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Igniting Entrepreneurial Spirit: Influence of Entrepreneurial Education, Awareness, and Government Support on Influential Entrepreneurial Intention

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Abstract
Entrepreneurial education is a pivotal element in fostering entrepreneurial intention. However, several educational challenges in Pakistan have been recognized, including inadequate educational infrastructure, limited funds, and a traditional pedagogical system. To address such issues, a comprehensive model has been developed to inspect the crucial role of entrepreneurial education on entrepreneurial intention with the mediated role of entrepreneurial awareness and moderating the impact of government support, particularly at Pakistani university students. The data was gathered by an organized questionnaire utilizing a quantitative technique, targeting 775 final-year students across ten universities in the Punjab, Pakistan, using a simple random sampling technique. Utilizing SmartPLS for analysis, the study tested five hypotheses grounded on SCT. The findings reveal that entrepreneurial education significantly shapes a mindset that fosters students' entrepreneurial intention. Furthermore, entrepreneurial awareness is a vital mediating factor enhancing the association of entrepreneurial education and entrepreneurial intention. Additionally, government support confidently moderates the connection between entrepreneurial education and entrepreneurial intention awareness. The study craves new pathways in business education, offering valuable insights for policy-makers and academicians alike, emphasizing the necessity for increasing focus on developing entrepreneurial activities, restructuring the educational curricula, and improving teaching methodologies. The proposed model is novel, offering a unique framework for understanding the importance of government support in raising entrepreneurship at the national level.

Keywords: Entrepreneurial education, entrepreneurial awareness, entrepreneurial intention, government support, entrepreneurship

Introduction

Entrepreneurship is widely acknowledged as a vital instrument for sustainable economic expansion, offering a compelling and viable career for individuals as a realistic occupation (Pandit et al., 2018). In fact, Handayati et al. (2020) emphasized that educational activities at the university level significantly ignite entrepreneurial awareness, helping students to recognize entrepreneurial opportunities and shape their attitudes toward entrepreneurship. Particularly, entrepreneurial education serves as a powerful catalyst for nurturing an entrepreneurial mindset and establishing entrepreneurship as a professional pathway, distinguishing it from solely through expedience (Hassan et al., 2020). Tahir et al. (2022) have observed the rising popularity of entrepreneurship among the younger generation, who are increasingly launching start-ups that contribute to sustainable economic development by creating new business opportunities (Hassan et al., 2021; Mahfud et al., 2020). This trend is especially pronounced in Pakistan, where approximately 14 million individuals drive entrepreneurial growth, as Asif et al. (2018) highlighted. Entrepreneurial education is crucial in sparking

creativity and innovation, equipping individuals with the skills needed to identify new business opportunities (Kumar et al., 2020). Moreover, Hassan et al. (2021) argued that entrepreneurial education as an educational platform is crucial for nurturing university students' entrepreneurial intention in Pakistan through an appropriate academic environment.

Indeed, students' intention to be entrepreneurship can be fostered by several factors that directly influence their attitude, including personal factors, environmental factors, and behavioural output (Al-Qudah et al. 2022). Social Cognitive Theory (SCT) provides a framework for examining these influential elements (Dheer, 2019; Munir et al., 2022), explaining how higher education can cultivate an entrepreneurial mindset and resilience, particularly among Pakistani students (Anjum et al., 2021; Handayati et al., 2020; Munir et al., 2022). By exploring how personal factors, environmental input, and behavioural output can affect a student's intention to choose entrepreneurship in the future, As articulated by Bandura (1986), SCT emphasizes the interplay of personal factors (beliefs, attitude, and self-efficacy), environmental input (social influences, educational practices, and other enclosed factors); behavioral output, (action to choice as entrepreneurship) (Biraglia et al., 2017).

The individuals' awareness of entrepreneurship for future occupations can be significantly influenced by their attitude toward participating in entrepreneurial activities, ultimately shaping their decision to track entrepreneurship as a viable career (Obschonka et al., 2017). According to Hsu et al. (2019), entrepreneurial intention stems from a desire to engage in entrepreneurial activities, often fueled by the aspiration for self-employment. Kong et al. (2020) further speculated that intention toward entrepreneurship reflects a goal-oriented psychological mindset focused on achieving specific business goals, ultimately leading to entrepreneurial success. In the Pakistani context, Soomro et al. (2020) and Shahzad et al. (2023) emphasized the need to cultivate entrepreneurial intention among university students through multifaceted strategies, including promoting and enhancing entrepreneurial intention, cultivating a willingness for self-employment, creative thinking, and creating a favourable educational environment within universities. As per the study by Nguyen et al. (2019) also pointed that entrepreneurial intention is primarily driven by an individual's willingness, which shape their perception to commence a business. In this context, entrepreneurial education serves as a vital platform for establishing and enhancing the entrepreneurial perception of university students (Shahzad et al., 2021).

Entrepreneurial education is widely recognized as a cornerstone of the modern educational system, and it significantly influences students' attitudes toward choosing entrepreneurship for future pathways (Onyeoke et al., 2021). Within the academic sphere, entrepreneurial education in an academic context is seen as an important factor in shaping university students' perceptions by equipping them with essential knowledge and fostering entrepreneurial awareness (Munawar et al., 2023; Shahzad et al., 2021). As Shahzad et al. 2021), business knowledge encompasses the understanding of facts and information that raises awareness of entrepreneurship on the grounds of entrepreneurial education, which serves as the best platform to polish the skills and abilities necessary for efficient business management (Tajpour et al., 2020). Within the Pakistani context, scholars such as Anwar et al. (2022) and Khawar et al. (2022) have emphasized the profound impact of entrepreneurial education in fostering entrepreneurial intention by inspiring students' perceptions and enhancing their abilities to identify new business opportunities. Moreover, Anwar et al. (2022); Hassan et al. (2021); Khawar et al. (2022), and Shahzad et al. (2021) collectively highlight entrepreneurial education as a cornerstone for cultivating an entrepreneurial mindset, encouraging students, particularly Pakistani university students, to envision future careers in entrepreneurship.

