

Statistical Analysis the Influence of Internal and External Factors on Entrepreneurial Intentions

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Abstract

This study aimed to explore and analyze the internal and external factors influencing statistical analysis the influence of internal and external factors on entrepreneurial intentions. The specific focus was on conducting an in-depth analysis of how these factors manifest within the data science demographic. The study involved a sample group of 432 university students, employing an anonymous questionnaire to gather reliable feedback and achieving a commendable response rate of 93%. Through an established random sampling scheme, 402 valid responses were obtained for data analysis. The data processing and analysis were conducted utilizing SPSS software, incorporating descriptive statistics, hypothesis testing, and multiple regression analysis to uncover insights within the data science context. The study yielded significant results: 1) Gender emerged as a robust variable with a significant t-value=3.28 and a low p-value = .001, indicating a notable gender-based disparity in entrepreneurial intention among students in the data science domain. Work experience also exhibited noteworthy t and p-values (t = -2.45, p = .015), emphasizing the influential role of prior work experience on students' entrepreneurial inclination within the data science field; 2) A comprehensive examination of data related to determinants of university students' entrepreneurial intention revealed distinct differences in the realm of individual traits (personality: $\bar{x}$ = 3.94, SD. = .74; values: $\bar{x}$ = 4.01, SD. = .70; motivation: mean = 3.87, SD. = .74), social-cultural influences ($\bar{x}$ = 3.89, SD. = .70), family ($\bar{x}$ = 3.78, SD. = .86), peers ($\bar{x}$ = 3.77, SD. = .72), mentors ($\bar{x}$ = 3.72, SD. = .89), dimensions related to data science entrepreneurship education (innovation education: $\bar{x}$ = 3.80, SD. = .87; training: $\bar{x}$ = 3.76, SD. = 0.94; courses: $\bar{x}$ = 3.71, SD. = .93), and economic environmental factors (financial pressures: $\bar{x}$ = 3.93, SD. = .77; financing: $\bar{x}$ = 3.89, SD. = .72; market opportunities: mean = 3.83, SD. = .80) exhibited pronounced trends towards convergence within the data science sector. These findings highlight the necessity of comprehensively considering multiple interconnected factors specific to data science in fostering entrepreneurial spirit among university students; 3) All secondary indicators of the four hypothesized factors - individual traits, social support, data science entrepreneurship education, and economic environment - were significant at the .01 level (p < .01), affirming positive correlations between all hypothesized factors and the dependent variable of entrepreneurial intention within the data science context.

Keywords: Entrepreneurial Intentions, Influence Factors, University Students, Quantitative Research

1. Introduction

Recently, there has been a significant emphasis on investigating the factors that influence entrepreneurial intention among university students worldwide, with a particular focus on aligning this exploration within the realm of data science. This shift in attention is driven by an understanding of how entrepreneurship, especially in the context of data-driven innovation, can not only promote technological advancements but also contribute to economic growth and empower young individuals. Academic studies in the field of data science have underscored the pivotal role of entrepreneurship in driving progress [1]. The transformative impact of influential data-driven corporations such as

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Apple, Amazon, and Google have brought attention to the profound possibilities within the data science entrepreneurial landscape.

Governments and educational institutions are increasingly recognizing the importance of integrating data science and entrepreneurship education from an early stage in life [2]. The widely accepted "Theory of Planned Behavior" remains pertinent, emphasizing the significance of individual attitudes, subjective norms, and perceived behavioral control in shaping entrepreneurial intention within the data science domain [3].

The global economic downturn of 2008, while a challenge, heightened the urgency for individuals to explore alternative means of financial stability and job creation, leading to increased rates of data science-driven business creation, as demonstrated by the Kauffman Foundation's Index of Entrepreneurial Activity [4]. These occurrences and theoretical frameworks collectively highlight the importance of examining factors specific to the data science field that influence the intention to engage in entrepreneurship among university students [5].

Comparative studies within the data science context have shed light on how societal, cultural, and economic factors contribute to the formation of entrepreneurial intention [6]. The impact of cultural values and norms on entrepreneurial attitudes and behaviors within the data science sector has been consistently highlighted, as seen in reports from the Global Entrepreneurship Monitor [7]. Drawing inspiration from the success of data-driven ecosystems like Silicon Valley, the importance of ecosystem support in fostering data science entrepreneurial aspirations is evident [8].

Furthermore, the expansion of data science education programs in universities worldwide has sparked interest in understanding the influence of these educational initiatives on students' intentions to pursue entrepreneurship in the data science domain [1]. Countries known for their thriving data science and technology startup ecosystems, such as Israel, have implemented a requirement for data science education in schools, recognizing its role in fostering innovation and encouraging risk-taking within the data science entrepreneurial landscape [9].

