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An Empirical Study of Entrepreneurial Intentions of the University Students: The Moderating Effect of Entrepreneurial Education

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ABSTRACT

This research investigates the entrepreneurial intentions of university students in Pakistan through the lens of the Theory of Planned Behavior (TPB), with a specific focus on the moderating role of entrepreneurial education. Utilizing the survey method for data collection and analyzed via SMART PLS and SPSS, the findings indicate that attitudes toward behavior and subjective norms are predictors of entrepreneurial intentions across both university types, consistent with the TPB. While direct effects of perceived behavioral control and entrepreneurial education on entrepreneurial intentions were not significant, a significant interaction effect between entrepreneurial education and perceived behavioral control was observed. Moreover, the moderating influence of entrepreneurial education on the relationship between perceived behavioral control and entrepreneurial intentions. concludes that entrepreneurial education's The study impact entrepreneurial intentions may be contingent upon its interplay with perceived behavioral control, particularly within the public sector university context. These findings offer nuanced implications for policymakers and educators seeking to cultivate entrepreneurship among university students in developing economies.

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

Introduction

Entrepreneurship is increasingly recognized as a crucial driver of economic growth, innovation, and social development, particularly within developing economies (Ahmad & Xavier, 2011). Fostering an entrepreneurial mindset among university students, the future workforce and potential innovators, has become a significant area of focus for policymakers and educational institutions alike (Audretsch, 2007). Understanding the factors that shape students' intentions to pursue entrepreneurial

ventures is therefore paramount. This research aims to contribute to this understanding by investigating the entrepreneurial intentions of university students in Pakistan, drawing upon the well-established Theory of Planned Behavior (TPB) as its theoretical framework (Ajzen, 1991).

The TPB posits that behavioral intentions are the most proximal predictor of actual behavior, influenced by three key antecedents: attitudes toward the behavior, subjective norms (perceived social pressure), and perceived behavioral control (belief in one's ability to perform the behavior). While the TPB has been widely applied to explain entrepreneurial intentions across various contexts (e.g., Krueger et al., 2000; Liñán & Chen, 2009), the role of specific interventions, such as entrepreneurial education, in shaping these intentions and their interplay with the TPB constructs warrants further exploration, particularly within the unique socio-economic and educational landscape of Pakistan.

Entrepreneurial education, encompassing various pedagogical approaches aimed at developing entrepreneurial knowledge, skills, and attitudes, is often advocated as a for cultivating entrepreneurial intentions among Graevenitz et al., 2010). However, the effectiveness of such education may not be uniform and could be contingent upon other factors, including students' perceptions of control over their entrepreneurial endeavours. This study specifically focuses on examining the moderating role of entrepreneurial education in the relationship between the TPB constructs, particularly perceived behavioural entrepreneurial intentions among university students in Pakistan. Moreover, of this research offer valuable insights into the determinants of entrepreneurial intentions among university students in Pakistan and nuanced implications for policymakers and educators seeking to design effective interventions to promote entrepreneurship within this developing economy context.

Review of Literature

Entrepreneurial Intentions

Krueger, (2017) defined entrepreneurial intention as an active state of mind that drives people to find new business opportunities or innovations in the current business. Entrepreneurial intention is basically the beginning stage of the decision making process of starting a new business (Bird 1988), mostly it predicts the expected entrepreneurial behavioral commitment. Bird (1988), further explained that intention is a particular feeling which initiate from the practical experiences and the environment. However, Ajzen (1991) argued that people intention to start nascent business is supposed to have emerged from previous planning.

Theory of Planned Behavior

The Theory of Planned Behavior (TPB), derived from the Theory of Reasoned Action, serves as a foundational model for understanding entrepreneurial intentions, particularly among university students (Al-Jubari et al., 2019). It posits that behavior is shaped by intentions and perceived behavioral control, with entrepreneurial intention defined as an individual's conscious commitment to starting a business. This intention is influenced by three core factors: attitude toward the behavior, subjective norms, and perceived behavioral control. Positive attitudes and strong self-efficacy enhance entrepreneurial motivation, while supportive social norms—especially from family—further strengthen intention, though excessive pressure may have adverse

effects. Ultimately, entrepreneurial intention is a multifaceted construct influenced by personal beliefs, social context, and confidence in one's capabilities.