Entrepreneurial awareness and self-efficacy are key features in achieving desired entrepreneurship success (Zayed Mohammed et al., 2022). However, Musa et al. (2020) argued that targeted entrepreneurial interventions, such as workshops, training sessions, seminars, and other practical projects, can significantly elevate entrepreneurial awareness and bolster entrepreneurial intention of students (Ali et al., 2019; Anwar et al., 2022; Hassan et al., 2021; Khawar et al., 2022; Shahzad et al., 2021). Additionally, Martins et al. (2023) underscored the importance of collaborative efforts between governmental initiatives and institutional support in driving entrepreneurial awareness through start-ups, training programs, and other entrepreneurial activities that can nurture students, fostering their entrepreneurial intention. These initiatives act as a catalyst, inspiring students to envision entrepreneurship as a viable career path (Anwar et al., 2022; Shahzad et al., 2021). From the Pakistani perspective, Ahmed et al. (2020); Shah et al. (2020); Shahzad et al. (2021) and Shariff, (2019) underscored the pivotal role of government support in promoting entrepreneurial activity by providing training

programs, seminars, and financial resources, all of which collectively contribute to fostering an entrepreneurial mindset and enhancing students' entrepreneurial awareness.

Government support can play a transformative role in boosting students' entrepreneurial intention by implementing different strategies, including workshops, training sessions, seminars, and other entrepreneurial programs designed to stimulate university students to pursue entrepreneurship in the future (Shariff, 2019). Butkouskaya et al. (2020) further emphasize that government support is a crucial environmental factor that promotes sustainable entrepreneurship at the national level while cultivating a positive entrepreneurial mindset and awareness among university students. Despite this, Li et al. (2020) explored the moderating effect of government support in providing essential entrepreneurial knowledge and understanding that ultimately enhances university students' entrepreneurial intention. Indeed, Munawar et al. (2023) reinforced that, stressing that government support plays a central part in shaping entrepreneurial perception and awareness that drives the entrepreneurial aspirations of the entrepreneurial intention of university students. However, Ferreira et al. (2018) claimed that entrepreneurial programs aimed at enhancing entrepreneurial perception, awareness, and education curricula could not be effectively implemented without government support, as government support is crucial for establishing an entrepreneurial ecosystem within universities (Shah et al., 2023).

As mentioned earlier, entrepreneurial intention has rapidly become a prominent research area, recognized as a reliable indicator of students' aspiration to run their businesses, theoretically and practically (Swarupa et al., 2020). Nevertheless, Khawar et al. (2022) mentioned that a critical gap exists in understanding and acknowledging the importance of entrepreneurial awareness and perception of entrepreneurship among Pakistani university students. The educational system in Pakistan faces a confluence of challenges, including inadequate infrastructure, limited entrepreneurial activities, a pervasive lack of entrepreneurial awareness, and a deficiency of relevant knowledge- all of which undermine the effectiveness of entrepreneurial education. Consequently, Pakistan's education system ranks 1336th globally, with a literacy rate of 58.9%. This situation is further compounded by the growing number of untrained and unaware graduate students from Pakistani universities, becoming an alarming situation, and the government of Pakistan is unable to provide basic facilities for young entrepreneurs in Pakistan.

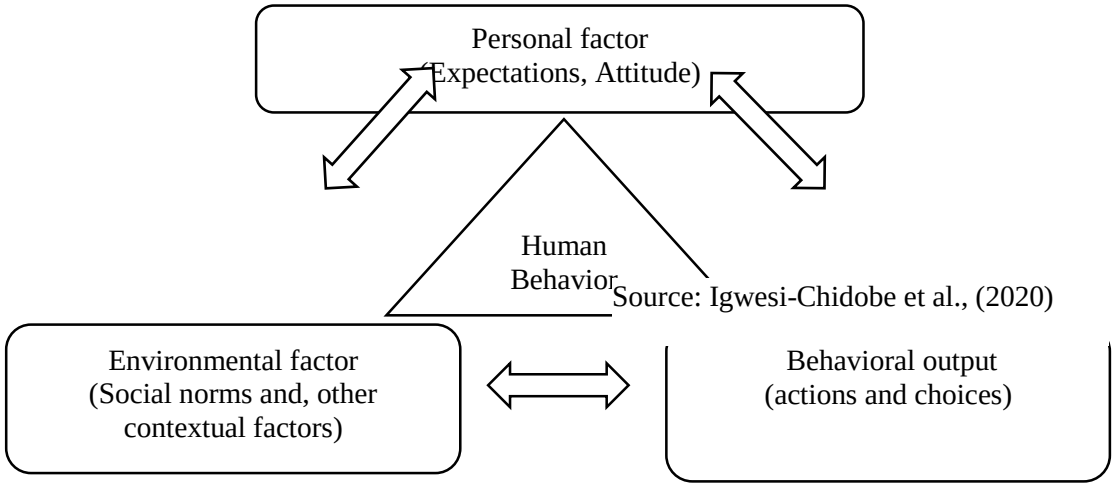
To address the multifaceted challenges facing entrepreneurial education in Pakistan, this study develops a comprehensive model to discover the profound influence of entrepreneurial education on students' entrepreneurial intention. The model incorporates entrepreneurial awareness as a crucial mediating factor and examines the moderating role of governmental support in this dynamic path. The study offers valuable insights for policy-makers, academicians, and governmental organizations, offering a roadmap for fostering practical learning strategies and restructuring education policies to cultivate a thriving entrepreneurial ecosystem within Pakistani universities. Notably, this model represents a novel and significant contribution to the existing body of literature, as no previous research in the Pakistani context has integrated these key elements with a single and cohesive framework. This also indicates the need to investigate the governmental influence on fostering entrepreneurial intention at the Pakistani university level.

