ORIGINAL RESEARCH ARTICLE

A descriptive study on the relationship between entrepreneurial attitude and self-efficacy among university students in Pakistan

DOI: 10.29063/ajrh2025/v29i11.15

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Abstract

The study investigates the relationship between entrepreneurial attitudes and self-efficacy among Pakistani students at the University of Peshawar, Pakistan. Using quantitative methods, n = 250 students were surveyed. Data were collected through questionnaires and analyzed using SPSS version 20.0. This study used the Pearson correlation test to examine the relationship between variables, with special attention to the Entrepreneurial Attitude Scale and the Multidimensional Leadership Self-Efficacy Scale. Data were collected from the respondents through purposive sampling. The results indicate that there is a significant positive correlation between entrepreneurial attitude and self-efficacy, and behavioral, cognitive, and emotional factors have a substantial impact on entrepreneurial attitude and self-efficacy. The study highlights that cultivating a positive entrepreneurial mindset among students can increase their self-efficacy, which is critical for entrepreneurial success. It recommends that universities build strong entrepreneurship education programs that include practical experiences such as internships, business simulations, and mentoring. This approach improves students' entrepreneurial skills and their chances of starting successful businesses *(Afr J Reprod Health 2025; 29 [11]: 163-176)*

Keywords: Entrepreneurial attitude, entrepreneurial self-efficacy, entrepreneurial education and leadership, and university students

Résumé

Cette étude examine la relation entre attitudes entrepreneuriales et auto-efficacité chez les étudiants pakistanais de l'Université de Peshawar, au Pakistan. À l'aide de méthodes quantitatives, n = 250 étudiants ont été interrogés. Les données ont été collectées par questionnaire et analysées avec SPSS version 20.0. Cette étude a utilisé le test de corrélation de Pearson pour examiner la relation entre les variables, en accordant une attention particulière à l'Échelle d'attitude entrepreneuriale et à l'Échelle d'auto-efficacité en leadership multidimensionnel. Les données ont été collectées auprès des répondants par échantillonnage raisonné. Les résultats indiquent une corrélation positive significative entre attitude entrepreneuriale et auto-efficacité, et les facteurs comportementaux, cognitifs et émotionnels ont un impact substantiel sur l'attitude entrepreneuriale et l'auto-efficacité. L'étude souligne que cultiver un état d'esprit entrepreneurial positif chez les étudiants peut accroître leur auto-efficacité, essentielle à la réussite entrepreneuriale. Elle recommande aux universités de mettre en place des programmes de formation à l'entrepreneuriat solides, incluant des expériences pratiques telles que des stages, des simulations d'entreprise et du mentorat. Cette approche améliore les compétences entrepreneuriales des étudiants et leurs chances de créer des entreprises prospères. *(Afr J Reprod Health 2025; 29 [11]: 163-176).*

Mots-clés: attitude entrepreneuriale, auto-efficacité entrepreneuriale, éducation et leadership entrepreneuriaux et étudiants universitaires

Introduction

In today's competitive educational landscape, fostering an entrepreneurial mindset is crucial for driving innovation, resilience, and adaptability. Entrepreneurial attitude and self-efficacy significantly impact an individual's entrepreneurial intentions and success, with a positive attitude fostering initiative, innovation, and risk-taking, and self-efficacy boosting confidence. However, there is a limited understanding of the relationship between these constructs, especially in developing economies like Pakistan. Limited research in developed countries on entrepreneurial attitudes and self-

efficacy leaves a significant gap in understanding their function in emerging markets. The understanding of entrepreneurial attitudes and self-efficacy dynamics in Pakistan, where entrepreneurship education is still evolving, is crucial. The study investigates the correlation between entrepreneurial attitude and self-efficacy among Pakistani university students, examining behavioral, cognitive, and affective aspects of entrepreneurial attitude.

A mindset geared towards innovation is essential in the realm of entrepreneurship, significantly impacting the outcomes of an entrepreneur's journey.[1] This attitude is associated with cognitive phenomena such as adaptability and problem-solving abilities.[2] In developing nations, this perspective can elucidate the difficulties that business owners encounter in navigating challenges and seizing opportunities, as it directly influences their capacity to surmount obstacles.[3] Education in entrepreneurship plays a vital role in cultivating an entrepreneurial mindset for new business ventures.[4] Bandura's social cognitive theory suggests that it enhances self-efficacy by providing practical entrepreneurial tasks, such as feasibility analysis and business plan writing.[5] This educational engagement fosters assurance and skill, strengthening the conviction in one's capacity to thrive in business endeavors.[6] An entrepreneurial attitude reflects how a person reacts to opportunities, challenges, and setbacks, incorporating elements such as achievement, personal behavior management, innovation, and self-worth.[7] The evaluation encompasses behavioral, cognitive, and emotional aspects, emphasizing the impact of entrepreneurial attitude training in influencing the cognitive, affective, and psychomotor growth of future entrepreneurs.[8]

