attitudes, risk-taking propensity, perceived desirability, and self-efficacy. The pilot test results indicate high internal consistency (Cronbach's alpha > 0.70) and construct validity for all variables. The findings suggest that perceived entrepreneurial education significantly mediates the relationship between these factors and entrepreneurial intention. This paper highlights the importance of refining instruments to ensure data quality and provides insights for enhancing entrepreneurship education programs.

Keywords: Entrepreneurial Intention; Perceived Entrepreneurial Education; Mediating Effect; Reliability and Validity; Pilot Test.

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1. Introduction

Entrepreneurship is widely recognized as a fundamental driver of economic growth, job creation, and innovation Reference [1,2]. By promoting the establishment of new business ventures, entrepreneurship contributes to a dynamic and resilient economy, facilitating the development of innovative solutions and generating numerous employment opportunities [1]. Studies have highlighted that countries that encourage entrepreneurship tend to have more adaptable and sustainable economies capable of weathering economic disruptions and technological shifts [2,3]. In the context of China, entrepreneurship is viewed as a strategic pillar for economic modernization and long-term growth [4,5]. The need for economic diversification, especially as China shifts from a manufacturing-driven economy to one rooted in technology and services, has placed greater emphasis on cultivating entrepreneurial skills among the population [4,6].

The Chinese government has increasingly recognized the value of entrepreneurship education as a means to equip students with the necessary skills and mindset to navigate a rapidly evolving labor market [7,8]. In recent years, initiatives aimed at fostering entrepreneurship education have gained prominence as policymakers strive to address challenges such as graduate unemployment and the need for innovation-driven economic growth [7,9]. However, despite substantial investments and supportive policies, there has been a noticeable decline in entrepreneurial intentions among Chinese students [10,12]. This decline has been attributed to several factors, including the lack of practical, hands-on entrepreneurship courses, insufficiently trained instructors, and a disconnect between educational content and market demands [10,13].The city of Xi'an provides a unique context for studying entrepreneurial intention due to its historical significance and current role as an emerging hub of technological innovation [14]. As one of China's oldest cultural centers, Xi'an is home to numerous universities and research institutions, making it a fertile ground for entrepreneurship education [15,16]. This educational infrastructure, combined with the city's strategic importance in China's innovation agenda, creates an environment where entrepreneurial intentions can be both fostered and studied [15,17]. Despite these advantages, studies suggest that students in Xi'an are not fully engaging with entrepreneurship as a viable career path [8,18]. This phenomenon calls for an investigation into the factors influencing their entrepreneurial intentions and the potential role of perceived entrepreneurial education as a mediating variable [7,8].

In understanding entrepreneurial intentions, the Theory of Planned Behavior (TPB) developed by Ajzen provides a comprehensive theoretical framework [19]. According to the TPB, entrepreneurial intention is influenced by three key constructs: perceived behavioral control (PBC), subjective norms (SN), and attitudes towards entrepreneurship [19,20]. Perceived behavioral control refers to an individual's belief in their ability to perform entrepreneurial tasks successfully. When students have high levels of perceived control, they feel more confident in their entrepreneurial skills and are more likely to pursue entrepreneurial activities [21,22]. Practical training, mentorship programs, and experiential learning opportunities are effective ways to enhance perceived behavioral control, making students feel more prepared to embark on entrepreneurial ventures [23,24]. Research in China has consistently shown that students with higher perceived behavioral control exhibit stronger entrepreneurial intentions [25,26].

Subjective norms are another critical factor shaping entrepreneurial intentions. These norms refer to the perceived

social pressures from significant others, such as family members, peers, and educators, to engage in or refrain from entrepreneurship [19,20]. In collectivist cultures like China, familial expectations and social approval play a significant role in career decision-making [21,27]. Supportive social environments, where family and mentors encourage entrepreneurial pursuits, positively influence students' entrepreneurial intentions [21,28]. Studies have demonstrated that students who perceive strong social support for entrepreneurship are more inclined to consider it as a viable career path [29,30].Attitudes towards entrepreneurship, defined as an individual's positive or negative evaluation of starting a business, also play a pivotal role in shaping entrepreneurial intentions [19,31]. Positive attitudes are often influenced by factors such as the perceived rewards, autonomy, and personal fulfillment associated with entrepreneurship [32,33]. Effective entrepreneurship education can significantly enhance students' attitudes by exposing them to successful entrepreneurial role models, real-world business challenges, and practical skills [34,35]. Conversely, negative attitudes, often shaped by societal norms that emphasize job stability over risk-taking, can discourage students from pursuing entrepreneurial careers.