These examples underscore the importance of researching various factors specific to data science that influence entrepreneurial intention in university students and their subsequent impact on economic and social advancement [8]. The study of factors that influence the intention to start a data science-driven business among students in universities is motivated by recognizing the crucial role of data science in promoting economic growth, the potential for successful data science entrepreneurial ventures to bring about transformation, established theoretical frameworks, and significant events such as the global financial crisis and the increasing popularity of data science education programs [3]. The importance of social, cultural, and educational factors in shaping entrepreneurial intentions within the data science field is further emphasized by cross-cultural studies and examples from regions such as Silicon Valley and Israel [7]. Therefore, exploring these elements within the context of data science is crucial for the development of well-informed policies and educational approaches designed to empower and cultivate an entrepreneurial mindset focused on data-driven innovation in upcoming generations [10]. From the preceding information, the researcher believes that there should be a study: 1) to comprehensively explore the pivotal factors influencing entrepreneurial intention among university students in China within the data science domain and 2) to delve into an intricate analysis of how these factors manifest within this specific demographic in the context of data science.

2. Literature Review

2.1. Entrepreneurial Intention in the Context of Data Science:

Entrepreneurial intention, within the scope of data science, is characterized as the manifestation of an individual's desire or inclination to actively participate in entrepreneurial endeavors related to data-driven innovation [11]. According to Krueger and Carsrud, entrepreneurial intention signifies the initial phase of entrepreneurship in the data science domain, where individuals possess a favorable attitude and willingness to engage in entrepreneurial activities centered around data before taking tangible actions [6]. This concept holds significant importance in numerous studies conducted within the field of data science entrepreneurship research. For example, previous research by Liñán and Chen concluded that entrepreneurial intent plays a crucial role in determining whether individuals engage in entrepreneurial activities within the realm of data science [6]. Researchers assess the entrepreneurial intention of university students in the data science field using quantitative measures and qualitative surveys to determine their inclination towards data-driven entrepreneurship and the corresponding attitudes they hold [12].

2.2. Determinants of Entrepreneurial Intentions in Data Science:

The factors influencing the entrepreneurial intentions of university students within the data science domain are complex, encompassing both individual characteristics and external environmental influences [13]. According to Ajzen's "Theory of Planned Behavior" adapted to data science, personal attitudes, subjective norms, and perceived behavioral control play a crucial role in influencing intentions [14]. On the other hand, it has been found that external influences, such as family background, social support, and the data-driven economic environment, can also significantly shape entrepreneurial intention within the data science sector [7]. For instance, according to Kolvereid's study, there is a positive association between the support received from family and the intention of university students within the data science field to start their own data-driven businesses [15]. Among data science students, various personal factors such as educational background, gender, and level of innovativeness might play a significant role in shaping their inclination towards data-driven entrepreneurship [1]. As a result, researchers often employ a combination of quantitative and qualitative methods to uncover the various factors that contribute to the development of entrepreneurial intention within the data science domain. This approach allows for a more comprehensive understanding of the determinants involved in this process [16].

2.3. Influence of Multiple Factors on Entrepreneurial Intentions in Data Science:

The "Theory of Planned Behavior" by Ajzen, adapted to the data science context, highlights the importance of individual attitudes, subjective norms, and perceived behavioral control in influencing entrepreneurial intentions within the data science sector [17]. According to the adapted theory, an individual's attitude towards data-driven entrepreneurship and the expectations of others has a significant impact on shaping their entrepreneurial intentions within the data science field [18]. Moreover, the individual's perception of their capability to exert control over entrepreneurial activities in the data science domain (perceived behavioral control) also plays a crucial role in shaping the process of intention formation [19]. In addition, the influence of external factors, such as support from family members, holds particular relevance in studies on entrepreneurial intentions within the data science sector [13]. A study conducted by Kolvereid in 1996 revealed a correlation between entrepreneurial intentions within the data science field and support from family members among university students. This suggests that when individuals receive encouragement, understanding, and resources from their families within the context of data science entrepreneurship, it can increase their confidence and motivation to pursue data-driven entrepreneurial ventures [13]. Furthermore, research conducted by Liñán and Chen emphasizes the impact of cultural background on entrepreneurial intentions within the data science domain [19]. These studies highlight that cultural factor within the data science sector have a significant influence on an individual's entrepreneurial intentions. Cultural values, societal norms, and perceptions within the data science community play a crucial role in shaping one's attitude towards data-driven entrepreneurship. This emphasizes the importance of considering cultural factors within the data science domain in understanding and predicting entrepreneurial intentions [10].