Literature Review

Development of the Study'S Hypotheses Grounded in Theory

Social Cognitive Theory (SCT), articulated by Bandura et al. (1999), offers a valuable lens for understanding how human internal spirits, behaviours, and other influential features shape an individual's perception of entrepreneurship. (Nurhusna et al., 2024) argued that individuals' intellectual abilities and self-assurance fuel entrepreneurial aspirations grounded on the core tenets of SCT. Building on the core principles of SCT, (Kayani et al., 2022) and (AbdelAziz et al., 2023) posit that an person's actions are isolated events but rather the product of a dynamic interaction of three key elements: (1) personal inputs, incorporating individuals beliefs, attitude and self-efficacy; (2) environmental input, such as social influences, educational experiences and contextual factors and (3) behavioral outcomes presenting the actions and choices individuals undertake, including, entrepreneurial pursuits (Biraglia et al., 2017). (Bandura, 2015) further argues that a person's ability to contribute to entrepreneurial events is significantly influenced by the combination of particular attributes, including career ambitions, refined intellectual skills, and demonstrative situations. Environmental factors encompass the broader social and cultural context, including the impact of educational institutions, influential government policies, and the viability of expert mentorships (Bandura, 2015). A behavioural outcome

represents an individual's aptitude and actions in entrepreneurial activities, shaped by the dynamic interplay of environmental and personal factors. This view, supported by Handayati et al. (2020), proposed that SCT plays a decisive part in shaping the overall understanding of entrepreneurship, fostering a resilient entrepreneurial attitude, and stimulating creative thinking for launching new ventures. This continues to shape students' perception and engagement with entrepreneurship (Shahzad et al., 2021). Therefore, based on this justification, SCT is highly suitable for the current study, aligning individuals' beliefs, attitudes, and self-efficacy with personal factors, entrepreneurial intention with the behavioral outcome of the individual, and entrepreneurial education, entrepreneurial curriculum, and entrepreneurial teachers with environmental input.



Entrepreneurship Intention

The word intention can describe a person's actions about something and their future plans (Shah et al., 2022). A person's entrepreneurial desire indicates their mentality, mindset, and personality when launching a company (Nguyen et al., 2019). Entrepreneurial intention is a combination of taking risks, being passionate, and having the self-confidence to reach the entrepreneurial goal (Bosman & Fernhaber, 2018) by dealing with unexpected business incidents or problems (Fragoso et al., 2020). However, an individual's attitude to entrepreneurial activities plays a crucial part in shaping their decision to choose entrepreneurship as a future career (Obschonka et al., 2017). Moreover, studies by Nguyen et al. (2019) and Esfandiar et al. (2019) emphasize that entrepreneurial intention can be fueled by a person's willingness and mental motivation to participate in entrepreneurial activities that ultimately affect striving self-employed in creating new enterprises.

Shah et al. (2022) and Shahzad et al. (2023) underlined that improving entrepreneurial intention in Pakistani university students can be cultivated through several key strategies, including promoting entrepreneurial education, nurturing self-efficacy, offering educational support, and encouraging them to take risks with a creative thinking style. Indeed, Shah et al. (2022) and Shahzad et al. (2023) claimed that transforming university students' entrepreneurial aspirations into reality also required implementing strategies and a university support ecosystem. According to previous research, an individual's intention toward entrepreneurship is dependent on their willingness to do something for a specific task and determining whether someone has an entrepreneurial intention or not to start a new business (Nguyen et al., 2019). In addition, Fragoso et al. (2020) noted, entrepreneurial intention is rooted in a personal self-belief in pursuing entrepreneurship as future occupation and actively driving engagement in business development objectives and entrepreneurial goals.

Entrepreneurial Education

Entrepreneurship education has been widely acknowledged for enhancing students' entrepreneurial intention by increasing their awareness of how to launch a business and succeed, thus fueling their entrepreneurial aspirations (Hassan et al., 2020). As Hassan et al. (2021) noted, entrepreneurship education plays a dynamic role in shaping successful entrepreneurs by cultivating their creative thinking, innovativeness, and perception of entrepreneurship as a future career. Further, Jaenudin et al. (2022) proposed that entrepreneurship education can stimulate students who are willing to become future entrepreneurs. Lin et al. (2019) argued that entrepreneurship education significantly influences students' future intention of entrepreneurship by equipping them with enhanced strategies to identify new business opportunities, an innovative mindset, and an understanding of how to succeed in business without encountering failure (Handayati et al., 2020).

In Pakistan's context as a developing country, Munawar et al. (2023) underscored the pivotal role of entrepreneurial education in driving entrepreneurial activities that foster innovation, create new business opportunities, and contribute to sustainable development, ultimately reducing poverty. Collaboration between governmental organizations and educational institutions is a crucial source of supportive systems needed to nurture entrepreneurship in developing countries like Pakistan, positioning it as a viable and profitable career path for students (Shahzad et al., 2021). Moreover, Shahzad et al. (2021) emphasized that such initiatives as workshops and seminars within educational institutions are crucial for boosting entrepreneurial awareness among Pakistani universities. Further, Ahmed et al. (2019) highlighted the importance of entrepreneurial education in cultivating an entrepreneurial mindset, encouraging individuals to become opportunity creators rather than mere job seekers.

Entrepreneurial Awareness as a Mediator

The term entrepreneurial awareness is widely regarded as a crucial component of essential knowledge that helps students hold entrepreneurship as an energetic path and a dynamic pathway for cultivating entrepreneurial intention among university students (Rincy Elizabeth, 2019). Further, Xingzhong (2019) has indicated that enhancing awareness can be facilitated through several techniques, including relevant procedure interpretation, the presentation of successful persons as role models, appropriate training and workshops, and establishing support networks involving business professionals. Despite the acknowledgement, Khawar et al. (2022) also pointed out a substantial gap in empirical research about the role of entrepreneurial awareness and perception of entrepreneurship.

Further, Sallam et al. (2019) emphasized that collaboration between government organizations and educational institutes forms the bedrock for fostering entrepreneurial activities among university students that not only sharpen their perception of entrepreneurial orientation but also enhance their ability to identify new business opportunities. Conversely, Sallam et al. (2019) argued that awareness refers to an individual recognizing their intention and is essential in driving the entrepreneurial process, personal motivation, self-beliefs, and cultivating entrepreneurial interest. Further, Sallam et al. (2019) also indicated that entrepreneurial education is the most effective technique to boost entrepreneurial awareness among university students through several strategies, including awareness, knowledge, and self-confidence, to deal more efficiently with business events. Indeed, Sallam et al. (2019) determined that entrepreneurial awareness is a positive mediator, expressively influencing students' entrepreneurial intention and inspiring their entrepreneurial drive.