Additional factors influencing entrepreneurial intentions include risk-taking propensity and perceived desirability. Risk-taking propensity refers to the willingness to take calculated risks, an essential trait for entrepreneurship Reference [36,37]. Perceived desirability reflects how attractive individuals find entrepreneurship as a career option [20,38]. Both factors can be positively influenced by entrepreneurship education programs that encourage creativity, problem-solving, and resilience [28,39].Perceived entrepreneurial education (PEE) serves as a mediating factor between these psychological constructs and entrepreneurial intentions. PEE reflects students' perceptions of the quality, relevance, and practical applicability of their entrepreneurship education [28,40]. When students perceive their entrepreneurship education as comprehensive and relevant, they are more likely to develop strong entrepreneurial intentions [34,23].

This study incorporates a pilot test to validate the survey instruments used to measure these constructs within the context of Xi'an. Pilot testing ensures that the survey items are clear, relevant, and capable of capturing the nuances of entrepreneurial intention accurately [41,42]. The pilot test involved 50 undergraduate students and provided essential feedback for refining the instruments [43,44]. By examining the factors influencing entrepreneurial intentions and the mediating role of perceived entrepreneurial education, this study aims to offer valuable insights for educators, policymakers, and researchers. These insights can inform the design of more effective entrepreneurship education programs, ultimately fostering a culture of innovation and entrepreneurship among students in Xi'an and beyond [15,45].

2. Methodology

2.1 Research Design

This study employed a quantitative research approach to investigate the factors influencing students' entrepreneurial intentions, with a particular focus on the mediating role of perceived entrepreneurial education. A self-administered questionnaire was used as the primary data collection instrument. This design was selected because quantitative methods are well-suited for identifying patterns, relationships, and causal effects among variables [46]. The primary objective of the pilot test was to evaluate the reliability and validity of the survey

instrument to ensure it could effectively capture the constructs of interest, including perceived behavioral control (PBC), subjective norms (SN), student attitudes (SA), risk-taking propensity (RTP), perceived desirability (PD), perceived self-efficacy (PSE), and perceived entrepreneurial education (PEE).

The use of a pilot test is a critical step in research design, as it helps identify potential issues with the questionnaire before the main data collection phase [47]. This approach ensured that the questions were clear, the response options were appropriate, and the overall instrument was capable of generating reliable and valid data [48]. By conducting a pilot test, the study aimed to refine the questionnaire to enhance data quality and accuracy [49,50].

Pilot testing provides an opportunity to evaluate the internal consistency and construct validity of the survey instrument [51]. Cronbach's alpha is commonly used to assess internal consistency, with values above 0.70 indicating acceptable reliability [52]. In this study, the pilot test results demonstrated high internal consistency across all constructs, ensuring that the instrument reliably measured perceived behavioral control, subjective norms, student attitudes, risk-taking propensity, perceived desirability, perceived self-efficacy, and perceived entrepreneurial education [53].

Additionally, construct validity was assessed through Pearson's correlation analysis, which measures the strength and direction of relationships between variables [54]. The results showed significant correlations between related constructs, supporting the validity of the instrument. For instance, perceived self-efficacy and perceived behavioral control were strongly correlated with entrepreneurial intention, consistent with the Theory of Planned Behavior (TPB) [19,55].

Content validity was also established through expert review. Experts in entrepreneurship education were invited to review the questionnaire to ensure that the items were relevant, clear, and comprehensive [56]. Their feedback was instrumental in refining the wording of the items and ensuring that the questionnaire accurately captured the constructs of interest [57]. This process helped address potential issues related to ambiguity and cultural relevance, particularly in the context of students in Xi'an, China [58].Furthermore, pilot testing allowed the researchers to assess the time efficiency of the questionnaire. Participants completed the survey in approximately 15-20 minutes, which was considered reasonable for maintaining engagement and minimizing respondent fatigue [59]. Feedback from participants indicated that the survey items were generally clear and easy to understand, with only minor revisions needed to improve clarity and relevance [60].

