A Comparative Study of Entrepreneurial Intentions in Public and Private Sector Universities: The Moderating Role of Entrepreneurial Education

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Abstract: The primary objective of this research is to study the entrepreneurial intentions of university students in Pakistan, focusing on the moderating role of entrepreneurial education within the framework of the Theory of Planned Behavior (TPB). It is a comparative study of the public and private sector universities, namely Quaid-e-Azam University and Iqra University, to explore how attitudes toward behavior, subjective norms, perceived behavioral control, and entrepreneurial education influence their intentions to pursue entrepreneurship. It a quantitative research study, and the data were collected through surveys questionnaire from 245 final-year students, with a response rate of 62.43%. The hypothesis testing and empirical analysis were performed by SMART PLS and SPSS data analysis software. The findings reveal that attitudes and subjective norms significantly predict entrepreneurial intentions in both institutions, aligning with the TPB. However, entrepreneurial education and perceived behavioral control do not show a direct significant impact on entrepreneurial intentions. Interestingly, the interaction between entrepreneurial education and perceived behavioral control significantly influences entrepreneurial intentions at Quaid-e-Azam University but not at Iqra University, suggesting contextual differences in how education enhances perceived control. The study concludes that while entrepreneurial education alone may not be sufficient to foster entrepreneurial intentions, it can play a crucial role when combined with other factors, particularly in public sector universities. These insights provide valuable implications for policymakers and educators aiming to promote entrepreneurship among university students in developing countries.

Keywords: Entrepreneurial Intentions, Theory of Planned Behavior, Entrepreneurial Education, Comparative Study.

1. Introduction

The idea of entrepreneurship began to take shape during the Middle Ages, as businesses started to evolve toward modern development phases. By the early 20th century, as industrial advancements accelerated in Europe and North America, entrepreneurship began to attract academic attention. Researchers sought to understand the roles entrepreneurs played in innovation, risk-taking, and economic growth. This focus deepened in the late 1980s, when industrialization in both developed and developing nations spurred greater interest in entrepreneurship as an academic field. Scholars began to explore how entrepreneurship could drive local economic development, even in regions with fewer resources.

The research study particularly examines the key factors that shape entrepreneurial intentions among students enrolled in public and private universities across Pakistan. Given the vital role entrepreneurship plays in fostering economic development—through job creation, regional growth, innovation, and enterprise advancement—it is increasingly recognized as a strategic tool for addressing socio-economic challenges (Fietze, 2017). In stark contrast, Pakistan continues to grapple with high unemployment rates, particularly among its youth. According to the report of Pakistan Institute of Development Economics (2021), approximately 31% of young people in the country are unemployed. Alarmingly, 51% of this population comprises women, while 16% are men—many of whom possess professional qualifications. As Apaydin (2018) observed, entrepreneurship has the potential to combat unemployment, given its inverse relationship with joblessness.

The increasing number of graduates produced by universities each year has led to a rising unemployment rate among university graduates, posing a significant challenge for many developing countries (Bagıs et al., 2022). This situation has prompted policymakers and government officials to emphasize the importance of university education and explore ways to integrate recent graduates into the workforce (Che Nawi et al.,

2022). Despite more young people pursuing higher education, many graduates struggle to find jobs due to a disconnect between the labor market and the education system (Draksler and Sirec, 2021). Therefore, guiding new graduates in developing their skills and helping them enter the labor market is crucial for the economic development of these countries (Samydevan et al., 2021).

In many developing nations, there is a pressing need to encourage youth to engage in entrepreneurial activities, offering self-employment opportunities to alleviate unemployment and poverty (Awogbenle and Iwuamadi, 2010). In Pakistan, for example, many students express a strong interest in entrepreneurship as a career choice, believing it offers greater financial rewards. They also show an inclination to engage in entrepreneurial ventures that involve innovation, which is a key characteristic of successful entrepreneurs (Ali et al., 2011). However, despite this interest, Pakistani students exhibit only moderate intentions to pursue entrepreneurship (Tanveer et al., 2013). While the Theory of Planned Behavior (TPB) has been applied in various contexts, it has been less frequently tested in Pakistan (Shabbir et al., 2016). Given the region's high unemployment rate, there is a strong need for empirical research to assess entrepreneurial intentions. Moreover, the decision to pursue entrepreneurship is not only influenced by behavioral factors but is also shaped by entrepreneurial education. This study explores the moderating role of entrepreneurial education in strengthening the relationship between the predictors of entrepreneurial intentions and students' actual intention to become entrepreneurs.