3. Method

3.1. Population

The sample group for this study consisted of 432 college students, with the primary focus on those enrolled in academic disciplines related to Data Science and its diverse subfields. Questionnaires were employed to ensure anonymity and obtain reliable feedback from participants. The response rate achieved was 93%. Following a random sampling scheme, 402 valid responses were obtained, encompassing academic disciplines such as Data Science, Information Technology, Business Analytics, Computer Science, and related fields. The selection of participants from these specific academic disciplines aimed to capture diverse perspectives and experiences of university students with different data-centric backgrounds regarding the research topic.

To determine an appropriate sample size within the context of data science, the formula proposed by Yamane (1967) was employed:

$$n = \frac{N}{1+N(e)^2} \quad (1)$$

Here, n represents the required sample size, N denotes the population size, and e signifies the desired level of error. In this study, a 95% confidence level and a 5% margin of error were utilized, resulting in $e = 0.05$.

3.2. Data Collection and Analysis Techniques:

The current investigation leveraged the SPSS software for the manipulation and analysis of data, specifically tailored to the context of data science. Various statistical techniques, including descriptive statistics, hypothesis testing, and multiple regression analysis, were employed to assess the impact of diverse factors on the entrepreneurial intentions of university students within the data science domain [20][21]. The study focused on four proposed factors: individual attributes related to data science skills, social support within data-centric networks, entrepreneurship education with a data science emphasis, and the economic context within the data-driven industry. The objective was to ascertain their favorable contributions to the enhancement of entrepreneurial intentions within the university student population focusing on data science.

Grounded in these research propositions, a comprehensive theoretical framework was constructed, as illustrated in Figure 1, incorporating elements specific to data science and its role in shaping entrepreneurial intentions. This framework serves as a guide for understanding the intricate relationships between data science-related factors and entrepreneurial intentions among university students.

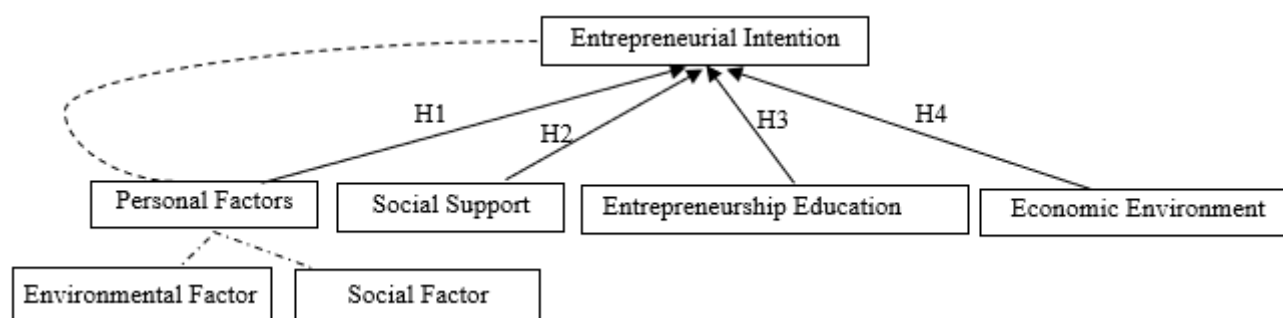


Figure 1. Theoretical Framework of Factors Influencing Entrepreneurial Intentions among University Students

3.3. Entrepreneurial Intentions

- 1) Personal Factors are Personality qualities such as risk-taking, innovativeness, self-efficacy, and prior entrepreneurial experiences, which can increase a chance of planning to start a business. These personality features, along with prior entrepreneurial experiences, can significantly influence a student's desire to pursue entrepreneurship.
- 2) Social Support is the critical determinant of entrepreneurial intention among university students is social Support, which includes peer influence, role models, mentors, and social networks. Positive peer influence can inspire entrepreneurship, while negative influences can deter it. Exposure to successful entrepreneurs and diverse social networks can also boost confidence and identify entrepreneurial opportunities. Overall, social support plays a crucial role in fostering entrepreneurial success among university students.
- 3) Entrepreneurship Training in which an important factor in predicting entrepreneurial inclinations among university students is entrepreneurial education. It equips students with practical skills, knowledge, and mindset, enabling them to identify, evaluate, and pursue entrepreneurial opportunities. Programs provide practical knowledge, case studies, industry trends, and best practices, fostering an entrepreneurial mindset characterized by creativity, adaptability, and resilience. Additionally, networking opportunities with successful entrepreneurs can inspire and guide students in their entrepreneurial journey.
- 4) Their economic environment significantly influences the Economic Environment University students' entrepreneurial intention. Economic stability, job market conditions, access to capital, and supportive policies can all contribute to a more favourable environment for entrepreneurship. A stable economy offers more job opportunities, access to capital, and consumer demand, which can positively influence students' entrepreneurial intentions. The job market also plays a significant role, with high unemployment or limited job prospects encouraging students to consider entrepreneurship as an alternative to traditional employment. Government policies and regulations can create an enabling environment for entrepreneurship, stimulating entrepreneurial

activity among university students. Theoretical foundations like the Resource-Based View and Institutional Theory can help explain the influence of the economic environment on entrepreneurial intention. By examining these factors, researchers can inform policymakers and educators about creating an economically supportive ecosystem for entrepreneurship within university settings.