Government Support as a Moderator

The establishment of adequate educational infrastructure and supportive policies is essential for the successful operation of business within the country, and governmental organizations performance an energetic role in providing such facilities (Ali et al., 2019). To foster an entrepreneurial environment, the government has to arrange strategies, including provisional finance resources, grants, training sections, and proper education infrastructure (Shariff, 2019). The governmental organizations are instrumental in promoting entrepreneurial activities by facilitating learning-based education at the university level, thereby enhancing entrepreneurial intention for university students (Ferreira et al., 2018). The government's support plays a dynamic role in determining students' aspirations by implementing various programs and initiatives. Consequently, the government of Pakistan is actively promoting entrepreneurship through several programs and seminars to improve the students willingness to becoming entrepreneurs (Muhamad et al., 2020).

Therefore, the government of Pakistan introduces a variety of loan schemes to support the financially independent development of Small and medium enterprises in different regions of Pakistan, including interest-

free loans (IFL), Prime Minister Youth Business Loans (PMYBL), and the Kamyab Jawan program. Additionally, the government of Pakistan launched the Youth Entrepreneurial Scheme (YES), which aims to advance the educational sector by stimulating entrepreneurial education of university students. Consequently, Ibrahim et al. (2022) argue that government support, acting as a moderator, can play a fundamental role in developing entrepreneurial activities that increase entrepreneurship awareness among university students by introducing favourable strategies that can directly affect the students' perception of entrepreneurship. Table 1 presents the governmental initiatives to promote entrepreneurship within Pakistan.

Table 1: Governmental Initiative for the Development of Entrepreneurship

Government Initiatives	Purpose
Interest-free loan	To motivate the students to start up at the micro-level and become self-independent.
Prime Minister Youth Business Loan	To support new and young entrepreneurs at the macro level, such as wholesalers, retailers, and manufacturers.
Kamyab Jawan	A loan for start-ups and expansion of business operations for students.
YES	Provide an educational loan for university students for higher education.
Incubation Center	Facilitation at the university level for developing university students' competencies, such as office space, lab facilities, workshops, and mentorship that promotes entrepreneurial awareness.

Note: Yousfani et al. (2019), Subhan (2016), and Muhammad (2020)

Research Hypotheses of the Study

Drawing on the insights of the literature review, the following hypotheses are proposed:

H_1: Entrepreneurial education ignites and nurtures university students' entrepreneurial intention in Pakistan.

H_2: The effect of entrepreneurial awareness ignites and nurtures entrepreneurial intention among university students in Pakistan.

H_3: Entrepreneurial education ignites university students' entrepreneurial awareness, translating into entrepreneurial intention in Pakistan.

H_{3a}: Entrepreneurial awareness significantly mediates the translation of entrepreneurial education into entrepreneurial intention of Pakistani university students.

H_4: Government support as a moderator influences how entrepreneurial education affects the university students' entrepreneurial intention in Pakistan.

H_5: Government support as a moderator influences how entrepreneurial awareness affects the university students' entrepreneurial intention in Pakistan.

Theoretical Framework of the Study

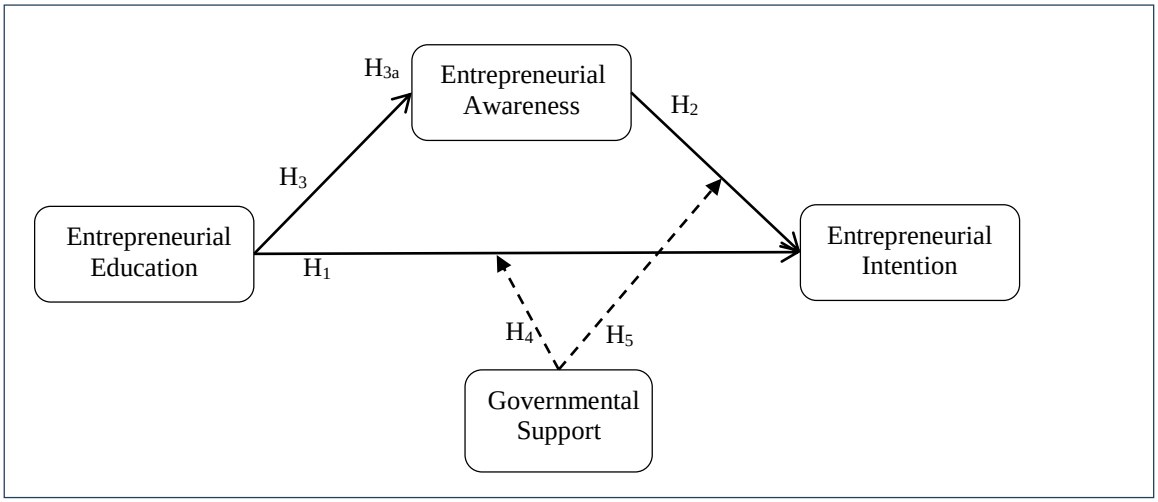


Figure 1 Theoretical Framework

Research Design and Methodology

Investigation by Handayati et al. (2020) suggests that personal factors, environmental input, and behavioural output are key determinants in shaping individuals' perceptions and decisions to track entrepreneurship as a profession path. Thus, the current proposed model has constructs that directly affect university students, including entrepreneurial education (independent variable), entrepreneurial awareness (mediating variable), government support (moderating variable), and entrepreneurial intention (dependent variable). The study explores the key drivers of igniting entrepreneurial intention to become a future Pakistani entrepreneur.

To analyze a comprehensive model, a quantitative technique was employed to assess the constructs of the model. Data was gathered through a developed questionnaire utilizing a five-point Likert scale, where participants rated their agreements (from 1 strongly disagree to 5 strongly agree) from ten Business universities, including five private and five public universities in the Punjab region of Pakistan. The study targeted final-year business students from the Punjab region of Pakistan.