In Pakistan, the higher education landscape is comprised of both public and private sector universities, each offering distinct institutional cultures, resources, and pedagogical approaches. Public universities are often seen as traditional and limited in resources, while private institutions are generally associated with modern infrastructure, stronger industry connections, and a greater emphasis on employability (Hussain, 2018). These institutional differences can significantly impact students' entrepreneurial intentions, as the learning environment, access to resources, and exposure to real-world opportunities all play a crucial role in shaping students' attitudes and aspirations toward entrepreneurship (Rasheed, 2020). Despite these contrasts, there remains a noticeable gap in comparative research exploring how entrepreneurial intentions vary between students from public and private universities in Pakistan. Understanding these dynamics is vital for developing targeted strategies and policies that address the distinct needs of students in both sectors.

Furthermore, the study of entrepreneurial intentions among final-year university students has garnered increasing attention, particularly as these individuals contemplate their future career trajectories—often weighing the choice between traditional employment and entrepreneurial pursuits (Netshilinganedza, 2020). Their decision-making is shaped by a variety of factors, including personal attitudes toward entrepreneurship, prevailing social norms, and their perceived self-efficacy in launching and managing a business (Al-Mamary et al., 2020).

2. Literature Review

2.1 Entrepreneurship

The concept of entrepreneurship dates back to the early 1700s and has been defined and interpreted differently by various scholars, depending on the context and environment (Shane & Venkataraman, 2000). The renowned economist Richard Cantillon described entrepreneurs as individuals who exhibit risk-taking behavior and actively seek out unique opportunities (Coulter, 2003). He further characterized entrepreneurship as a form of self-employment, where individuals buy or create products at current prices with the intention of selling them in the future at uncertain prices, taking on the associated risks. Entrepreneurial scholars generally agree that entrepreneurship plays a crucial role in driving economic growth. By fostering innovative ideas, improving systems, and introducing value-added products and services, entrepreneurship creates new economic opportunities. Its positive impact extends not only to individuals but also to societies, nations, and even entire regions (GEM, 2005).

2.2 Entrepreneurial Intentions

Remeikiene and Startiene (2013) defined entrepreneurial intention as a mental state that motivates individuals to identify new business opportunities or innovations within existing businesses. It is essentially the initial phase of the decision-making process when considering the creation of a new business (Bird, 1988), and is often used to predict future entrepreneurial behavior. Bird (1988) further explained that intention is a specific feeling that arises from practical experiences and environmental influences. However,

Ajzen (1991) contended that the intention to start a new business typically stems from prior planning and consideration.

2.3 Theories of Entrepreneurial Intentions

Several theories on entrepreneurial intentions have been proposed by researchers, including the Self-Determination Theory (SDT), Social Cognitive Theory (SCT), and the Theory of Planned Behavior (TPB), each offering valuable insights into the factors influencing entrepreneurial intentions by emphasizing internal motivation and cognitive processes (Permana et al., 2024). SDT suggests that autonomy, competence, and relatedness are key drivers of intrinsic motivation, which plays a crucial role in entrepreneurship (Chen et al., 2020). On the other hand, SCT focuses on self-efficacy and observational learning as essential factors in shaping entrepreneurial behavior (Nwosu et al., 2022). Among these, the TPB has emerged as a widely recognized and effective framework for predicting entrepreneurial intentions, often considered more comprehensive than SDT and SCT.

2.4 Theory of Planned Behavior

The Theory of Planned behavior TPB derived from the Theory of reasoned Action. (Su, et al. (2021). Although several studies have applied TPB to examine entrepreneurial intentions among university students. (Al-Jubari et al., 2019), posits that human behavior is driven by intentions and the perceived control over that behavior. The Entrepreneurial intentions refers to a person's internal belief and deliberate commitment to establish a new business in the future. Moreover, the entrepreneurial intentions play a central role in starting a new business (Shahzad et al., 2021).

Intentions are shaped by three primary factors Attitude towards behavior refer to the individual's positive or negative evaluation of behavior (Zhang, et al., 2019). While Subjective norms reflect the approval or disapproval of significant others. Bazan, (2022); explain that perceived behavioral control indicates the ease or difficulty one associates with performing the behavior, which is influence by the confidence in their abilities.