Attitude Towards Behavior

According to Krueger, (2017), entrepreneurship is a field of study that examines how someone can seek opportunity to discover the explicit and implicit goods and services, while evaluating and exploring the resources. the perception of the entrepreneur plays very important role in gaining the expected future opportunities and benefits, attitude is developed form the beliefs which people take in performing certain behaviour Azjen (2005). Ajzen & Fishbein (2005), the outcomes of the behaviour is said to the behavioral beliefs, expected outcomes or the advantages and costs. most recent studies have also explored how the implicit beliefs or perceived outcomes of entrepreneurship influence the intention of new business start-up. Personal advantages that can be gained from entrepreneurship business create entrepreneurial intentions (Volery et al., 2013). Douglas and Fitzsimons (2013), that entrepreneurship intentions are influenced by the independence, income and ownership. it is reported that the desire to run a new depended on the student's attitude towards entrepreneurship. business development, finance and their perceptions about the institution support for entrepreneurship Schwarz et al. (2009), although Saeed et al. (2013) observed that the role of self-realization and recognition on entrepreneurial intentions.

Subjective Norms

Azjen (2005) subjective norm is social force which individual take from the society and played an important role in engaging or not engaging in certain behavior. based on the previous studies results, it can be derived that mostly people decided to run a business, whenever their close circle people acknowledged and supported them while taking such unique economic activities. Liñán et al., (2011); Garcia-Rodríguez et al., (2013) the positive acceptance from the significant others will increase the likelihood of performing certain behavior. and it has a positive impact on the perceptions about the individual ability to perform that behavior. moreover, Kennedy et al. (2003) accounted that subject norms has profound effect particularly in those situations where the job opportunities is less feasible.

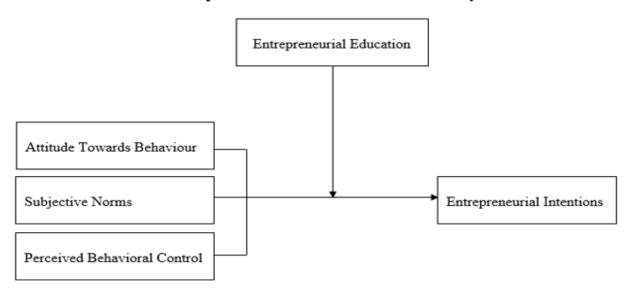
Perceived Behavioral Control

Perceived behavioral control means the personal assessments by which people can know about their abilities of acting a particular behavior. Ajzen and Cote (2008) it can be established from the control belief concerning the accessibility of factors that may support or obstruct performance of the behavior. Ajzen (2005) the internal & external factors which consist of the facilities, opportunities, knowledge, skills, obligations, dependence, personal behavioral experience, information, past experiences of other people and another factors, which maximize or minimize the perceived difficulty in acting the behavior in question. Linan et al. (2013) explained that people feel more comfortable and motivated in taking entrepreneurial activities, when other people of the community acknowledged, appreciated and valued their decisions. the social and the internal environment also play a significant role in developing the positive perception about entrepreneurial activities, which subsequently affect the perceived control behavior.

Entrepreneurial Education:

Empirical research consistently demonstrates that entrepreneurial education (EE) and training play a significant role in shaping entrepreneurial intentions (EI) by stimulating innovative thinking, encouraging entrepreneurial behaviors, and improving individual performance (Lv et al., 2021). While numerous studies have established a positive correlation between EE and core components of EI—such as attitudes toward entrepreneurship and perceived behavioral control (Huang et al., 2024)—other research presents mixed or statistically insignificant findings, suggesting contextual variability in EE's effectiveness (Nayak et al., 2024). These divergent results imply that EE's influence may be indirect or moderated by additional factors, including subjective norms and gender. Specifically, EE has the potential to not only foster favorable attitudes but also to challenge and reduce gender-based stereotypes that traditionally frame entrepreneurship as a male-dominated field, thereby broadening access and engagement across gender lines (Gupta et al., 2019).