In addition, to ensure the robustness of the model, several items were drawn from previous studies to evaluate the constructs of the model, recognizing that these studies were conducted within diverse contexts and parameters. The original research instruments were carefully examined and expertly rephrased to ensure precise alignment with the specific research objectives, guaranteeing both contextual relevance and analytical consistency. This careful adaptation process strengthens the study's validity and ensures the contribution of the existing body of knowledge. For the proposed model, five items were selected from Rudhumbu et al. (2016) for the evaluation of entrepreneurial education. Entrepreneurial intention was assessed using five items from Bin Mahajar (2012). Entrepreneurial awareness was assessed using four items from Rudhumbu et al. (2016) and Li & Wu (2019), and government support, four items were selected from Ye et al. (2020) and Hamilton (2015). The relationship among constructs within the model was analyzed using SmartPLS (version 4).

A simple random sampling strategy was implemented to capture the diverse range of perspectives from final-year business students across ten leading business universities in Punjab, Pakistan. This approach ensured a representative sample of the target population. The resulting data was analyzed using the powerful analytical tool SmartPLS 4, a sophisticated tool for exploring complex interrelationships and evaluating intricate theoretical models Hair et al. (2020). Structural equation modeling (SEM) has become indispensable in diverse fields such as business studies, education, healthcare, and social science, providing a robust framework for separating complex phenomena (Tan et al., 2023). The comprehensive evaluation of the model in SmartPLS 4 proceeded in two stages: first, an assessment of the measurement model to establish the overall fitness and validity of the constructs and their retrospective items, and second, hypothesis testing to determine the statistical significance of the hypothesized relationship between the constructs, following established practices

of Hair et al. (2020).

The total population for this study consisted of 781 final-year business students who had already taken entrepreneurship as a subject at their universities. The data was collected from the targeted population using a simple random sampling technique. A total of 800 questionnaires were distributed across the ten universities, and only 785 responses were acknowledged, with a 98% response rate from the respondents. After cleaning the data, ten responses were eliminated from the actual data due to straight-line and blank responses, and only 775 were valid for further analysis. Therefore, the total population consists of 775 final-year business students at ten universities in the Punjab region of Pakistan. With the robust sample size secured, the research proceeded to data analysis. The first step of this phase was a descriptive analysis designed to establish a clear profile of the study participants by estimating their key characteristics and demographic information. This descriptive analysis provided essential context for a deeper understanding of the respondents' backgrounds and relationships under the investigation.

Results and Discussion

Table 2 indicates the demographic profile of the study participants, drawn from five private and five public universities in the Punjab region of Pakistan. The questionnaires included demographic questions concerning their perspective on universities, a field of study, gender, and intention to choose entrepreneurship as a future occupation. Notably, most respondents comprised 63% (male 474) compared to 37% (281 females), with 59% expressing a desire to choose entrepreneurship after graduation. Further, out of the total respondents of 755, (11%) 86 respondents were enrolled at the University of Lahore, (12%) 91 respondents were enrolled at Gift University, (9%) 71 respondents were enrolled at the University Management & Technology, (11%) 84 respondents were enrolled at University of Central Punjab, (8%) 61 respondents were enrolled at The Commission on Science and Technology for Sustainable Development in the South, (9%) 67 respondents were enrolled at Superior University, (11%) 81 respondents were enrolled at The Foundation for Advancement of Science and Technology, (9%) 71 respondents were enrolled at SZABIST (9%) 66 respondents were enrolled at National College of Business Administration and Economics, (10%) 77 respondents were enrolled at Lahore University of Management Sciences. In addition, out of total respondents of 755, a total of 154 (20%) respondents were enrolled in accounting subject, 75 (23%) respondents were enrolled in business studies subject, 141 (19%) respondents were enrolled in HRM subject, 163 (18%) respondents were enrolled in marketing subject and 149 (20%) respondents were enrolled in finance subject.

Table 2: Demographic Summary of the Participants

	quency	**tage (%)**
Gender	N = 775	
Male	494	63
Female	261	37
Total		**100%**
Degree		
Accounting	177	23
Business studies	133	17
HRM	141	19
Marketing	152	20
Finance	172	22
Total		**100%**
Institutes		
The University of Lahore	90	12
Gift University	95	12

University of Sialkot	63	8
University of Central Punjab	80	10
Superior University	65	8
University of Sargodha	68	8
University Management and Technology	80	10
University of Punjab	73	9
University of Gujrat	62	8
University of Sargodha	79	10
Total		**100%**
Willing to choose entrepreneurship after graduation		
Yes	457	59%
No	298	41%
Total		**100%**

After successfully following the measurement analysis of the descriptive, the next step involves evaluating the measurement model to assess content validity, as per the suggestion of Hair et al. (2021). This phase encompasses several vital steps, including determining the constructs' content validity and examining convergent and discriminant validity. The following phase of determination of the structural model involves collinearity testing, the coefficient of determination among the constructs, and the path measurement of the constructs at a 5% significance level, in line with Hair et al. (2021).

Measurement Model

The measurement of an outer model designed to capture the complex interplay of factors influencing entrepreneurial intention, focusing on these elements that cultivate students' desire for entrepreneurship and strengthen their belief in their entrepreneurial perception, including personal factors, environmental factors, and behavioural output (Dheer, 2019; Handayati et al., 2020). To rigorously evaluate the complex association within the proposed theoretical model, this study employed SmartPLS, guided by the established practice of Hair et al. (2021). The analytical approach comprises two stages: measurement model assessment and structural model analysis. The measurement model includes convergent validity (factor loading evaluation and composite reliability) and discriminant validity. A construct was deemed reliable and satisfactory if it met the following standards: a factor loading exceeding 0.807, signify a strong reliability association between items and their corresponding constructs; a composite reliability score of at least -.7--, demonstrating robust internal consistency, and an average variance extraction surpassing 0.500, confirm that the construct explained more variance it its items that attributed to error and inducted a strong explanatory power.