2.5 Attitude Towards Behavior

According to Shane and Venkataraman (2000), entrepreneurship is a field of study that focuses on how individuals identify opportunities to discover both explicit and implicit goods and services, while also evaluating and exploring the resources required. The entrepreneur's perception plays a crucial role in realizing future opportunities and benefits. Attitudes are shaped by the beliefs individuals hold when engaging in specific behaviors (Ajzen, 2005). According to Ajzen and Fishbein (2005), the outcomes of a behavior are influenced by behavioral beliefs, which include the expected advantages and costs associated with that behavior. Recent studies Ali et al., (2024), and Martins et al., (2023) have also examined how implicit beliefs and perceived outcomes related to entrepreneurship affect the intention to start a new business. Personal benefits gained from entrepreneurial ventures are key drivers of entrepreneurial intentions (Volery et al., 2013).

2.6 Subjective Norms

According to Ajzen (2005), subjective norms refer to the social influences individuals perceive from society, which play a crucial role in determining whether or not they engage in specific behaviors. These influences come from significant individuals such as family members, relatives, coworkers, colleagues, peers, and sometimes even experts in the relevant field. People tend to feel compelled to perform behaviors that are expected or approved by their social group and often experience social pressure to act in ways that align with these expectations. Building on Ajzen's work, Lapista et al. (2012) and other recent studies have found that individuals are more likely to pursue entrepreneurial ventures that are already supported or practiced by their entrepreneurial contacts. The importance of subjective norms in shaping intentions to start new businesses has been further validated by research from Engle et al. (2010).

2.7 Perceived Behavioral Control

Perceived behavioral control refers to an individual's personal assessment of their ability to perform a specific behavior. According to Ajzen and Cote (2008), it arises from control beliefs about the availability of

factors that may either facilitate or hinder the performance of that behavior. Ajzen (2011, 2012) further explains that internal and external factors—such as access to resources, opportunities, knowledge, skills, responsibilities, personal experiences, information, and the past experiences of others—can influence an individual's perception of how difficult or easy it is to engage in a particular behavior. Linan et al. (2013) noted that individuals are more likely to feel motivated and confident in pursuing entrepreneurial activities when their decisions are acknowledged, appreciated, and valued by others in their community. Both the social and internal environments play a crucial role in shaping a positive perception of entrepreneurship, which in turn affects perceived behavioral control.

2.8 Entrepreneurial Education

Several studies have integrated a major education variable into research models in order to explore entrepreneurial intentions such as (Karhunen and Ledyaeva, 2010; Lin˜an and Chen, 2009). Having majored in business education was often a significant variable explaining entrepreneurial intentions. From an educational perspective, universities play a crucial role by designing programs and experiences that foster entrepreneurial attitudes and skills and boost entrepreneurial spirit among students (Badawi, 2024). Entrepreneurial education is a vital factor influencing the entrepreneurial intentions of university students, as it facilitates the development of entrepreneurial abilities and promotes behaviors that encourage students to establish their own business. (Su et al., 2021).

Empirical studies have shown that entrepreneurial education and training positively influence entrepreneurial intentions by stimulating creative ideas, fostering entrepreneurial behaviors and enhancing performance (Lv et al., 2021). The impact of EE on entrepreneurial intentions varies across contexts, studies highlight positive relationship between EE and EI ,such as attitudes and PBC.(Huang et al., 2024).Conversely, others report mixed or insignificant findings (Nayak et al., 2024).These inconsistencies suggest that EE's influence may extend beyond direct effects, interacting with other variables, such as SN and gender, to shape entrepreneurial behavior, EE may create attitudes and reducing gender-based stereotypes that portray entrepreneurships as a male dominated career path. (Gupta et al., 2019).

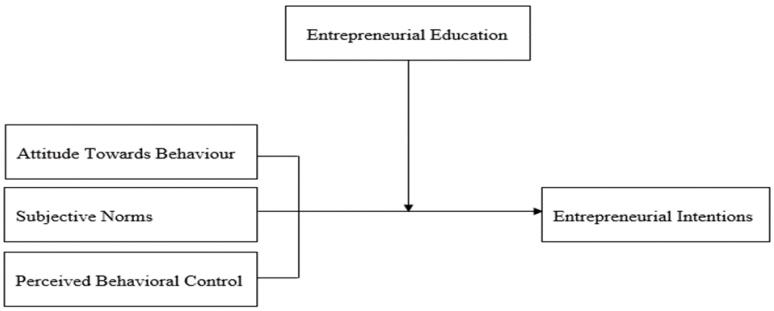

Figure 1: Conceptual Framework of the Research Study

3. Research Hypothesis

H1: Attitude Towards Behaviour positively & significantly affect entrepreneurial intentions of the university students.