Entrepreneurial leadership plays a vital role in shaping the entrepreneurial mindset, emphasizing creation, exploitation, and pursuit of innovative opportunities. It necessitates effective leaders capable of overseeing regulations and guaranteeing that new educational initiatives achieve success benchmarks.[9] This concept has been woven into academic frameworks to enhance social and educational values, demonstrating the importance of leadership in nurturing innovation and opportunity. Entrepreneurship, originating from the French verb entreprendre, is currently regarded as a psychological process that highlights individual perception, risk-taking, and personal characteristics.[10] Educational institutions play a vital role in shaping students' entrepreneurial mindsets, fostering confidence, and supporting their personal and professional development, emphasizing the importance of individual perception and risk-taking in the entrepreneurial process.[11] An innovative mindset necessitates embracing risks, pursuing ongoing education, and adopting a proactive stance. Academic institutions cultivate a setting that encourages an entrepreneurial mindset by emphasizing creativity, expertise, and new initiatives. The supportive facilities and regulatory frameworks of universities foster an environment where individuals can actively engage with new ideas and ventures, driving success and progress in the business world.[12]

Entrepreneurship, a multifaceted concept involving education, psychology, perception, personal growth, and spirituality, emphasizes the significance of fostering creativity, innovation, and risk-taking within educational settings.[13] Academic institutions are essential in spreading knowledge and fostering innovative abilities, equipping the next generation of entrepreneurs to create new products, concepts, and financial resources. The European Commission (2006) recognizes that the entrepreneurial endeavors of students, grounded in creativity, innovation, planning, and management, are essential for achieving success.[14] Entrepreneurship education fosters positive mindsets, personal expression, and independence, promoting self-assurance and creativity, equipping individuals with the necessary skills to become successful business leaders.[15] Self-efficacy is crucial for entrepreneurship success, as it encourages active involvement in complex tasks and overcoming challenges, fostering resilience and determination in the face of obstacles.[16] Traits like openness, conscientiousness, extraversion, agreeableness, and neuroticism are key to developing a successful entrepreneurial mindset, enabling individuals to tackle challenges, collaborate, and maintain resilience.[17] The significance of altruism, sensitivity, trust, and humility is highlighted as crucial in

shaping entrepreneurial behavior, creating an environment that nurtures innovation and collaboration.[18] Self-efficacy, a key factor in fostering a successful entrepreneurial mindset, necessitates a combination of education, leadership skills, personal characteristics, and confidence for success.[19]

Literature review

The research emphasizes the importance of entrepreneurship education in developing students' entrepreneurial mindset, addressing challenges like risk management and market changes, through structured interventions like formal classes and workshops.[20] Researchers indicate that these educational experiences equip students with theoretical knowledge and practical skills, thereby boosting their confidence and capacity to engage in entrepreneurship. Fostering an entrepreneurial mindset in dynamic classroom environments promotes adaptability, receptiveness to new concepts, and creativity.[21] Bandura's self-efficacy theory has been one of the most essential theoretical formations for explaining entrepreneurial intentions and performance since 1977.[22] Confidence levels, along with faith in one's abilities, significantly influence actions toward achieving desired goals.[23] Self-efficacy significantly influences business challenges, decision-making, and career persistence; is influenced by educational, experiential, and intrinsic personality traits; and is crucial for entrepreneurial mindsets.[24] Confident individuals can surpass their comfort zones, adapt to changes, and generate innovative solutions for new challenges.[25] Real-life scenarios in modern education systems help students develop critical thinking and problem-solving skills.[26] Entrepreneurship involves utilizing all available resources to ensure a business operates effectively. This process includes recognizing opportunities, managing risks, and making sound decisions.[27] Entrepreneurship is often viewed as turning ideas into action and taking calculated risks to establish viable businesses. Findings from the conceptual model suggest that self-efficacy is positively linked to academic achievements and an entrepreneurial mindset, which are negatively associated with business performance.[28]