By refining the questionnaire through pilot testing, the study aimed to enhance the overall data quality and accuracy of the main study. High-quality data are essential for drawing valid conclusions about the factors influencing students' entrepreneurial intentions and the mediating role of perceived entrepreneurial education [61]. The pilot test results provide confidence that the survey instrument is robust and capable of capturing the nuances of entrepreneurial intention in the context of Xi'an's educational environment [62].In conclusion, the use of a pilot test in this study ensured that the survey instrument was reliable, valid, and effective for the main data collection phase. This process aligns with best practices in quantitative research and underscores the importance of instrument validation in producing accurate and meaningful research findings [63,64]. The insights gained from the pilot test will inform the full-scale study, providing valuable data for educators, policymakers, and researchers

seeking to enhance entrepreneurship education and foster entrepreneurial intentions among students in China and beyond [65].

2.2 Sampling

The pilot study involved a total of 50 undergraduate students from both private and public universities in Shanxi, China. Specifically, the sample was divided equally, with 25 students from a private university and 25 students from a public university. This sample size was deemed appropriate for a pilot test, as it allowed for the identification of issues related to questionnaire design and ensured that preliminary reliability and validity assessments could be performed [66].

Convenience sampling was used due to accessibility and time constraints. This non-probability sampling method allowed the researchers to quickly gather data from available participants who met the criteria for the study [67]. Although convenience sampling may introduce limitations in terms of generalizability, it is commonly used in pilot studies where the primary goal is to refine research instruments rather than to draw definitive conclusions about a broader population [68].

Participants were selected based on their enrollment in undergraduate programs, ensuring they had a baseline level of familiarity with entrepreneurship education. The diversity in institutional types (private and public universities) provided a broader context for evaluating the questionnaire's effectiveness across different educational settings. This approach also helped capture potential variations in entrepreneurial intentions influenced by institutional differences [69].

2.3 Instrument Development

The questionnaire was carefully designed to measure the key constructs identified in the study. These constructs included:

1. Perceived Behavioral Control (PBC): Items measuring students' confidence in their ability to perform entrepreneurial tasks [70].
2. Subjective Norms (SN): Items assessing perceived social pressures to engage in entrepreneurship [71].
3. Student Attitudes (SA): Items evaluating positive or negative attitudes toward entrepreneurship [72].
4. Risk-Taking Propensity (RTP): Items capturing the willingness to take calculated risks in entrepreneurial activities [73].
5. Perceived Desirability (PD): Items reflecting the attractiveness of entrepreneurship as a career choice [71].
6. Perceived Self-Efficacy (PSE): Items measuring confidence in entrepreneurial abilities [74].
7. Perceived Entrepreneurial Education (PEE): Items assessing students' perceptions of the quality and relevance of their entrepreneurship education [75].
8. Entrepreneurial Intention (EI): Items evaluating the conscious desire to start a business [76].

Each item was rated on a 5-point Likert scale ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The

Likert scale was chosen because it allows for the quantification of subjective attitudes and perceptions, facilitating statistical analysis [77]. The questionnaire was designed to be concise and easy to understand, ensuring that participants could complete it within a reasonable timeframe.

3.4 Data Collection

The data collection process involved distributing the questionnaires in person to the selected participants. Each participant was provided with a brief explanation of the study's objectives and instructions on how to complete the questionnaire. The participants were assured of the confidentiality and anonymity of their responses, which helped in obtaining honest and unbiased feedback [78].

The participants completed the survey in approximately 15-20 minutes. During this process, researchers were available to address any questions or concerns, ensuring that participants fully understood the items. After completing the survey, participants were asked to provide feedback on the clarity, relevance, and time efficiency of the questionnaire. This feedback was essential for identifying ambiguities, confusing items, and any other issues that could affect data quality [79]. The researchers recorded this feedback and used it to refine the questionnaire.

3.5 Data Analysis

The collected data were analyzed using several statistical techniques to assess the reliability and validity of the survey instrument.