Conceptual Framework of the Research Study



Research Methodology:

Employing a quantitative research design, this study investigated entrepreneurial intentions among university students studding in Islamabad, Pakistan. Data were collected via surveys administered to students using a random sampling technique, with 203 valid responses secured from 245 distributed questionnaires after excluding incomplete or unreturned surveys. "The adapted survey instrument, based on the theory of planned behavior and incorporating entrepreneurial education as a moderator, measured key constructs using scales adopted from prior research;" the sample size was determined according to established guidelines, and Smart PLS-SEM was subsequently utilized for data analysis, aligning with methodological recommendations suggested (Ali et al., 2023) for exploratory studies.

Data analysis and discussion

Demographic variables

The demographic characteristics of respondents from both universities are detailed in table below, presenting attributes, frequencies, and percentages. Respondents were categorized into six main groups: gender, age, program, semester, university, and father's occupation.

Demographic profile of the respondents

Attributes	Quaid-e-Azam University		Iqra University	у
	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	I	
BBA	127	92.03%	63	98.44%
MBA	11	7.97%	1	1.56%
		Semester	l	
Second last	4	2.90%	0	0.0%
Last semester	134	97.10%	64	100%
	I	Father's occupation	n l	l
Government job	68	49.28%	18	28.12%
Private job	18	13.04%	15	23.44%
Own business	42	30.43%	27	42.19%

The demographic profiles of student respondents from Quaid-e-Azam University and Iqra University revealed variations in gender representation, with a higher proportion of males at Igra University (73.44%) compared to Quaid-e-Azam University (61.59%), which conversely showed greater female participation (36.96% vs. 26.56%) and the presence of transgender respondents (1.45% vs. 0%). "The majority of students at 21-25 (92.75% institutions were aged and 96.88%, respectively) predominantly enrolled in BBA programs (92.03% and 98.44%, respectively), with nearly all in their final semester (97.10% and 100%, respectively). Regarding fathers' occupations, a larger percentage at Quaid-e-Azam University held government jobs (49.28%), while a greater proportion at Iqra University were engaged in private businesses (42.19%)".

Measurement model

The measurement model's integrity was evaluated by examining the relationships between observed variables and their corresponding latent constructs. "Construct validity and reliability were rigorously assessed through convergent and discriminant validity analyses. Convergent validity was established by verifying substantial factor loadings, Composite Reliability (C.R.) scores surpassing 0.7, and Average Variance Extracted (AVE) values exceeding the 0.5 threshold".

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			
Subjective norms	Subjective norms		0.732	0.598	0.834
	SN1	0.697			
	SN2	0.265			
	SN3	0.814			
	SN4	0.583			
Perceived behavio	Perceived behavioral control		0.791	0.616	0.856
	PBC1	0.659			
	PBC2	0.698			
	PBC3	0.526			
Entrepreneurial int	tention	'	0.843	0.701	0.891
-	EI1	0.840			
	EI2	0.848			
	EI3	0.717			
Entrepreneurial Education		0.865	0.684	0.890	
-	EE1	0.802			
	EE2	0.748			
	EE3	0.739			
	EE4	0.754			

The table presents the results obtained from the analysis of the measurement and structural models' path coefficients. The factor loadings for all constructs ranged from 0.658 to 0.902, exceeding the 0.5 threshold, thus indicating adequate convergent validity. "The component reliability values for each construct in the model ranged from 0.614 to 0.885. Given that all values are above the 0.6 criterion; this confirms the high reliability of all constructs."

Discriminant validity

The discriminant validity criteria set by Fornell and Larcker is wide used in research studies to assess the discriminant validity (Zeb et al., 2019). The method introduced by Fornell and Larcker evaluates the square root of average variance extracted (AVE) with the correlation of the latent constructs. "Byrne (2010) and 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".

	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

Fornell-Larcker criterion

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.

Coefficient of determination (R²)

"According to Hair et al. (2011), R² plays a key role in determining the significance of the model's path coefficients. The primary aim of R² is to assess how well the independent variables predict the dependent variable (Hair et al., 2011)". In the current study, R² 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.

Coefficient of determination (R2)

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

Hair et al. (2017) highlighted desirable ranges for R², including high, moderate, and low values. Cohen et al. (1989) further outlined specific thresholds: R² values of 0.26, 0.13, and 0.02 are considered strong, moderate, and weak, respectively. "The R² value of this study is 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".