The decision to start a new business is significantly influenced by an individual's assessment of the benefits, advantages, and values associated with entrepreneurship.[29] Researchers have analyzed entrepreneurial attitudes using two comprehensive methodologies that meet high academic standards. The initial concept presents a unique viewpoint that captures individuals' thoughts and emotions about entrepreneurship. The second perspective views it as a multi-dimensional concept that includes four essential personality dimensions: need for achievement, personal control of behavior, innovation, and self-esteem.[30-31] Setting clear objectives is vital when embarking on any new endeavor. Innovation encompasses the ability to create new business ideas and, importantly, the skills required for their execution. This capability reflects a robust sense of self-worth, indicating that you are adequately prepared to oversee your successful enterprise.[32] Entrepreneurial behavior is influenced by three elements: conation (behavior and action), cognition (ideas and beliefs), and attachment (emotions and feelings).[33] Opara and Nwachukwu emphasize the importance of teaching students effective risk management and resource use skills in fostering entrepreneurial thinking.[34] Research points out the role of a creative environment in promoting innovation, arguing that it creates a pattern of individual acts, guided interaction with reality, and practice opportunities.[35] Leadership is a vital element in promoting entrepreneurial success, as it enables individuals to make informed decisions and perform various functional tasks effectively.[36,37] Entrepreneurial leadership in education leads to improved student learning, creative thinking, and overall school performance. Therefore, educational leadership fosters an environment that encourages students to innovate through entrepreneur-led activities and positive entrepreneurial attitudes.[38]

Self-efficacy refers to an individual's confidence in their ability to achieve their goals, regardless of their skill level.[39] The theory extensively explores how actions are influenced by reasoning, emotion, motivation, and decision-making, emphasizing the significance of self-

assessment in determining perceived efficacy. Entrepreneurial self-efficacy refers to an entrepreneur's confidence in their ability to start and manage a business.[40] The expectancy-value theory suggests that individuals who anticipate positive outcomes from their actions are more likely to engage in such behavior.[41] Entrepreneurial self-efficacy significantly impacts goal setting, commitment, and perception of abilities in specific activities.[42] Studies indicate that self-efficacy significantly predicts entrepreneurial intention and success, as a more confident entrepreneur thinks like an entrepreneur and works harder to achieve their goals.[43] The researcher emphasizes the significance of self-efficacy in business start-up, performance, and growth management, stating that individuals who possess high self-efficacy exhibit greater confidence and persistence when overcoming entrepreneurial challenges.[44] Self-efficacy is a crucial factor in entrepreneurship, as individuals need to believe they can acquire the necessary knowledge to become more entrepreneurial.[45] Studies revealed a significant link between entrepreneurial self-efficacy, confidence in decision-making, and goal achievement, indicating that increased self-efficacy boosts calculated risk-taking and ambitious goal pursuit.[46] Entrepreneurial self-efficacy refers to a person's belief in their ability to successfully organize and execute actions, crucial for motivation, resilience, and success in entrepreneurship.[46-47]

Research is scarce regarding the entrepreneurial mindset and self-confidence among college students in Pakistan.[48] The promotion of student attitude and self-efficacy in developing nations such as Pakistan faces challenges due to the lack of readily available books.[49] Students in Pakistan face unique challenges in pursuing entrepreneurship as a result of constrained resources.[50-51] Institutional and socio-cultural practices impede creativity and risk-taking, influencing the effectiveness of entrepreneurship education on students' perceptions and self-efficacy in Pakistan, even as its popularity grows.[52] The investigation examines the entrepreneurial mindset and self-belief of university students in Pakistan, aiming to understand the impact of entrepreneurship education on their intentions to engage in entrepreneurial activities.

Methods

The study examined the correlation between entrepreneurial attitude and self-efficacy among university students in Pakistan. The survey utilized validated scales, such as the Entrepreneurial Attitude Scale and the Multidimensional Leadership Self-Efficacy Scale. The scales were adapted to the Pakistani context and pilot tested. The data were analyzed using SPSS version 20.0 and Pearson correlation analysis to examine the relationships between the variables.

Hypothesis of the study

The following hypothesis was tentatively proposed for testing through systematic statistical analysis. (1) There will be a significant positive correlation between entrepreneurial attitude and entrepreneurial self-efficacy among university students, (2) There will be a significant positive correlation between perception, personality traits, and Self-Efficacy among university students, and (3) The level of Entrepreneurial attitude tends to predict the level of Self-Efficacy among university students.

Research design

The methodology presented emphasizes the design and execution of a quantitative research study intended to investigate the entrepreneurial attitude and self-efficacy of university students. A quantitative approach was selected to deliver statistical evidence, utilizing a survey to explore the relationship between defined variables.[53] The data collection process involved a questionnaire structured into two distinct sections: the first focused on evaluating entrepreneurial attitude, while the second aimed to measure multi-dimensional self-efficacy.