In order to assess and analyze entrepreneurial intentions within the data science domain, an adapted Likert scale methodology was employed to develop the "Data-Driven Entrepreneurial Intentions Questionnaire for University Students." This meticulously formulated questionnaire comprised a five-tier rating system to capture nuanced responses from participants. The questionnaire design was structured around a four-tier, unidimensional framework specifically tailored to encompass aspects relevant to data science, including personal factors, social support within the data science community, entrepreneurial education with a focus on data-driven skills, and the economic environment within the data science sector.

The comprehensive questionnaire construction process drew inspiration from well-established maturity measurement scales, extending across thirteen secondary dimensions essential to the data science entrepreneurial landscape. These dimensions included personal traits tailored to the data science context, values aligned with data-driven innovation, motivations specific to the data science sector, socio-cultural influences within the data science community, familial and peer support related to data-driven ventures, mentorship opportunities in the data science field, innovative education with a focus on data science, training programs specific to data-driven skills, courses relevant to the data science domain, economic pressures within the data science sector, availability of financial resources for data-driven entrepreneurship, and market opportunities within the data science landscape. The meticulous construction of the questionnaire aligned with the principles of the maturity measurement approach, as delineated in Table 1, ensuring the inclusion of dimensions vital to understanding entrepreneurial intentions within the data science context.

Table 1. Questionnaire Survey Indicators and Reference Scales

1st Level Dimension	2nd Level Dimension	Reference Scale	nq	Authors and Year
Personal Factors	Q2: Personality	Big Five Personality	4	Costa & McCrae, 1992
	Q3: Values	Schwartz Values	4	Schwartz, 1992
	Q4: Motivation	Motivation Assessment	4	Vallerand et al., 1992
Social Support	Q5: Social Culture	Social Culture Support	4	Hofstede, 1980
	Q6: Family	Family Support	4	Procidano & Heller, 1983
	Q7: Friends	Friends Support	4	Barrera, 1981
	Q8: Mentor	Mentor Support	4	Allen & Eby, 2001
Entrepreneurial Education	Q9: Innovation Education	Innovation Education	4	Li & Liu, 2014
	Q10: Training	Entrepreneurial Training	4	Kickul et al., 2009
	Q11: Courses	Entrepreneurial Course	4	Gorman et al., 1997
Economic Environment	Q12: Financial Pressure	Economic Pressure	4	Conger & Elder, 1994
	Q13: Funding	Entrepreneurial Funding	4	Man & Lau, 2000
	Q14: Market Opportunity	Market Opportunity	4	Baron & Ensley, 2006

4. Result and Discussion

4.1. Results

The result from exploring the pivotal factors influencing entrepreneurial intention among university students in China. The presented tabular data yields insightful findings regarding the statistical parameters of t-values and p-values, elucidating the nuanced relationships between diverse factors and entrepreneurial intentions among university students. Of particular significance, the gender variable exhibits a notably robust t-value of 3.28, accompanied by a remarkably

low p-value of .001, signifying a pronounced divergence in entrepreneurial intentions between male and female students. Equally noteworthy, work experience emerges with appreciable t-values and p-values ($t = -2.45$, $p = .015$), accentuating the discernible impact of prior work engagement on students' propensities for entrepreneurship. In contrast, variables such as university major, parental occupation, and monthly income exhibit t-values and p-values of relatively modest magnitude, thus implying comparatively weaker associations with entrepreneurial intentions. These observations underscore the paramount influence of gender and work experience on shaping students' entrepreneurial aspirations while concurrently acknowledging the potentially subtler dynamics inherent in the remaining variables.