H2: Subjective Norms positively & significantly affect entrepreneurial intentions of the university students.

H3: Perceived Behaviour Control positively & significantly affect entrepreneurial intentions of the university students.

H4,5,6: Entrepreneurial Education moderate the relationship between ATB, SN, PBC & entrepreneurial intentions of the university students.

4. Research Methodology

This study employed a quantitative research design with particular focus on the Theory of Planned Behavior (TPB) and the moderating role of entrepreneurial education. The research was guided by the following core objectives: (1) to identify the key factors influencing the entrepreneurial intentions of students from public and private sector universities in Pakistan, (2) to examine the impact of Attitude Towards Behavior, Subjective

Norms, and Perceived Behavioral Control on entrepreneurial intentions, and (3) to investigate the moderating effect of entrepreneurial education on the relationship between these TPB constructs and entrepreneurial intentions.

Pakistan's higher education system, comprises over 200 universities including public and private institutions, the selection of Quaid-i-Azam University (QAU) and Iqra University Islamabad provides a meaningful representation of both sectors. QAU, (QS World ranking) being a leading public sector research-intensive university ranked among the top in the country, represents govt-funded institutions with a merit & quota based admission system and diverse student demographics from across Pakistan. Similarly, Iqra University a prominent private sector institution (HEC), is known for its market-driven academic programs and entrepreneurial orientation. By selecting one university from each sector located in the federal capital, we capture variations in institutional governance, student socioeconomic background, and exposure to entrepreneurial education. We acknowledged that this research population may not fully represent all universities in Pakistan, however, it offers a theoretically relevant contrast that reflects key differences in Pakistan's private and public sector education system.

Hence, the survey data were collected from the School of Management Sciences, Quaid-e-Azam University (public sector) and Department of Business Administration, Iqra University (private sector). This study's data was collected during March and April 2025. Participants were final-year students enrolled in the Spring 2025 semester at Quaid-e-Azam University and Iqra University. The final year students were selected for the population of this study due to the appropriateness of the research study Liñan, & Chen (2009). The study's purpose was thoroughly explained to participants before they completed the survey. The survey questionnaires of theory of planned behaviour were adopted from the previous study of (Irene et al., 2017) and the entrepreneurial education were adopted from the previous research paper of Anwar et al., (2020). The total number of the final year's students of Quaid-e-Azam university is 200 and Iqra University Islamabad is 123. Out of the 245 questionnaires distributed, 43 were excluded due to improper completion, not return and unanswered. As recommended by Byrne (2013) minimum 50% response were enough for the data analysis. Furthermore, given the exploratory nature of this study, Smart PLS-SEM was applied for data analysis, consistent with the methodological guidelines suggested by (Zeb et al., 2020).

5. Data Analysis and Discussion

5.1 Demographic Variables

The demographic profiles of participants from both Quaid-e-Azam University and Iqra University are presented in the table below, detailing key characteristics along with their respective frequencies and percentages. The analysis examines six demographic variables: gender distribution, age ranges, academic programs, current semester of study, institutional affiliation, and paternal occupation.

Table 1: Demographic profile of the respondents

Attributes	Quaid-e-Azam University		Iqra University	
	Frequency	Percentage	Frequency	Percentage
Gender				
Male	85	61.59%	47	73.44%
Female	51	36.96%	17	26.56%
Transgender	2	1.45%	0	0.0%
Age				
21-25	128	92.75%	62	96.88%
26-30	8	5.80%	1	1.56%
31 & above	2	1.45%	1	1.56%
Program				
BBA	127	92.03%	63	98.44%

Attributes	Quaid-e-Azam University		Iqra University	
	Frequency	Percentage	Frequency	Percentage
MBA	11	7.97%	1	1.56%
Semester				
Second last	4	2.90%	0	0.0%
Last semester	134	97.10%	64	100%
Father's Occupation				
Government job	68	49.28%	18	28.12%
Private job	18	13.04%	15	23.44%
Own business	42	30.43%	27	42.19%
Agricultural work	10	7.25%	4	6.25%