Population and sampling

A population, as defined by Watters & Biernacki (1989), is a group of individuals or items that share at least one characteristic from which samples are obtained.[54] The concept of a population refers to a comprehensive set of elements relevant to a study, distinguishing between target and accessible

populations.[55] The study involved all students at the University of Peshawar, including both male and female students from six faculties. The study utilized purposive sampling to select students with prior experience in entrepreneurship, as they were considered capable of offering valuable insights. While purposive sampling was effective in targeting respondents with relevant entrepreneurial experience, it limits the generalizability of the findings to the broader student population. This method enabled the researcher to collect vital data and trends while avoiding the intricacies associated with random sampling. Individuals who had studied entrepreneurship provided consent to participate in the survey.

Instrumentation tool for data collection

The study utilized the Entrepreneurial Attitude Scale for Students and the Multidimensional Leadership Self-Efficacy Scale for data collection.[56-57] The Entrepreneurial Attitude Scale and Multidimensional Leadership Self-Efficacy Scale were adapted for research in Pakistan, consisting of thirty items divided into three factors. Pilot testing with 50 participants confirmed the reliability and validity of both instruments. The entrepreneurial attitude scale consisted of a Likert-type closed-ended instrument featuring 25 items, each encompassing three factors associated with the scale. The multidimensional leadership self-efficacy scale utilized a seven-point Likert-type closed-ended format comprising 21 items that correspond to six factors related to students' self-efficacy. The researchers conducted pilot testing with 50 learners, asking them to identify the most suitable alternatives they were considering. The entrepreneurial behavior scale demonstrated an accuracy of =.88. In contrast, the multidimensional self-efficacy scale for management achieved an accuracy of =.95. The instruments were utilized following verification to confirm the reliability and validity of the research.

Reliability and validity of the instrument

The reliability of the instruments was assessed using pilot testing, which involved 50 participants. The Entrepreneurial Attitude Scale demonstrated a high reliability score of 0.883, while the Multidimensional Leadership Self-Efficacy Scale showed a reliability score of 0.959. These high scores indicate strong internal consistency, affirming that the instruments effectively measure the intended constructs. Expert opinions were sought to assess the relevance and applicability of both scales in the Pakistani context to ensure their validity. The scales were reviewed and adjusted based on expert feedback, ensuring they were accurate and suitable for the intended audience. The validity checks further confirmed that the instruments were ideal for use in this study, reflecting the constructs accurately. The instruments have been validated and are highly reliable, indicating their suitability for assessing entrepreneurial attitudes and self-efficacy among university students in Pakistan.

Analysis and interpretation of data

The findings section details the procedure for data analysis and results interpretation. The objective of the study was to assess the entrepreneurial attitude and self-efficacy of university students. The data collected via a questionnaire on "entrepreneurial attitude and multi-dimensional self-efficacy" were analyzed using the Statistical Package for the Social Sciences (SPSS). The findings section also discusses the use of descriptive statistics for the analysis and interpretation of results based on empirical data. The descriptive statistics section provides a detailed account of the study sample and the demographic variables of the participants. The testing of hypotheses and the interpretation of results were incorporated into the section on inferential statistics. Hypotheses were evaluated for two units of analysis: gender and faculty**.**

Results

Table 1 shows the gender and department breakdown of participants (N=250), with 66 male (26%) and 184 female (74%) students across six departments. Table 1 also indicates that the study departments were composed of 45 students from the sociology department, 49 students from the gender studies department, 27 students from the HRM department, 29 students from the IBA department, 49 students from the technology education department, and 51 students from the business and

education department. This means that 18.0% of the study's subjects were from the sociology department, and 19.6% were from the gender department. The HRM department accounted for 10.8%, the IBA department for 11.6%, the technology education department accounted for 19.6%, and the business department for 20.4%.

Table 2 presents Pearson correlation coefficients for key components of entrepreneurial attitude and self-efficacy (N=250). Behavioral components and entrepreneurial attitude exhibit a strong positive correlation ($r = .959^{**}$, $p < .001$), suggesting that variations in behavioral components have a significant impact on entrepreneurial attitudes, resulting in the rejection of the null hypothesis. Cognitive Components and Entrepreneurial Attitude: A moderate positive correlation was observed ($r = .882^{**}$, $p < .001$), indicating that cognitive components influence entrepreneurial attitudes, leading to the rejection of the null hypothesis. The Affective Components and Entrepreneurial Attitude: A strong positive correlation ($r = .915^{**}$, $p < .001$) was observed, demonstrating a significant relationship in which affective components influence entrepreneurial attitudes, resulting in the rejection of the null hypothesis. The Leading Change Process and Entrepreneurial Self-Efficacy demonstrate a moderate positive correlation ($r = .735^{**}$, $p < .001$), indicating that the capacity to lead change influences entrepreneurial self-efficacy, thereby leading to the rejection of the null hypothesis.