Convergent validity

The magnitude of factor loading is a robust indicator of each item's convergent validity within the established measurement framework. As highlighted by Hair et al. (2021), an ideal factor loading should surpass 0.708, signifying a strong and meaningful relationship between the items and their associated constructs, effectively demonstrating how well the items represent the intended concept. As presented in Table 3, all items showed positive and statistically significant relationships within their corresponding constructs, with factor loading ranging from 0.688 to 0.846. Moreover, it is in accordance with the established guidelines of Hair et al.. An average variance extraction (AVE) exceeding the 0.500 threshold is acceptable. However, a factor loading of 0.400 can still be considered satisfactory, indicating that the constructs explain a reasonable portion of the variance within the associated items, and the higher loading observed indicates a robust relationship (a visual depiction of factor loading is provided in Figure 2).

Internal consistency

The subsequent phase of the analysis involved the assessment of the construct's internal consistency, a key component of the measurement model Hair et al., 2021). The results of internal consistency presented in Table 3demostrate that a model's constructs possess high reliability and excellent internal consistency, with

composite reliability values ranging from an impressive 0.843 to 0.877, providing compelling evidence of their coherence. Furthermore, according to the established guideline of Hair et al. (2021), the AVE should surpass 0.500 to confirm adequate convergent validity further. The data compatibly meets this criterion, aligning seamlessly with the model and the study's overall objectives, with AVE values ranging from 0.517 to 0.640. In summary, the measurement model assessment provides strong evidence of the collective data with high reliability and validity, making it well-suited for subsequent in-depth analysis.

Table 3 Measurement Model

Variable	Items	Loading	CR	AVE
Entrepreneurial Education	I believe that entrepreneurial education made me interested in becoming a future entrepreneur.	0.688	0.867	0.566
	By studying entrepreneurship education, my awareness and mindfulness of entrepreneurship have developed.	0.761		
	I believe entrepreneurial education will help me to deal with unpredictable marketplace challenges that may affect my business.	0.823		
	I believe that entrepreneurship education makes me more innovative in choosing entrepreneurship as a profession.	0.795		
	My lower entrepreneurial intention is due to a poor entrepreneurial education.	0.696		
Entrepreneurial Awareness	I believe the awareness regarding starting a new business can increase my entrepreneurial intention.	0.771	0.877	0.640
	Entrepreneurial education can enhance my entrepreneurial awareness and help me choose entrepreneurship as a future pathway.	0.813		
	I believe that practical-based learning can increase awareness that increases entrepreneurial intention.	0.795		
	I believe that entrepreneurship is a significant factor in increasing entrepreneurial intention.	0.822		
Government Support	I believe the government's rules and regulations favor launching a firm for young students.	0.864	0.862	0.612
	I believe the government's strategies incredibly encourage entrepreneurial activities among the young.	0.858		
	The government has provided business opportunities by providing funds to young students to start businesses after graduation.	0.673		
	The government has introduced new initiatives to increase awareness of entrepreneurship among students.	0.715		
Entrepreneurial Intention	I have a robust intention to become an entrepreneur.	0.723	0.834	0.517
	I have professional aims for choosing entrepreneurship in the future.	0.697		
	I have meaningful thoughts about entrepreneurship	0.750		

as a profession.	
I never considered entrepreneurship a career choice, as it is very uncertain.	0.683
After attending an entrepreneurship course, my intention to become an entrepreneur has increased.	0.714

Discriminant Validity

A key step in establishing the robustness of the measurement model was the assessment of discriminant validity, which determines the degree to which constructs are distinct and not overlapping. This study utilized the heterotrait-monotrait ratio (HTMT) approach, a sophisticated and widely recognized method recommended by Hair et al. (2021). This established criterion for HTMT is a value below 0.850, which provides strong evidence of discriminant validity. As presented in Table 4, the HTMT values comfortably satisfied this stringent criterion, consistently falling below the 0.850 threshold recommended by Hair et al. (2021). This confirmation of robust discriminant validity reinforces the integrity of the measurement model and provides a robust foundation for subsequent analyses.

Table 4 Discriminant Validity

	Entrepreneurial Awareness	Entrepreneurial Education	Entrepreneurial Intention	Government Support	Government Support x Entrepreneurial Awareness	Government Support x Entrepreneurial Education
Entrepreneurial Awareness						
Entrepreneurial Education	0.711					
Entrepreneurial Intention	0.528	0.706				
Government Support	0.308	0.344	0.647			
Government Support x Entrepreneurial Awareness	0.248	0.263	0.34	0.473		
Government Support x Entrepreneurial Education	0.276	0.162	0.301	0.08	0.767	