At Quaid-e-Azam University, male respondents accounted for 61.59%, whereas at Iqra University, this figure was higher at 73.44%. Female participation was greater at Quaid-e-Azam University (36.96%) compared to Iqra University (26.56%). The absence of transgender respondents at Iqra University compared to the 1.45% at Quaid-e-Azam University could be attributed to differences in campus culture and inclusivity. Most respondents at both universities were aged between 21–25, with 92.75% at Quaid-e-Azam University and 96.88% at Iqra University, highlighting the sample's focus on final-year students. A small number of respondents from older age groups (26–30 and 31 & above) were represented, suggesting limited enrollment of mature students in these programs.

The majority of respondents at both universities were enrolled in the BBA program, with 92.03% at Quaid-e-Azam University and an even higher 98.44% at Iqra University. MBA students formed a small minority at both universities, with more representation at Quaid-e-Azam University (7.97%) than at Iqra University (1.56%). Nearly all respondents were in their final semester, with 97.10% at Quaid-e-Azam University and 100% at Iqra University. At Quaid-e-Azam University, 49.28% of respondents reported their fathers held government jobs, compared to 28.12% at Iqra University. Conversely, a higher percentage of respondents at Iqra University (42.19%) reported their fathers were engaged in private businesses, compared to 30.43% at Quaid-e-Azam University. This reflects a stronger entrepreneurial culture among families associated with private institutions.

5.2 Measurement Model

The measurement model assesses the relationships between observed indicators and latent constructs. To ensure the validity and reliability of the constructs, both convergent and discriminant validity were tested. Convergent validity was demonstrated by high factor loadings, Composite Reliability (C.R) values exceeding 0.7, and Average Variance Extracted (AVE) values greater than 0.5. Discriminant validity was confirmed using the Fornell-Larcker criterion and the Heterotrait-Monotrait ratio (HTMT), ensuring constructs are distinct and not overly correlated with one another.

Table 2: Results of the measurement model

Constructs	Items	Factor Loadings	Alpha Value	AVE	C.R
Attitude Towards Behavior			0.833	0.621	0.876
	ATB1	0.788			
	ATB2	0.862			
	ATB3	0.543			
	ATB4	0.791			
Subjective Norms			0.732	0.598	0.834
	SN1	0.697			
	SN2	0.265			

Constructs	Items	Factor Loadings	Alpha Value	AVE	C.R
	SN3	0.814			
	SN4	0.583			
Perceived Behavioral Control			0.791	0.616	0.856
	PBC1	0.659			
	PBC2	0.698			
	PBC3	0.526			
	PBC4	0.589			
	PBC5	0.638			
	PBC6	0.760			
Entrepreneurial Intention			0.843	0.701	0.891
	EI1	0.840			
	EI2	0.848			
	EI3	0.717			
	EI4	0.761			
	EI5	0.772			
Entrepreneurial Education			0.865	0.684	0.890
	EE1	0.802			
	EE2	0.748			
	EE3	0.739			
	EE4	0.754			

The factor loadings indicate how strongly each item correlates with its respective construct, with values ≥0.5 considered acceptable but ideally ≥0.7 for stronger validity. In this study, SN2 (0.265) has weak loading, suggesting it doesn't properly measure the constructs, hence construct SN2 is deleted from the above analysis, while PBC3 (0.526) and PBC4 (0.589) are borderline. The Cronbach's Alpha values (0.732–0.865) exceed the 0.7 threshold, confirming strong internal consistency for all constructs. Additionally, the Average Variance Extracted values (0.598–0.701) meet the ≥0.5 benchmark, demonstrating adequate convergent validity, and the Composite Reliability scores (0.834–0.891) further validate the constructs' robustness. Overall, while most constructs are reliable, certain item (particularly in SN2) require refinement to enhance measurement accuracy.

5.3 Discriminant Validity

The discriminant validity criteria set by Fornell and Larcker is wide used in research studies to assess the discriminant validity (Hamid et al., 2017). The method introduced by Fornell and Larcker evaluates the square root of average variance extracted (AVE) with the correlation of the latent constructs. Hair et al. (2014) stated that the positive square root of AVE values of each construct should be higher than the correlation of other constructs. The result of the Fornell-Larcker criterion is presented in Table below.