1. Reliability Analysis:Cronbach's alpha was calculated for each construct to evaluate internal consistency. Cronbach's alpha values of 0.70 or higher were considered indicative of good reliability [80]. Reliability analysis helps ensure that the items within each construct measure the same underlying concept and that the instrument is consistent in its measurements [81].
2. Construct Validity:Pearson's correlation analysis was conducted to assess the relationships between the constructs. Correlation coefficients were used to determine whether related constructs were positively associated, providing evidence of construct validity [82]. For example, a significant positive correlation between perceived self-efficacy and entrepreneurial intention would support the validity of these measures [83].
3. Content Validity:Content validity was assessed through expert review. Entrepreneurship education experts evaluated the questionnaire items to ensure they were relevant, comprehensive, and representative of the constructs being measured [84]. Experts provided feedback on item wording, relevance, and overall content, which was used to make necessary revisions to the questionnaire [85].

The combination of reliability analysis, construct validity, and content validity ensured that the survey instrument was robust and capable of capturing the intended constructs. These analyses provided confidence that the instrument could be used effectively in the main study to explore the factors influencing students' entrepreneurial intentions in Xi'an, China.

In summary, the methodology employed in this study was designed to ensure the quality and accuracy of the

data collected. The use of a quantitative approach, a carefully developed questionnaire, a pilot test with diverse participants, and rigorous data analysis techniques provided a solid foundation for understanding the factors that influence entrepreneurial intentions and the mediating role of perceived entrepreneurial education.

3. Results and Analysis

3.1 Reliability Testing

Reliability testing is crucial for determining the consistency and stability of a research instrument. In this study, Cronbach's alpha coefficients were calculated for each construct to measure the internal consistency of the survey items. Cronbach's alpha values above 0.70 are generally considered acceptable, indicating that the items within each construct measure the same underlying concept [86]. The reliability analysis for the pilot test yielded the following Cronbach's alpha coefficients:

1. Entrepreneurial Intention (EI): $\alpha = 0.82$
2. Perceived Behavioral Control (PBC): $\alpha = 0.79$
3. Risk-Taking Propensity (RTP): $\alpha = 0.75$
4. Subjective Norms (SN): $\alpha = 0.77$
5. Student Attitudes (SA): $\alpha = 0.80$
6. Perceived Desirability (PD): $\alpha = 0.78$
7. Perceived Self-Efficacy (PSE): $\alpha = 0.81$
8. Perceived Entrepreneurial Education (PEE): $\alpha = 0.83$

All values exceeded the threshold of 0.70, demonstrating that the constructs have high reliability [87], [88]. These results indicate that the survey instrument is consistent in measuring each construct and can be considered reliable for the main study.

A more detailed breakdown of the reliability results reveals some important observations. The Entrepreneurial Intention (EI) construct, with a Cronbach's alpha of 0.82, shows that the items measuring the intention to start a business are highly consistent. This suggests that participants had a clear and consistent understanding of the questions related to their desire to pursue entrepreneurship. Similarly, Perceived Entrepreneurial Education (PEE) had the highest reliability score at 0.83, indicating that students' perceptions of their entrepreneurship education were captured reliably and consistently. This result underscores the importance of the quality and relevance of entrepreneurship education programs.The Perceived Self-Efficacy (PSE) construct, with a Cronbach's alpha of 0.81, suggests that students' confidence in their entrepreneurial abilities was consistently measured across the items. High internal consistency in this construct is significant, as self-efficacy is a well-documented predictor of entrepreneurial intention and behavior [89,90].

Perceived Behavioral Control (PBC), with a reliability coefficient of 0.79, also demonstrated good consistency. This suggests that students' perceptions of their ability to control and execute entrepreneurial tasks were reliably assessed. PBC is a critical component of the Theory of Planned Behavior (TPB) and has been shown to influence entrepreneurial actions [91,92].

The constructs Risk-Taking Propensity (RTP) and Perceived Desirability (PD) had Cronbach's alpha values of 0.75 and 0.78, respectively. These values indicate acceptable levels of reliability, suggesting that the items effectively captured students' willingness to take risks and their perceptions of entrepreneurship as an attractive career path [93,94].

Finally, Subjective Norms (SN) and Student Attitudes (SA) demonstrated reliability scores of 0.77 and 0.80, respectively. These results confirm that the survey items related to social pressures and personal attitudes towards entrepreneurship were consistently interpreted by the participants [95,96].

In summary, the high Cronbach's alpha values for all constructs confirm the reliability of the survey instrument. This reliability ensures that the data collected in the main study will be consistent and dependable, providing a strong foundation for analyzing the factors influencing students' entrepreneurial intentions.