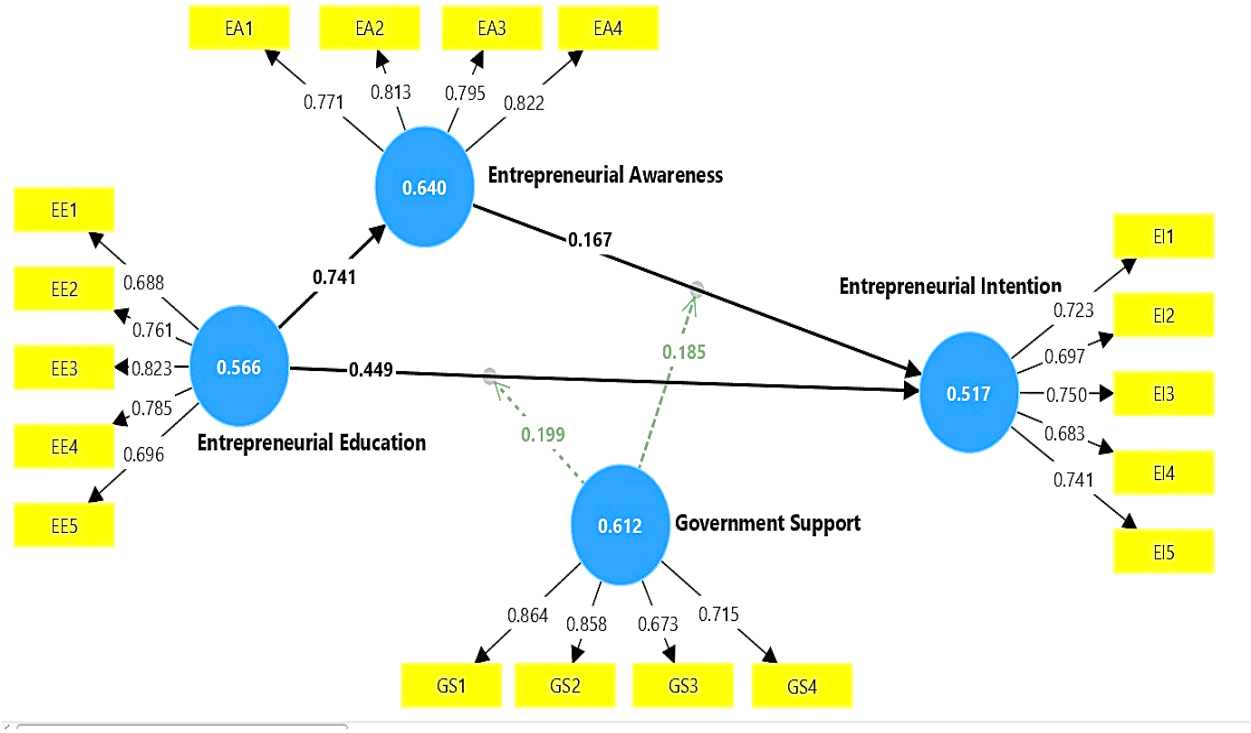


Figure 2 Measurement Model

Structural Model

Once the measurement model has been successfully calculated, the analysis progresses to the crucial structural model evaluation (inner model). This stage explores the complex interplay between the constructs, examining their mutual influences within the proposed theoretical framework. Evaluating the structural model involves several key steps, including assessing inner collinearity, the coefficient of determination, and the path measurement. A structural model is considered well-established if it meets the established criteria outlined by Hair et al. (2021). Specifically, the inner collinearity value, measured by the variance inflation factor (VIF), must be below 3.3, confirming the absence of problematic collinearity. The coefficient of determination (R^2) should fall within 0 and 1, with higher values indicating greater predictive relevance. Finally, for the path measurement to be considered statistically significant, the p-value must be below 0.05, and the t-value (for one tail) must surpass 1.645.

The initial focus of this evaluation was on assessing the inner collinearity, which measures the degree of formation among the predictive constructs. For this analysis, the variance inflation factor (VIF) was employed within the PLS-SEM framework as a powerful diagnostic tool for detecting potential collinearity issues that could jeopardize the integrity of the results. As Hair et al. (2021) outlined, a VIF value ideally below 3.3 is necessary to establish the absence of problematic collinearity within the construct of the inner model. The results clearly mentioned in Table 5 demonstrate that all VIF values comfortably reside within the adequate range. The compelling results definitively confirm the absence of significant collinearity and strengthen the robustness of the findings.

Table 5 Inner Collinearity of Constructs

Correlation	VIF
Entrepreneurial education -> Entrepreneurial Awareness	1.00
Entrepreneurial awareness -> Entrepreneurial Intention	1.412
Entrepreneurial education -> Entrepreneurial Intention	1.232
Government Support -> Entrepreneurial Intention	1.15
Government Support x Entrepreneurial Awareness -> Entrepreneurial Intention	2.615
Government Support x Entrepreneurial Education -> Entrepreneurial Intention	2.463

Coefficient of determination

After confirming the absence of collinearity issues, the subsequent step to estimating the coefficient of determination, known as R-Square, is to evaluate how exogenous factors influence endogenous factors. The R-square metric is crucial in defining how much of the variation in the dependent variable can be explained by the independent variable, with the range of values from 0 to 1 as per the guidance of Chin et al. (2010). The findings shown in Table 5 represent the value of R-square, which is 0.722, revealing that approximately 72% of the variance in entrepreneurial intention is due to entrepreneurial education, entrepreneurial awareness, and government support. On the other hand, it can be mentioned that 28% of the variance in entrepreneurial intention has not been explored in the current study. Similarly, the R-square value of entrepreneurial awareness is 0.549, indicating that approximately 55% of entrepreneurial awareness is due to entrepreneurial education and government support, and 45% of the variance in entrepreneurial awareness has not been discovered in the current study.

Table 6 R-square

Item	R_2
Entrepreneurial intention	0.722
Entrepreneurial Awareness	0.549

Path measurement of determination

Following the structural model's validation, the analysis's final stage focused on testing the study's hypotheses. Structural equation modeling was employed to evaluate the hypotheses, using a 5% significance level for statistical significance. This process enabled a definitive assessment of the nature and strength of the relationship among the constructs of the model. Consistent with the recommendation of Hair et al. (2021), the test focused on determining whether the exogenous variable exerted statistically significant effects on the endogenous variables. To further ensure the robustness of these findings, the bootstrapping technique with 1000 resampling was employed at a 5% significance level, as recommended by Henseler et al. (2015). The results of the hypothesis testing are presented in Table 7.

Table 7 Testing of Hypotheses of the Study

Correlation	T value	Path value	P-value	Decision
Direct Path				

H1	Entre. education -> Entre Intention	3.896	0.449	0.000	Accepted
H2	Entre. awareness -> Entre Intention	2.184	0.167	0.008	Accepted
H3	Entre. Education -> Entre. awareness	3.184	0.741	0.000	Accepted
	Indirect Path				
H3a	Entre. Education x Entre. awareness -> Entre Intention	3.431	0.641	0.023	Accepted
	Moderating path				
H4	Government Support x Entre. Education -> Entre. Intention	2.987	0.195	0.007	Accepted
H5	Government Support x Entre. Awareness -> Entre. Intention	2.896	0.199	0.002	Accepted
	Interaction Path				
	Government Support -> Entre. Intention	2.437	0.185	0.007	Accepted

Hypothesis 1: The findings of hypothesis 1 emphasize the significant transformative impact of entrepreneurial education on students' entrepreneurial intention at the University of Pakistan, enhancing their awareness, knowledge, and self-confidence through an educational experimental-based learning environment. The numerical analysis provides compelling evidence, a robust connection of entrepreneurial education and entrepreneurial intention, at path measurement 0.449, a t-value 3.896 (exceeded the threshold value 1.645), and p-value of 0.000 (5% significance level), in line with the guidance of Hair et al. (2021). Thus, the findings underscore that entrepreneurial education plays a pivotal part in cultivating the entrepreneurial intention of university students in Pakistan.