The findings demonstrate a strong positive correlation ($r = .886^{**}$, $p < .001$) between accountability and entrepreneurial self-efficacy, suggesting that accountability plays a significant role in influencing entrepreneurial self-efficacy, thereby leading to the rejection of the null hypothesis. Building and Managing Interpersonal Relationships and Entrepreneurial Self-Efficacy: A moderate positive correlation ($r = .795^{**}$, $p < .001$) was identified, indicating that skills in interpersonal relationships influence entrepreneurial self-efficacy, leading to the rejection of the null hypothesis. The findings indicate a strong positive correlation ($r = .903^{**}$, $p < .001$) between self-awareness and entrepreneurial self-efficacy, suggesting that self-awareness plays a significant role in influencing entrepreneurial self-efficacy, thereby leading to the rejection of the null hypothesis. The findings indicate a moderate positive correlation ($r = .793^{**}$, $p < .001$) between motivation awareness and entrepreneurial self-efficacy, leading to the rejection of the null hypothesis. The correlation between entrepreneurial attitude and entrepreneurial self-efficacy is notably strong ($r = .989^{**}$, $p < .001$), suggesting that entrepreneurial attitudes have a significant impact on self-efficacy, thereby leading to the rejection of the null hypothesis. Although the high correlation indicates a meaningful relationship, we must exercise caution when interpreting these results. Standard method bias, which occurs when similar instruments and sources measure both constructs, could potentially inflate the correlation.

Table 3 summarizes university students' responses to entrepreneurial attitudes and self-efficacy, rated on a 5-point scale from "strongly disagree" to "strongly agree" (N = 250). Students moderately agreed that learning entrepreneurial lessons was enjoyable (M = 3.73, SD = 0.955). The average interest level in pursuing entrepreneurship as a future career was 3.34, with a standard deviation of 1.068. Students indicated feeling most prepared to make career decisions (M = 3.38, SD = 1.092) and valued entrepreneurship highly (M = 3.82, SD = 0.883). However, satisfaction with the entrepreneurship learning process was lower (M = 3.06, SD = 1.172). In general, students had a favorable view of entrepreneurship as a career option (M = 3.67, SD = 0.839) and felt their university encouraged entrepreneurial initiatives (M = 3.68, SD = 0.963). They recognized interactions with entrepreneurial mentors positively (M = 3.92, SD = 0.908) and felt motivated by successful entrepreneurs (M = 3.71, SD = 1.044). Furthermore, students appreciated the practical value of their entrepreneurship education in preparing them to start services (M = 4.00, SD = 0.998), acquire new skills (M = 3.89, SD = 0.813), and identify financing options (M = 3.84, SD = 1.159). Analysis showed students' ability to manage market changes and risks (M = 3.94, SD = 0.848), conduct feasibility studies (M = 3.85, SD = 0.846), and stay engaged through entrepreneurship modules (M = 3.76, SD = 0.849).

Table 1: Descriptive statistics of participants (n=250)

Characteristics	Group	N	%
Gender	Male	66	26.4%
	Female	184	73.6%
Department of Sociology		45	18.0%
Department of Gender Studies		49	19.6%
Department of HRM		27	10.8%
Department of IBA		29	11.6%
Department of Technology		49	19.6%
Department of Business		51	20.4%

Table 2: Pearson correlation analysis

Variables	Pearson Correlation (r)	Sig. (2-tailed)	Level of Significance
Entrepreneurial Attitude - Behavioral Components	.959**	.000	0.05
Entrepreneurial Attitude - Cognitive Components	.882**	.000	0.05
Entrepreneurial Attitude - Affective Components	.915**	.000	0.05
Leading Change Process - Entrepreneurial Self-efficacy	.735**	.000	0.05
Accountability - Entrepreneurial Self-efficacy	.886**	.000	0.05
Interpersonal Relationship - Entrepreneurial Self-efficacy	.795**	.000	0.05
Self-awareness - Entrepreneurial Self-efficacy	.903**	.000	0.05
Motivation Awareness - Entrepreneurial Self-efficacy	.793**	.000	0.05
Entrepreneurial Attitude - Entrepreneurial Self-efficacy	.989**	.000	0.05

Table 3: Descriptive statements of entrepreneurial attitudes and self-efficacy

Response Category	M	SD
I enjoy entrepreneurship education lesson.	3.73	0.955
Entrepreneurship education lessons sparked my interest in pursuing a career in entrepreneurship.	3.34	1.068
I think entrepreneurship is highly significant, potentially even more so than other subjects.	3.82	0.883
The education in entrepreneurship equips me with the skills to make informed and innovative decisions regarding my career choices.	3.38	1.092
I am enthusiastic about learning entrepreneurship.	3.06	1.172
I think entrepreneurship is viewed as a desirable career choice.	3.67	0.839
The university promotes student engagement in entrepreneurship projects.	3.68	0.963
The university and my teachers facilitated valuable interactions with individuals who possess strong entrepreneurial skills.	3.92	0.908