Table 2. Demographic Characteristics of the Respondents

Item	Category	Frequency	Percentage	t-value	p-value
Gender	Male	220	54.70%	3.28	.001
	Female	182	45.30%		
University Major	Humanities & Social Sciences	185	46.00%	1.92	.056
	Natural Sciences	217	54.00%		
Work Experience	No experience	240	59.70%	-2.45	.015
	Experience	162	40.30%		
Monthly Income	< 5000 yuan	169	42.00%	.78	.437
	> 5000 yuan	233	58.00%		
Parental Occupation	Agriculture	180	44.80%	1.67	.095
	Industry	222	55.20%		

The comprehensive examination of data concerning the determinants of entrepreneurial intentions among university students reveals noteworthy disparities and converging trends across various realms. Notably, the analysis indicates distinct variations in the domains of individual traits, including personality ($\bar{x} = 3.94$, $SD. = .74$), values ($\bar{x} = 4.01$, $SD. = .70$), and motivation ($\bar{x} = 3.87$, $SD. = .74$). Conversely, factors encompassing social Support such as socio-cultural influence ($\bar{x} = 3.89$, $SD. = 0.70$), family ($\bar{x} = 3.78$, $SD. = .86$), friends ($\bar{x} = 3.77$, $SD. = .72$), and mentors ($\bar{x} = 3.72$, $SD. = .89$) exhibit a convergence of responses towards the middle of the scale. Similarly, dimensions related to entrepreneurial education like innovative education ($\bar{x} = 3.80$, $SD. = .87$), training ($\bar{x} = 3.76$, $SD. = .94$), and courses ($\bar{x} = 3.71$, $SD. = 0.93$), as well as economic environment variables including financial pressure ($\bar{x} = 3.93$, $SD. = .77$), funding ($\bar{x} = 3.89$, $SD. = .72$), and market opportunities ($\bar{x} = 3.83$, $SD. = .80$), manifest trends of convergence. These findings signify the intricate interplay of diverse factors that contribute to shaping entrepreneurial intentions and emphasize the need for a multifaceted approach to promoting entrepreneurship among university students.

Table 3. Descriptive Statistics

Variable	Minimum	Maximum	Mean	Standard Deviation	Interpretation
Personality	1.00	5.00	3.94	.74	Agree (Highly Accurate)
Values	1.00	5.00	4.01	.70	Agree (Highly Accurate)
Motivation	1.00	5.00	3.87	.74	Agree (Highly Accurate)
Socio-Cultural	1.00	5.00	3.89	.70	Agree (Highly Accurate)
Family	1.00	5.00	3.78	.86	Agree (Highly Accurate)
Friends	1.00	5.00	3.77	.72	Agree (Highly Accurate)
Mentors	1.00	5.00	3.72	.89	Agree (Highly Accurate)
Innovative Education	1.00	5.00	3.80	.87	Agree (Highly Accurate)
Training	1.00	5.00	3.76	.94	Agree (Highly Accurate)

Courses	1.00	5.00	3.71	.93	Agree (Highly Accurate)
Financial Pressure	1.00	5.00	3.93	.77	Agree (Highly Accurate)
Funding	1.00	5.00	3.89	.72	Agree (Highly Accurate)
Market Opportunities	1.00	5.00	3.83	.80	Agree (Highly Accurate)

Using correlation analysis., an investigation has been conducted to scrutinize the relationships between two or more variables. The spectrum of correlation coefficients spans between -1 and +1, as quantified in accordance with the principles formulated by Pearson in 1926. Variables exhibiting a correlation coefficient nearing +1 indicate a robust positive correlation, signifying that as one variable increases, others also tend to escalate. Conversely, when a variable approach -1, it signifies a negative correlation, implying that an increase in one variable corresponds to a decrease in others. This analytical approach was employed within the context of the present study to illuminate and assess the interconnections among the selected variables, where independent variables encompassed personal traits, values, and motivations, while the dependent variable was entrepreneurial intention. 2) The results of a complex analysis of how these factors manifest within this specific population. By examining the correlation coefficients between entrepreneurial intentions (Q1) as the dependent variable and personal disposition (Q2), values (Q3), and motivation (Q4) as independent variables, an in-depth inquiry into the interrelations among variables was undertaken. The correlation coefficient matrix reveals statistically significant associations (**.688, **.741, and **.721) at the .01 level (two-tailed) between entrepreneurial intentions and personal disposition, values, and motivation, respectively. These findings underscore pronounced positive correlations between entrepreneurial inclination and individual attributes such as personal disposition, values, and motivation. Consequently, within the confines of this research context, the synergy of personal attributes, value orientations, and intrinsic motivation collectively galvanizes the formation of entrepreneurial intent.

Table 4. The relationship between personal factors and entrepreneurial intention

Item	Entrepreneurial Intent (Q1)	Personal Disposition (Q2)	Values (Q3)	Motivation (Q4)
Entrepreneurial Intent (Q1)	1	.688**	.741**	.721**
Personal Disposition (Q2)	.688**	1	.713**	.766**
Values (Q3)	.741**	.713**	1	.665**
Motivation (Q4)	.721**	.766**	.665**	1

At the .01 significance level (two-tailed), the correlations are statistically significant.