Table 3: Fornell-Larcker criterion

	1	2	3	4
ATB	**0.800**			
IE	0.050	**0.228**		
PBC	0.113	0.202	**0.195**	
SN	-0.069	0.172	0.169	**0.147**

The above results represent the square root of variance extracted (AVE) of each construct with bold diagonal values. In contrast, correlation among latent constructs is shown in off-diagonal columns and rows with an un-bold value in the table. All the AVE values of research study constructs and their respective square root were more significant than the correlations among other constructs, respectively. Hence, this study found and validated discriminant validity among the research constructs.

5.4 Coefficient of Determination (R^2)

The coefficient of determination, commonly known as R^2 helps quantify the proportion of variation in the dependent variable explained by the independent variables. According to Hair et al. (2011), R^2 plays a key role in determining the significance of the model's path coefficients. The primary aim of R^2 is to assess how well the independent variables predict the dependent variable (Hair et al., 2011). In the current study, R^2 values for the variables under investigation are displayed in Table. These values indicate the extent of variability explained by the independent and moderating variables in the model.

Table 4: Coefficient of determination (R2)

Constructs	R^2 Value Iqra University	R^2 Value Quaid Azam University
Attitude towards behaviour	0.666	0.625
Subjective norms		
Perceived behavioral control		
Entrepreneurial Education		

Cohen et al., (1989) highlighted desirable ranges for R^2, values of 0.26, 0.13, and 0.02 are considered strong, moderate, and weak, respectively. The present study examines several independent variables—attitude toward behavior, subjective norms, perceived behavioral control along with moderating variable of entrepreneurial education. The dependent variable, entrepreneurial intentions, demonstrates an R^2 value of 0.666, which falls within an acceptable range. The R^2 value of 0.666 indicates a strong explanatory power of the independent variables on the dependent variable, highlighting the significant role of these predictors in shaping entrepreneurial intentions.

5.5 Path Analysis

The results of the path analysis explained the correlation among the independent, moderation and dependent variables. Moreover, the hypothesis acceptance or rejection decision can be made based on the path coefficient analysis of the structural model. The results of the structural path analysis are presented in table below. The path coefficient described the hypothesized correlation of the constructs; as suggested by Hair *et al*., (2014) the range of values are -1 to +1. Similarly, it further explained the most influencing factor like closer to +1 shows a strong correlation, and closer to -1 shows vice versa.

Table 5: Path Analysis

Variables	P-values Iqra University	Decisions	P-Values Quaid Azam University	Decisions
ATB -> EI	0.000	Supported	0.000	Supported
EE -> EI	0.883	Not Supported	0.746	Not Supported
PBC -> EI	0.328	Not Supported	0.414	Not Supported
SN -> EI	0.017	Supported	0.000	Supported
EE x ATB -> EI	0.362	Not Supported	0.142	Not Supported
EE x SN -> EI	0.326	Not Supported	0.642	Not Supported
EE x PBC -> EI	0.186	Not Supported	0.016	Supported

The results indicate that ATB significantly influences entrepreneurial intention in both universities, with p-values of 0.000, suggesting that students with a positive attitude toward entrepreneurship are more likely to develop entrepreneurial intentions. This finding aligns with Ajzen's (1991) Theory of Planned Behavior (TPB), which posits that attitude is a strong predictor of intention. Similarly, subjective norms (SN) also significantly impact EI in both institutions, with p-values of 0.017 (Iqra University) and 0.000 (Quaid Azam University). These results confirm previous studies (Krueger et al., 2000) that highlight the role of social influence in shaping entrepreneurial intentions.

On the other hand, entrepreneurial education (EE) does not directly influence EI in either university, as indicated by high p-values (0.883) at Iqra University and (0.746) at Quaid Azam University. This contradicts some prior research that emphasizes EE as a key driver of entrepreneurship (Nabi et al., 2017). Similarly, perceived behavioral control (PBC) does not show a significant relationship with EI, as p-values remain above 0.3 in both universities, contradicting TPB, which suggests that self-efficacy and perceived control play a crucial role in entrepreneurial decision-making (Ajzen, 2002).

The interaction effects of EE with ATB and SN are also found to be insignificant for both institutions, further emphasizing that entrepreneurial education alone may not be enough to foster entrepreneurial intentions. However, a key finding is that EE × PBC significantly affects EI at Quaid Azam University ($p = 0.016$), while it remains insignificant at Iqra University ($p = 0.186$). This suggests that entrepreneurial education enhances the effect of PBC on entrepreneurial intention at Quaid Azam University.