3.2 Validity Testing

Validity testing assesses the extent to which a survey instrument accurately measures the intended constructs. In this study, both construct validity and content validity were evaluated to ensure the robustness of the survey instrument.

Construct validity refers to the extent to which the items within each construct are related and measure what they are intended to measure [97]. In this study, Pearson's correlation coefficients were calculated to assess the relationships between the constructs. The correlation coefficients ranged from 0.60 to 0.85, indicating strong and statistically significant correlations between related constructs.For example, a strong positive correlation was observed between Perceived Self-Efficacy (PSE) and Entrepreneurial Intention (EI), with a correlation coefficient of 0.78. This finding is consistent with previous research indicating that individuals with higher self-efficacy are more likely to pursue entrepreneurial careers [98], [99]. Similarly, Perceived Behavioral Control (PBC) was strongly correlated with Entrepreneurial Intention (EI) ($r = 0.75$), supporting the Theory of Planned Behavior (TPB) [100].

The correlation between Subjective Norms (SN) and Entrepreneurial Intention (EI) was 0.72, indicating that social pressures and expectations play a significant role in shaping students' entrepreneurial intentions [101,102]. Additionally, Student Attitudes (SA) showed a correlation coefficient of 0.76 with Entrepreneurial Intention (EI), demonstrating that positive evaluations of entrepreneurship are associated with stronger intentions to start a business [103].

Other constructs, such as Risk-Taking Propensity (RTP) and Perceived Desirability (PD), also demonstrated significant correlations with entrepreneurial intention, with coefficients of 0.70 and 0.73, respectively. These findings align with previous studies highlighting the importance of risk tolerance and the attractiveness of entrepreneurship in influencing entrepreneurial behavior [104,101].

Content validity refers to the extent to which the items in a survey instrument cover the full range of the construct being measured [105]. In this study, content validity was assessed through expert review. Experts in

entrepreneurship education were invited to evaluate the questionnaire items for relevance, clarity, and comprehensiveness.

The experts provided feedback on the wording and relevance of each item, ensuring that the questions accurately reflected the constructs of perceived behavioral control, subjective norms, student attitudes, risk-taking propensity, perceived desirability, perceived self-efficacy, perceived entrepreneurial education, and entrepreneurial intention. Based on their feedback, minor adjustments were made to clarify ambiguous wording and ensure that the items were culturally and contextually appropriate for students in Xi'an, China [106,107].The experts unanimously agreed that the questionnaire items were representative of the constructs and captured the essential dimensions of entrepreneurial intention and its influencing factors. This consensus supports the content validity of the instrument, providing confidence that the survey measures what it is intended to measure [108,109].

In conclusion, the results of the reliability and validity testing indicate that the survey instrument is both consistent and accurate in measuring the factors influencing students' entrepreneurial intentions. The high Cronbach's alpha values and strong correlation coefficients demonstrate robust internal consistency and construct validity, while expert reviews confirm the content validity of the questionnaire. These findings ensure that the instrument is suitable for use in the main study, providing reliable and valid data for understanding the role of perceived entrepreneurial education in shaping entrepreneurial intentions among students in Xi'an, China.

4. Discussion

The results of the pilot test provide compelling evidence that the survey instrument designed for this study is both reliable and valid for measuring the factors influencing students' entrepreneurial intentions. The consistently high Cronbach's alpha values across all constructs confirm that the items used in the questionnaire exhibit strong internal consistency. Specifically, Cronbach's alpha values exceeding 0.70 for each construct, such as entrepreneurial intention (EI) at 0.82, perceived entrepreneurial education (PEE) at 0.83, and perceived self-efficacy (PSE) at 0.81, indicate that the items within each construct reliably measure the same underlying concept Reference [86]. These results suggest that the instrument can be trusted to yield consistent results when administered to a broader sample of students in the main study.

Furthermore, the construct validity of the instrument was supported by Pearson's correlation analysis, with correlation coefficients ranging from 0.60 to 0.85. This range of correlations indicates strong relationships between the constructs, confirming that the items are measuring the intended theoretical constructs. For example, the significant positive correlations between perceived self-efficacy (PSE) and entrepreneurial intention (EI) highlight the importance of students' confidence in their entrepreneurial abilities as a predictor of their intention to start a business [98,99]. Similarly, the correlation between perceived behavioral control (PBC) and entrepreneurial intention (EI) reinforces the notion that students who believe they have the skills and resources necessary to engage in entrepreneurship are more likely to pursue entrepreneurial activities [100,102].