My university connected me with successful entrepreneurs who inspired me to pursue a career in entrepreneurship.	3.71	1.044
Because of my entrepreneurship education, I can create services that satisfy others.	4.00	0.998
Because of my entrepreneurial education, I have the skills to create new things.	3.89	0.813
Because of my entrepreneurship education, I can successfully identify sources of finance.	3.84	1.159
My entrepreneurship education equips me to anticipate and manage unexpected market changes, setbacks, and risks that could impact my skills.	3.94	0.848
Because of my entrepreneurial education, I can perform possibility studies to see if my ideas work.	3.85	0.846
Modules in the entrepreneurship program stimulated my interest in entrepreneurship.	3.76	0.849
Guest speakers and practical examples enhanced my understanding of entrepreneurship.	3.76	1.736
Entrepreneurship education has enhanced my knowledge, skills, and interest in the field.	3.97	0.973
I was very pleased with the way entrepreneurial programming was taught.	3.68	0.957
I aspire to become self-employed after finishing my school education.	3.82	0.880
The prospect of self-employment is attractive to me.	4.12	0.907
I think self-employment is very important.	4.12	1.772
I am very satisfied with self-employment.	3.95	0.839
The University Entrepreneurship Program successfully equipped me for a career in entrepreneurship.	3.91	0.833

Table 4: Descriptive statements of leadership self-efficacy and group dynamics

Response Category	**M**	**SD**
I can change the attitudes and behaviors of group members who are not meeting the group objectives.	4.02	1.56
I can set a new direction for group members if I believe the current path is not appropriate.	4.47	1.555
I can make changes within a group, even in situations where I do not have full control over the group members.	4.42	1.549
I can effectively distribute tasks among group members to achieve optimal results.	4.30	1.769
I can assign tasks to other group members to achieve specific goals.	4.42	1.631
I possess the ability to effectively identify the most suitable individual for specific tasks within a group.	4.54	1.764
I build strong relationships with whom I work.	4.67	1.617
I am confident in my ability to communicate effectively with others, focusing on the core issues.	4.56	1.695
I am capable of effectively managing relationships with all members of a group.	4.23	1.61
I can recognize both of my strengths and weaknesses.	4.62	1.656
I have confidence in my ability to reach my goal.	4.49	1.784
I am confident in my ability to maximize opportunities in various situations.	4.75	1.648

I can assist group members in reaching their goals through my experience and competence.	4.69	1.730
I can effectively communicate my beliefs and values as a group leader.	4.62	1.551
I can inspire and encourage group members through my example.	4.62	1.594
I can inspire and energize team members at the beginning of a new project.	4.56	1.600
I can inspire and create opportunities for each team member to perform their roles effectively.	4.88	1.475
I appreciate the people I work with.	4.72	1.439
I am confident that I can achieve the unity of the group members.	4.49	1.393
I can typically lead a group if all members consent.	5.02	1.38
I can assign tasks to other group members to achieve specific goals.	4.42	1.483
I can excel in leadership roles when there is consensus among all members.	5.02	1.738