The correlation matrix displayed above provides further evidence of the relationships explored in the study. It illustrates the significant correlations between entrepreneurial intentions (Q1) and various factors, including socio-cultural factors (Q5), family support (Q6), friendships (Q7), and mentorship (Q8). Notably, strong positive correlations are evident in each case, with correlation coefficients of **.691, **.732, **.738, and **.719, respectively, all of which are statistically significant at the .01 level. These findings underscore the substantial and positive associations between entrepreneurial intentions and factors such as a supportive socio-cultural environment, strong familial backing, close friendships, and the presence of mentors. It is evident that individuals who perceive a positive socio-cultural context, benefit from strong family support, maintain close friendships, and have access to mentorship opportunities are more likely to exhibit pronounced entrepreneurial intent. These significant relationships highlight the influential role played by these external factors in nurturing and shaping entrepreneurial aspirations within the context of this research. Table 5: The relationship between Social Support and entrepreneurial intention

Table 5: The relationship between Social Support and entrepreneurial intention

Item	Entrepreneurial Intent (Q1)	Socio-Cultural (Q5)	Family (Q6)	Friends (Q7)	Mentors (Q8)
Entrepreneurial Intent (Q1)	1	.691**	.732**	.738**	.719**
Socio-Cultural (Q5)	.691**	1	.716**	.668**	.573**

Family (Q6)	.732**	.716**	1	.810**	.738**
Friends (Q7)	.738**	.668**	.810**	1	.731**
Mentors (Q8)	.719**	.573**	.738**	.731**	1

At the 0.01 significance level (two-tailed), the correlations are statistically significant.

The provided correlation matrix above illustrates the significant relationships between entrepreneurial intent (Q1) and the variables of innovative education (Q9), training (Q10), and courses (Q11). Each correlation demonstrates a strong positive association, with correlation coefficients of **.599, **.824, and **.767, respectively, all of which are statistically significant at the .01 level. These findings highlight the substantial and positive correlations between entrepreneurial intentions and factors such as innovative education, comprehensive training, and specialized coursework. Individuals exposed to innovative educational methods, comprehensive training programs, and tailored coursework exhibit a heightened inclination toward entrepreneurial activities. These significant relationships underscore the crucial role played by these educational components in fostering and shaping entrepreneurial aspirations within the context of this research.

Table 6. Relationship between entrepreneurial education and entrepreneurial intention

Item	Entrepreneurial Intent (Q1)	Innovative Education (Q9)	Training (Q10)	Courses (Q11)
Entrepreneurial Intent (Q1)	1	.599**	.571**	.578**
Innovative Education (Q9)	.599**	1	.824**	.767**
Training (Q10)	.571**	.824**	1	.847**
Courses (Q11)	.578**	.767**	.847**	1

At the .01 significance level (two-tailed), the correlations are statistically significant.

The provided correlation matrix above visually represents the significant relationships between entrepreneurial intent (Q1) and the variables of financial pressure (Q12), funding (Q13), and market opportunities (Q14). Each correlation exhibits a moderate to strong positive association, with correlation coefficients of **.564, **.750, and **.699, respectively, all of which are statistically significant at the 0.01 level. These findings highlight the substantial and positive correlations between entrepreneurial intentions and factors such as financial pressure, access to funding, and the recognition of market opportunities. Individuals experiencing higher entrepreneurial intent are more aware of financial constraints and opportunities within the market landscape. These significant relationships underscore the multifaceted interplay between these factors in shaping entrepreneurial aspirations within the context of this research.

Table 7: The relationship between economic environment and entrepreneurial intention.

Table 7. The relationship between economic environment and entrepreneurial intention

Item	Entrepreneurial Intent (Q1)	Financial Pressure (Q12)	Funding (Q13)	Market Opportunities (Q14)
Entrepreneurial Intent (Q1)	1	.564**	.602**	.650**
Financial Pressure (Q12)	.564**	1	.750**	.699**
Funding (Q13)	.602**	.750**	1	.723**
Market Opportunities (Q14)	.650**	.699**	.723**	1

At the 0.01 significance level (two-tailed), the correlations are statistically significant.

The data presented in the tables collectively demonstrate that there exists a positive correlation among all variables.

The provided dataset was analyzed using regression to explore the relationship between independent variables and entrepreneurial intentions. The results unveil significant associations between various factors and individuals'

intentions to engage in entrepreneurship. Notably, personal attributes such as personality, values, and motivation exhibited strong positive connections with entrepreneurial intentions. Social Support from sources like family, friends, and mentors also played a vital role in influencing entrepreneurial intentions. Moreover, the presence of entrepreneurship education initiatives and the perception of favourable market opportunities demonstrated meaningful impacts on individuals' intentions towards entrepreneurship. These findings collectively underscore the multifaceted nature of factors that shape entrepreneurial intentions and emphasize the interplay between personal, social, educational, and economic factors in motivating individuals to embark on entrepreneurial endeavours.