6. Discussion

This study, motivated by identified gaps in the existing literature, aimed to explore the factors influencing entrepreneurial intentions (EI) among university students in Pakistan, focusing on Quaid-i-Azam University and Iqra University in Islamabad. A comparative research model, adapted from González-Serrano et al. (2021), was used to examine these dynamics. The findings present a compelling narrative that contrasts with previous studies, such as those involving Malaysian students (Ali et al., 2023), and emphasize the unique socio-cultural context of Islamabad's academic environment.

The results show that both ATB and SN significantly influence EI at both Iqra and Quaid-i-Azam Universities. This supports the TPB, indicating that students with positive attitudes towards entrepreneurship and those who perceive strong social support are more likely to develop entrepreneurial intentions. However, the influence of PBC was more complex. While PBC generally had a significant effect on EI among Pakistani university students, the strength of this relationship varied slightly between the two universities, suggesting that students at each institution perceive their control over entrepreneurial outcomes differently.

Contrary to some expectations, EE did not significantly moderate the relationships between ATB, SN, and EI at either university. This suggests that, within these contexts, entrepreneurial education alone does not substantially enhance the influence of attitudes or social norms on entrepreneurial intentions. However, a significant divergence was observed in the interaction between EE and PBC. Specifically, at Quaid-i-Azam University, EE significantly moderated the relationship between PBC and EI, suggesting that entrepreneurial education strengthens the effect of perceived control on entrepreneurial intentions within that particular academic environment. This moderating effect was not seen at Iqra University, indicating that the impact of entrepreneurial education on perceived control and, consequently, on entrepreneurial intentions, differs significantly between the two institutions.

7. Conclusions

This study provides a comparative analysis of the determinants of entrepreneurial intentions among students at Iqra University and Quaid-i-Azam University, Islamabad, through the lens of the TPB and the moderating role of entrepreneurial education. The coefficient of determination (R^2) values 0.666 for Iqra University and 0.625 for Quaid-i-Azam University indicate strong explanatory power, suggesting that the selected constructs meaningfully explain the variance in entrepreneurial intentions. The structural path analysis reinforces the centrality of attitude toward behavior and subjective norms in shaping entrepreneurial intentions in both institutions. Conversely, perceived behavioral control and entrepreneurial education did not show significant direct effects on EI in either university. These results challenge traditional TPB expectations and question the universal applicability of EE as a driver of entrepreneurial motivation in the Pakistani academic context.

These results suggest that entrepreneurial education, as currently implemented, may not sufficiently amplify the influence of students' attitudes or perceived social expectations on their entrepreneurial intent. This comparative investigation contributes valuable insights into the dynamics of entrepreneurial intentions and highlights the limitations of educational interventions in their current form. The findings offer actionable implications for policymakers, educators, and university administrators seeking to cultivate entrepreneurial ecosystems within academic institutions. Moreover, policymakers should provide subsidies for entrepreneurial business projects. This will further motivate the students towards self-employment. Subsequently, the subjective norms will be enhanced and improved in the students. Finally, this will further accelerate and positively influence other variables. Similarly, the psychological aspects are also important for entrepreneurship

so government formulate socially acceptable and attractive policies to entrepreneurial intentions among the students.

Nonetheless, the study is not without its limitations. The use of non-random sampling and the exclusive focus on two universities students restrict the generalizability of the results to broader populations. Future research, particularly longitudinal studies, would be beneficial in capturing how entrepreneurial intentions evolve over time and translate into entrepreneurial action. It should also include other provincial level public and private sector universities. Despite these limitations, the study meets academic research standards and enriches the existing body of knowledge on entrepreneurship in the context of developing economies.

Ethics Declaration

This research did not require ethical approval as it did not involve any secret human participants, personal data collection, or sensitive information. All the sources and examples cited in this paper are publicly available and properly referenced/cited.

AI Declaration

AI tools, such as Google Gemmini and DeepSeek, were used to assist in refining academic language, and organizing the structure of the manuscript. All content generated by AI was critically reviewed, edited, and verified by the author(s) to ensure accuracy, originality, and adherence to scholarly standards. However, this manuscript similarity index was checked using plagiarism detection software and found to be within the acceptable range, indicating proper academic integrity and originality.

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