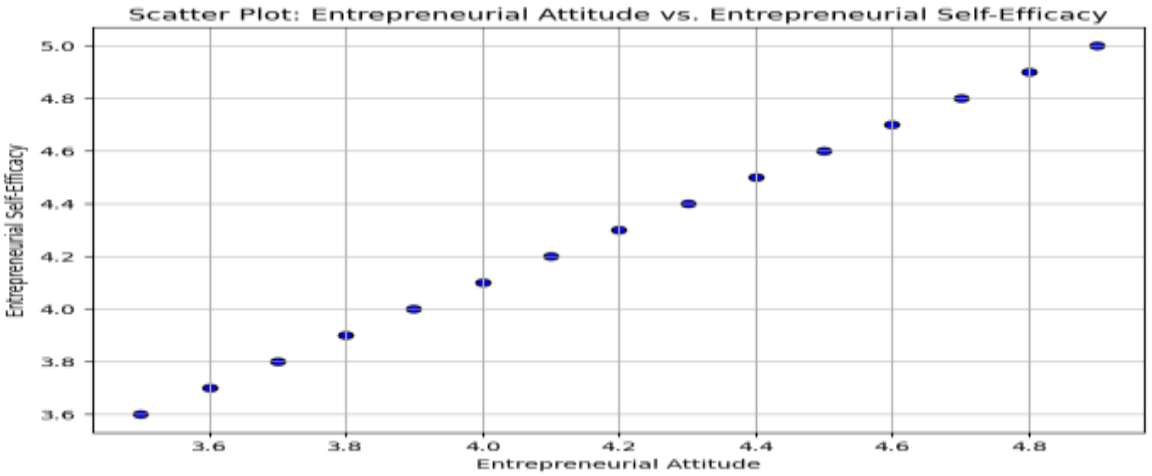

Figure 1: The scatter plot

Practical examples and guest speakers were particularly effective in helping students understand entrepreneurship (M = 3.76, SD = 1.736). On average, students reported improvements in entrepreneurial knowledge, skills, and interest (M = 3.97, SD = 0.973), as well as satisfaction with how the entrepreneurship program was taught (M = 3.68, SD = 0.957). Regarding career aspirations, students expressed a strong desire for self-employment (M = 3.82, SD = 0.880) and found it highly appealing (M = 4.12, SD = 0.907) and essential (M = 4.12, SD = 1.772). Satisfaction with self-employment was notably high (M = 3.95, SD = 0.839), and students felt well-prepared for an entrepreneurial career through their university's entrepreneurship program (M = 3.91, SD = 0.833). The detailed breakdown suggests a generally positive attitude towards entrepreneurship education and self-efficacy, though results vary by specific dimensions such as career interest and readiness.

Table 4 summarizes leadership self-efficacy and group dynamics ratings by students on a 7-point scale from 'Absolutely False' to 'Absolutely True' (N = 250). Participants showed moderate confidence

(M = 4.02, SD = 1.56) in changing group members' attitudes and behavior when goals are not met, with some variability. In contrast, confidence in setting new directions for the group was higher, with an average score of M = 4.47, SD = 1.555. The confidence in implementing changes related to aspects beyond participants' control was comparatively lower, with a mean of M = 4.42, SD = 1.549. Participants reported a moderate level of confidence in the effective distribution of work among group members (M = 4.30, SD = 1.769) and in the assignment of tasks (M = 4.42, SD = 1.631). The comprehension of task delegation received a mean score of (M = 4.54, SD = 1.764). Participants demonstrated strong confidence in fostering excellent relationships within the group, achieving a mean score of M = 4.67, SD = 1.617, as well as in their ability to communicate effectively with others, with a mean of M = 4.56, SD = 1.695. The management of relationships with all group members yielded a mean of M = 4.23, SD = 1.61. The assessment of confidence in identifying strengths and weaknesses yielded a high mean score of M = 4.62, SD = 1.656, while confidence in achieving goals also reflected positively, with a mean of M = 4.49, SD = 1.784.

Participants expressed a high level of confidence in optimizing situations (M = 4.75, SD = 1.648) and in assisting group members in achieving their goals through experience (M = 4.69, SD = 1.730). The mean score for leadership qualities, such as expressing beliefs and values, was M = 4.62, SD = 1.551, while motivating group members by example also achieved a mean of M = 4.62, SD = 1.594. Participants somewhat diminished their confidence in motivating group members at the onset of new projects (M = 4.56, SD = 1.600). Offering opportunities for group members to fulfill their roles demonstrated the highest level of consensus (M = 4.88, SD = 1.475). Participants expressed a strong sense of confidence in demonstrating appreciation towards their coworkers (M = 4.72, SD = 1.439) and in promoting unity within the group (M = 4.49, SD = 1.393). The highest mean score (M = 5.02, SD = 1.38) was recorded in the context of leading with the consent of all members. A notable score was achieved in the delegation of tasks for specific objectives (M = 4.42, SD = 1.483). The data shows strong leadership self-efficacy in motivation, delegation, and group consent, with some variability in relationship management and work-sharing within groups.

Figure-1: This scatter plot demonstrates a significant positive correlation between entrepreneurial attitude and self-efficacy. The scatter plot visually represents the relationship between entrepreneurial attitude and self-efficacy. As shown in the figure, the data points closely cluster along a linear trajectory, indicating that as entrepreneurial attitude increases, so does self-efficacy. This finding supports the hypothesis that fostering a positive entrepreneurial attitude enhances students' confidence in their entrepreneurial skills.

The values for entrepreneurial attitude range from approximately 3.6 to 4.8, while self-efficacy values span from 3.6 to 5.0, indicating a moderate spread without significant outliers. This suggests that enhancing entrepreneurial attitudes can result in increased confidence in entrepreneurial skills, rendering the findings significant for educational and training initiatives designed to cultivate a constructive entrepreneurial mindset. The plot highlights the strong relationship between the two variables, indicating that efforts to enhance one may have beneficial effects on the other.