Table 8. Regression analysis

Coefficients					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.161	.138		1.164	.245
Q2	.122	.052	.12	2.354	.019
Q3	.456	.047	.425	9.651	0
Q4	.35	.048	.347	7.222	0
2 (Constant)	-.109	.123		-.886	.376
Q2	.079	.044	.078	1.791	.074
Q3	.362	.042	.336	8.54	0
Q4	.055	.047	.054	1.169	.243
Q5	.069	.044	.065	1.573	.117
Q6	.098	.043	.113	2.257	.025
Q7	.141	.049	.135	2.852	.005
Q8	.213	.034	.255	6.317	0
3 (Constant)	-.167	.128		-1.306	.192
Q2	.079	.044	.078	1.779	.076
Q3	.37	.043	.344	8.675	0
Q4	.052	.047	.051	1.1	.272
Q5	.085	.046	.08	1.868	0.062
Q6	.071	.046	.082	1.556	.12
Q7	.141	.05	.136	2.815	.005
Q8	.185	.041	.221	4.545	0
Q9	-.029	.044	-.034	-.662	.509
Q10	.059	.046		1.297	.195
Q11	.018	.042		.422	.674
4 (Constant)	-.156	.132		-1.181	.238
Q2	.08	.046	.079	1.751	.081
Q3	.371	.043	.346	8.637	0
Q4	.05	.048	.05	1.055	.292
Q5	.087	.046	.081	1.89	.06
Q6	.07	.046	.08	1.506	.133
Q7	.142	.052	.136	2.728	.007
Q8	.184	.041	.22	4.485	0
Q9	-.03	.044	-.034	-.674	.5
Q10	.062	.047	.077	1.302	.194
Q11	.021	.043	.026	.475	.635
Q12	-.012	.041	-.012	-.286	.775
Q13	-.007	.048	-.006	-.137	.891
Q14	.011	.043	.011	.244	.808

a. Dependent Variable: Q1

The table offers the outcomes of a sequential regression analysis that delves into the interrelationship between personal factors and the emergence of entrepreneurial intent, where the dependent variable is denoted as Q1. The table showcases coefficients, standard errors, standardized coefficients (beta), T-values, and significance levels across four models. Notably, variables Q3, Q4, Q7, and Q8 consistently exhibit a statistically significant positive correlation with

entrepreneurial intent, attesting to their substantial contributory effect. The standardized coefficients provide a perspective on the relative impact of each predictor on the dependent variable, underscoring the pronounced role of Q7 and Q8 within the model. These findings collectively elucidate the paramount role of specific personal factors in shaping entrepreneurial intentions. It can be deduced from the comprehensive analysis of the research data that all the considered factors collectively constitute pivotal determinants in the genesis of entrepreneurial intent. The presented table offers the outcomes of a sequential regression analysis that delves into the interrelationship between personal factors and the emergence of entrepreneurial intent, where the dependent variable is denoted as Q1. The table showcases coefficients, standard errors, standardized coefficients (beta), T-values, and significance levels across four models. Notably, variables Q3, Q4, Q7, and Q8 consistently exhibit a statistically significant positive correlation with entrepreneurial intent, attesting to their substantial contributory effect. The standardized coefficients provide a perspective on the relative impact of each predictor on the dependent variable, underscoring the pronounced role of Q7 and Q8 within the model. These findings collectively elucidate the paramount role of specific personal factors in shaping entrepreneurial intentions. It can be deduced from the comprehensive analysis of the research data that all the considered factors collectively constitute pivotal determinants in the genesis of entrepreneurial intent.

4.2. Discussion

The study, titled "An Investigation into Determinants of Entrepreneurial Intention among University Students," delves into the intricate landscape of factors shaping entrepreneurial intentions within the data science domain. Through a thorough analysis of individual attributes, social support networks within the data science community, entrepreneurial education with a focus on data-driven skills, and the economic contexts specific to data science, this research provides a holistic understanding of the multifaceted determinants influencing entrepreneurial intentions within the data science sector. The findings highlight the significance of personal traits tailored to the data science context, the role of data-driven social networks, the impact of data science-focused educational exposure, and the data-centric economic conditions in influencing entrepreneurial intentions.

Despite acknowledging limitations in interrelationship exploration and sample diversity, the study's comprehensive assessment framework enhances its theoretical significance, offering a unified perspective on the intricate determinants specific to data science. This study contributes not only to the broader entrepreneurial intention literature but also holds practical implications for fostering entrepreneurship within the data science community. The empirical investigation showcases key strengths in the proposed model, particularly its careful consideration of individual attributes, data science social networks, educational exposure to data-driven innovation, and economic context, providing a nuanced and contextualized understanding of entrepreneurial intentions within the data science domain.