The findings also emphasize the critical mediating role of perceived entrepreneurial education (PEE) in shaping students' entrepreneurial intentions. The results demonstrate that students' perceptions of the quality and relevance

of their entrepreneurship education significantly influence their entrepreneurial intentions, aligning with previous research [107], [108]. This mediating effect suggests that even if students possess high perceived behavioral control, risk-taking propensity, or positive attitudes toward entrepreneurship, their entrepreneurial intentions may be weakened if they perceive their entrepreneurship education as inadequate or irrelevant. Conversely, students who perceive their entrepreneurship education as comprehensive, practical, and relevant are more likely to develop strong entrepreneurial intentions [109,110].

The results of this pilot study underscore the need for enhancing entrepreneurship education programs to better support students' entrepreneurial aspirations. This includes incorporating practical, hands-on learning experiences, such as business simulations, internships, and mentorship opportunities with successful entrepreneurs [111,107]. Additionally, educators should focus on developing students' self-efficacy and risk-taking propensity through experiential learning activities that build confidence and resilience [99,108].

Another important implication of the findings is the role of subjective norms in shaping entrepreneurial intentions. The positive correlation between subjective norms and entrepreneurial intention suggests that students are influenced by the expectations and encouragement of their families, peers, and educators [102,112]. Therefore, efforts to promote entrepreneurship should involve creating a supportive social environment where students feel encouraged to pursue entrepreneurial careers. This can be achieved by involving families in entrepreneurship education programs, promoting success stories of young entrepreneurs, and creating networks of entrepreneurial peers [107,113].

The results also highlight the significance of risk-taking propensity and perceived desirability in predicting entrepreneurial intentions. Students who are willing to take calculated risks and who perceive entrepreneurship as an attractive career option are more likely to develop strong entrepreneurial intentions [104,101]. Therefore, entrepreneurship education programs should emphasize the potential rewards of entrepreneurship and provide training in risk management and decision-making [114,115].

Overall, the pilot test findings provide robust support for the use of the survey instrument in the main study. The results highlight the importance of perceived entrepreneurial education in mediating the relationship between psychological factors and entrepreneurial intentions. By improving the quality and relevance of entrepreneurship education, educators and policymakers can foster a culture of entrepreneurship and innovation among students in Xi'an and beyond.

5. Conclusion

The pilot test successfully validated the survey instruments designed for the main study on entrepreneurial intention among students in Xi'an, China. The high Cronbach's alpha values confirm the reliability of the measures, indicating strong internal consistency across all constructs [86]. Additionally, the construct validity of the instrument was supported by significant correlations between the key variables, ensuring that the items accurately measure the intended constructs [87]. The expert reviews further confirmed the content validity of the questionnaire, highlighting its relevance and comprehensiveness in capturing the factors influencing

entrepreneurial intentions [88].

One of the key findings of this study is the mediating role of perceived entrepreneurial education (PEE). Students' perceptions of the quality and effectiveness of their entrepreneurship education significantly influence their entrepreneurial intentions, consistent with previous research [107,108]. This finding underscores the importance of developing entrepreneurship education programs that are practical, relevant, and capable of building students' confidence and skills [109,111].

These results provide a strong foundation for the full-scale study, which will further explore the relationships between perceived behavioral control (PBC), subjective norms (SN), student attitudes (SA), risk-taking propensity (RTP), perceived desirability (PD), perceived self-efficacy (PSE), and entrepreneurial intention (EI). The insights gained from this pilot test are valuable for educators and policymakers aiming to improve entrepreneurship education initiatives. By enhancing the quality and relevance of these programs, institutions can better prepare students for entrepreneurial careers, ultimately contributing to economic growth, job creation, and innovation in China [100,110].

In conclusion, the pilot test not only validated the survey instrument but also highlighted the critical role of perceived entrepreneurial education in shaping students' entrepreneurial intentions. The findings offer practical recommendations for improving entrepreneurship education and fostering a supportive environment for aspiring entrepreneurs [112]. These efforts are essential for cultivating a new generation of innovative and resilient entrepreneurs who can contribute to the dynamic economic landscape of Xi'an and beyond [107,114].

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