Discussion

This study indicated a significant positive correlation between entrepreneurial attitude and self-efficacy among university students, with a correlation coefficient of $r = .989$ ($p < .001$). This suggests that a favorable view of entrepreneurship enhances students' confidence in their entrepreneurial skills. Previous studies have consistently shown that self-efficacy plays a crucial role in predicting entrepreneurial intentions and success.[15,22] The study further reveals significant correlations between the different components of entrepreneurial attitude—behavioral ($r = .959$, $p < .001$), cognitive ($r = .882$, $p < .001$), and affective ($r = .915$, $p < .001$)—and self-efficacy. Engaging students with positive emotions in entrepreneurship education cultivates robust attitudes and enhances self-efficacy.[58] It highlights the cognitive, emotional, and behavioral dimensions. Universities

ought to improve entrepreneurial mindsets by implementing structured programs that include practical experiences such as business simulations and internships.[46] The evidence suggests that risk-taking and innovative problem-solving are critical contributors to self-efficacy in entrepreneurial education.[11] Leadership skills and self-efficacy were significantly correlated, particularly in responsibility ($r = .886$, $p < .001$) and interpersonal relationships.[36,37] However, mentoring programs that connect students with experienced entrepreneurs build confidence and provide invaluable lessons about the challenges of entrepreneurship. The integration of entrepreneurship into university curricula promotes innovation, job creation, and economic growth by providing students with crucial skills.

However, it is essential to address potential standard method bias in the findings, as both entrepreneurial attitude and self-efficacy were measured using self-reported data. Future research should incorporate multiple data sources, longitudinal studies, and methodological triangulation to mitigate this bias and provide a more comprehensive understanding of the relationship between these constructs. The study also observed variability across gender and departmental groups. Female students reported slightly lower entrepreneurial self-efficacy than their male counterparts, making it necessary to implement gender-sensitive interventions. Additionally, students from business-related departments exhibited higher self-efficacy compared to those from non-business disciplines, suggesting the value of integrating entrepreneurship education into diverse academic fields. Tailoring teaching approaches to address these variabilities will ensure that all students, regardless of gender or educational background, can develop the skills and confidence necessary for entrepreneurial success. In conclusion, cultivating a positive entrepreneurial attitude is essential for boosting self-efficacy. However, addressing gender and departmental differences and mitigating common method bias through tailored interventions and diverse teaching approaches will create more inclusive and effective entrepreneurship education programs.

Conclusion

The investigation revealed a robust positive relationship between entrepreneurial perception and self-efficacy among students, suggesting that their perspectives on entrepreneurship significantly impact their confidence and capabilities. The belief in one's ability to succeed in entrepreneurial endeavors is a vital factor influencing both the intention to start a business and the likelihood of achieving success. The behavioral dimension of the entrepreneurial mindset holds paramount importance, highlighting action-driven behaviors such as initiative and risk-taking. Participating in entrepreneurial endeavors such as startup initiatives and business contests fosters a constructive attitude and enhances self-confidence. Emotional connections nurtured by role models and positive reinforcement strengthen resilience and the capacity to tackle entrepreneurial challenges. A strong educational background in entrepreneurial principles enhances self-confidence. Programs in entrepreneurship education that emphasize behavioral engagement, emotional motivation, and psychological insight greatly enhance students' self-efficacy and entrepreneurial results, providing them with the confidence and skills necessary to launch and manage successful businesses effectively.

Recommendations and implications

The study explores the link between entrepreneurial attitude and self-efficacy, which points to the importance of further research on other factors influencing entrepreneurial self-efficacy. Cultural and socio-economic factors, such as risk-taking norms and resource access, can significantly affect students' confidence in entrepreneurial ventures. Comparative studies across different regions or educational systems can provide explanations for these differences. The research emphasizes the importance of entrepreneurship education, suggesting that universities should develop comprehensive programs that cover theoretical knowledge and skills necessary for success. These programs should include incubators, innovation labs, funding mechanisms, hands-on initiatives, and

a supportive work culture, encouraging students to share innovative ideas and advance technology.

Contribution of authors

Muhammad Suhail Khan wrote the original draft, developed the methodology, conducted the review and editing, performed the formal analysis, and supervised the project. Zhang Biao, Abdur Rahman, Rizwan Ullah, and Sidra Akhtar contributed to the conceptualization, validation, and visualization of the study. Kashif Iqbal, Rubab Nawaz, and Aman Khan contributed to data collection and software development. All authors read and approved of the final manuscript.

Funding

There is no funding associated with this research.

Conflict of interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Ethics statement

Ethical approval was obtained from the Department of Sociology, School of Sociology and Political Science, Anhui University, P.R. China. (ID: LX202302149, Dated: 21.03.2025). Informed consent was obtained from all participants, and their confidentiality was strictly maintained throughout the study.

Data availability statement

Data is available on request.

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