Furthermore, the study's diverse sample of university students ensures the representation of various academic disciplines within data science, enhancing the model's applicability to the broader data science community. Rigorous data analysis elucidates the intricate interplay of data science-specific factors, offering valuable insights for policy formulation and educational strategies within the data science domain. The study explores students' perceptions of data science-focused university entrepreneurship support and its impact on their entrepreneurial intentions. It finds that students are not satisfied with various data science entrepreneurship supports, but these supports positively affect their data-driven entrepreneurial attitude, subjective norms, and self-efficacy. The study provides practical recommendations for policymakers and data science-focused university administrators to reconsider and improve their entrepreneurship support to encourage more students to become data-driven entrepreneurs [20].

Moreover, the study addresses the impact of personal factors, including broad personality traits relevant to the data science sector, on entrepreneurial intention and status. It analyzes entrepreneurial intentions among university business students and entrepreneurial status among entrepreneurs versus employees within the data science field in three different institutional environments (Germany, Russia, and the USA). The results suggest that broad personality traits play a highly contextual role within the data science domain, while narrow traits have specific relevance in different data-driven institutional environments [2].

Despite these strengths, the study acknowledges several limitations that warrant discussion within the data science context. Firstly, the sample selection was confined to ten universities in China, potentially limiting the generalizability across international and cross-cultural data science contexts. Secondly, while the study developed a comprehensive

model to analyze factors influencing entrepreneurial intentions within data science, practical applications may demand consideration of additional variables such as data science-specific cultural backgrounds and family environments. Moreover, while the employed data analysis methods were rigorous, they might have yet to capture certain latent intricate relationships fully within the data science domain. Lastly, relying predominantly on self-reported survey data within the data science sector may have been susceptible to respondents' subjective attitudes and memory biases. Future research endeavors within the data science field could encompass broader data science samples and incorporate mixed-method data collection approaches to enhance both the breadth and depth of investigations within the data science domain.

5. Conclusion

The research findings offer crucial insights for policymakers and educational institutions seeking to establish an environment conducive to student entrepreneurship within the dynamic realm of data science. Understanding the key drivers of entrepreneurial intentions enables policymakers to design targeted initiatives, incorporating financial aid programs, fostering supportive data-driven ecosystems for entrepreneurs, and providing mentorship opportunities. These tailored endeavors aim to empower students to translate their entrepreneurial ambitions into tangible ventures aligned with the data science landscape.

Building upon the data science-specific research findings, we propose the following suggestions to cultivate and actualize entrepreneurial aspirations among college students within the data science domain: Firstly, it is recommended that entrepreneurship education and training programs within data science focus on developing a data-driven entrepreneurial mindset, nurturing a supportive social environment specific to data science communities, and providing guidance to enhance individuals' belief in their ability to control entrepreneurial endeavors within the data-driven innovation space. Additionally, policymakers should actively promote and facilitate the engagement of family members in supporting college students' entrepreneurial endeavors within the data science sector. This can be achieved by implementing initiatives that provide data science-specific entrepreneurship training and resources tailored for family members, thereby augmenting the effectiveness of their support. To enhance entrepreneurship education within data science, curricula and training programs should integrate cross-cultural elements, addressing the diverse needs of students from various cultural backgrounds and fostering their entrepreneurial abilities within the data science landscape.

Finally, to comprehensively support university students in their entrepreneurial pursuits within the data science domain, policymakers can develop inclusive strategies incorporating data science-specific entrepreneurship scholarships, incubators, mentorship programs, and other initiatives. These efforts aim to provide extensive support and resources tailored to the data science entrepreneurial ecosystem, assisting students in successfully achieving their entrepreneurial goals. In conclusion, the findings of this study offer valuable insights and recommendations for enhancing entrepreneurship education within the data science context and formulating effective policies. These recommendations are specifically designed to bridge the gap between college students' entrepreneurial intentions within the data science field and their practical implementation, ultimately fostering a thriving entrepreneurial culture within the dynamic landscape of data science.

6. Declarations

6.1. Author Contributions

Conceptualization: T.W., S.B., I.S., and T.S.; Methodology: T.S.; Software: T.W.; Validation: T.W. and T.S.; Formal Analysis: T.W. and T.S.; Investigation: P.S.; Resources: I.S.; Data Curation: P.S.; Writing Original Draft Preparation: P.S. and T.W.; Writing Review and Editing: P.S. and T.W.; Visualization: T.W.; All authors have read and agreed to the published version of the manuscript.

6.2. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

6.3. Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

6.4. Institutional Review Board Statement

Not applicable.

6.5. Informed Consent Statement

Not applicable.

6.6. Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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