Path Analysis

The path coefficient results, presented in the table, illustrate the correlations among the independent, moderating, and dependent variables, providing the basis for accepting or rejecting the study's hypotheses. As suggested by "Hair et al. (2014), these coefficients, ranging from -1 to +1, indicate the strength and direction of relationships, where values closer to +1 signify strong positive correlations and those closer to -1 reflect strong negative correlations; this analysis specifically compares the impact of various factors on entrepreneurial intention (EI) among students at Iqra University and Quaid-e-Azam University".

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Variables	Iqra University	D	Quaid Azam University	ъ
	P values	Decision	P values	Decision
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 path analysis reveals the significance of various factors on entrepreneurial intention (EI) at Iqra University and Quaid-e-Azam University. At both universities, attitude toward behavior (ATB) and subjective norms (SN) significantly and positively influenced EI (p < 0.05), supporting the corresponding hypotheses. "Conversely, perceived behavioral control (PBC) and entrepreneurial education (EE) did not show a significant direct impact on EI at either institution (p > 0.05). Furthermore, the moderating effect of entrepreneurial education on the relationships between ATB, SN, and PBC with EI was not significant at Iqra University (p > 0.05). However, at Quaid-e-Azam University, entrepreneurial education significantly moderated the relationship between PBC and EI (p < 0.05), while its moderating effect on ATB and SN was not significant (p > 0.05)".

Discussion

The findings indicate a significant influence of attitude toward behavior (ATB) and subjective norms (SN) on entrepreneurial intention (EI) among students at both "Iqra University and Quaid-e-Azam University". This observation aligns with the tenets of the Theory of Planned Behavior (TPB), which posits that positive attitudes toward entrepreneurial activity and the perception of strong social endorsement enhance individuals' propensity to form entrepreneurial intentions. However, the role of perceived behavioral control (PBC) in shaping EI demonstrates a more nuanced relationship. "While PBC generally exerts a significant effect on EI among Pakistani university students, the magnitude of this effect exhibits subtle variations between the two institutions, suggesting potential differences in students' perceived capacity to control entrepreneurial outcomes within each university context."

Furthermore, the study examined the moderating role of entrepreneurial education (EE). Contrary to some expectations, EE did not significantly moderate the relationships between ATB, SN, and EI in either university. "This indicates that, within these contexts, entrepreneurial education alone does not significantly amplify the impact of attitudes or social norms on entrepreneurial intentions. However, a notable divergence emerged concerning the interaction between EE and PBC. Specifically, at Quaid Azam University, EE significantly moderated the relationship between PBC and EI, implying that entrepreneurial education enhances the effect of perceived control on entrepreneurial intentions within that specific academic environment. This moderating effect was not observed at Iqra University, suggesting that the impact of

entrepreneurial education on perceived control, and subsequently on entrepreneurial intentions, varies significantly between the two institutions."

Conclusion

The research findings indicate that attitude toward behavior, subjective norms, and perceived behavioral control exert a significant influence on the development of entrepreneurial intention within both public and private sector universities in Pakistan. "However, the moderating variable, entrepreneurial education (EE), yielded distinct and somewhat novel results. Specifically, EE did not significantly moderate the relationships between attitude toward behavior (ATB), subjective norms (SN), and entrepreneurial intention (EI) at either university. This suggests that, within the studied contexts, entrepreneurial education does not independently and significantly amplify the impact of attitudes or social norms on the formation of entrepreneurial intentions. This comparative study offers new insights into entrepreneurial intention and the role of entrepreneurial education. Governmental institutions and universities potentially utilize these findings to foster entrepreneurship within their respective domains. Nevertheless, the study's findings are subject to certain limitations. Notably, the research design did not employ random sampling, and data were exclusively collected from university students. Consequently, the findings may not be directly generalizable to other sectors or participant populations". Future longitudinal studies are recommended to provide a more comprehensive and nuanced understanding of the process by which intentions are translated into actions. Despite these limitations, the study adheres to accepted scientific standards and contributes to the existing body of knowledge regarding entrepreneurial intention.

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