Hypothesis 2: The findings of hypothesis 2 demonstrated that entrepreneurial awareness influences students' entrepreneurial intention at the University of Pakistan, through numerous entrepreneurial initiatives, like workshops, training sections, and other entrepreneurial activities, to foster entrepreneurial awareness. The numerical analysis indicated a robust link between entrepreneurial awareness and entrepreneurial intention, a path measurement 0.167, a t-value 3.184 (exceeded the threshold value 1.645), and a p-value 0.008 (5% significance level) per the guides of Hair et al. (2021). Thus, the finding of Hypothesis 2 underscores the crucial role of entrepreneurial awareness in shaping the entrepreneurial intention of university students in Pakistan.

Hypothesis 3: The results indicate that willingness to pursue higher education in starting their own business can increase awareness regarding entrepreneurship, ultimately enhancing students' entrepreneurial intention. Specifically, the path analysis revealed a coefficient of 0.641, a p-value of 0.023 (5% significance level), a t-value of 3.431 (exceeded the threshold value 1.645), recommended by Hair et al. (2021). These findings suggest that entrepreneurial awareness significantly enhances students' perception of entrepreneurship as a viable career option, thereby reinforcing the critical mechanism through which entrepreneurial education becomes a more influential factor on students' entrepreneurial intention.

Mediating Analysis

Hypothesis 3a: According to the assumption of hypothesis 3, entrepreneurial awareness is a crucial bridge for raising an entrepreneurial mentality, ultimately enhancing students' perception of entrepreneurship as a future business. The numerical analysis discloses that entrepreneurial awareness serves as a positive mediator concerning entrepreneurial education and entrepreneurial intention, a path measurement of 0.741, a p-value of 0.000 (5% significance level), a t-value of 3.431 (exceeded the threshold value 1.645), and, as per the established value of Hair et al. (2021). Thus, the findings suggested that entrepreneurial awareness significantly mediates (mediator) the association of entrepreneurial education and the entrepreneurial intention of university students in Pakistan and reinforces their awareness of pursuing entrepreneurship as a future occupation.

Moderation Analysis

Hypothesis 4: According to the assumption of hypothesis 4, government support performances are a key moderating factor amongst entrepreneurial education and entrepreneurial intention for university students in

Pakistan, and they strengthen the relationship as well. The numerical analysis exposed a positive moderating correlation of government support, a path measurement of 0.195, a t-value 2.987 (exceeds the recommended threshold value 1.645), and a p-value of 0.007 (5% significance level). Thus, the findings of the path measurement demonstrate that government support, as a moderating variable, positively enhances and strengthens the association of entrepreneurial education and entrepreneurial intention of Pakistani university students, motivating them to choose entrepreneurial projects.

The second assumption, regarding government support's moderating effect on the association of entrepreneurial education and entrepreneurial intention, is vividly illustrated in Figure 3. This reveals a clear trend that the slope of the moderating effect becomes steeper as a higher level of government support means that entrepreneurial education is more effective and positive with a high presence of government support. On the other hand, when the presence of government support is lower, the slope becomes less steep, indicating that the backing of government support can also cause lower entrepreneurial intention. Thus, the findings have confirmed that the manifestation of government support is crucial in fostering students' entrepreneurial willingness and attitude to choose entrepreneurship.

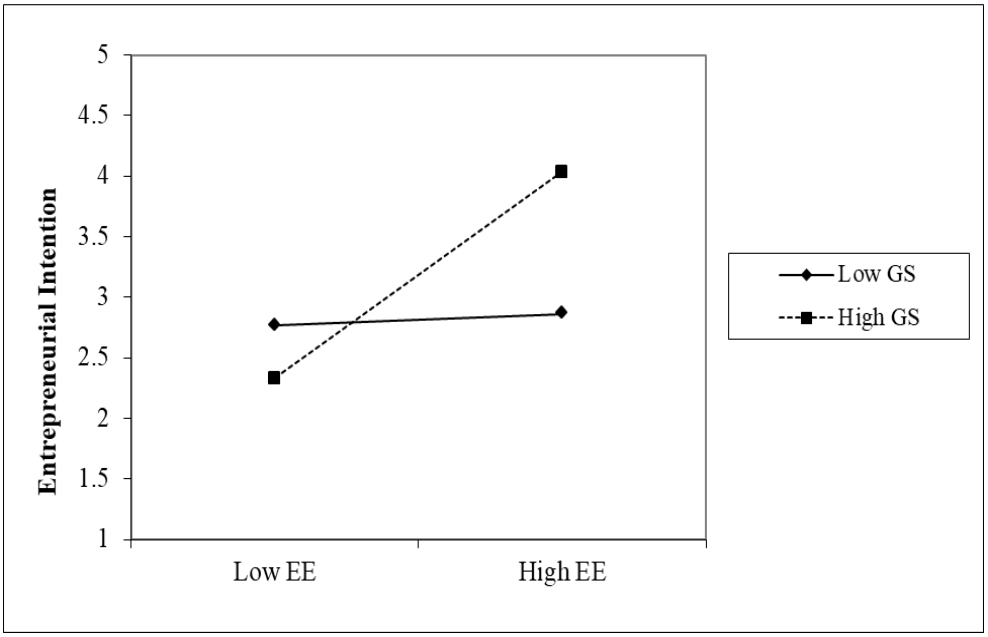


Figure 3: Moderation Analysis of GS x EE -> EI

Hypothesis 5: According to an assumption of hypothesis 4, government support significantly moderated and strengthened the relationship between entrepreneurial awareness and entrepreneurial intention of university students in Pakistan. The numerical analysis reveals a robust moderating correlation between entrepreneurial awareness and entrepreneurial intention, a path measurement 0.199 and a t-value 2.896 (exceeded the threshold value 1.645), and with a p-value 0.001 (5% significance level) as certified by Hair et al. (2021). Thus, the findings demonstrate that government support not only strengthens the association between entrepreneurial awareness and the entrepreneurial intention of university students in Pakistan. Moreover, government support also acts as a catalyst, amplifying how entrepreneurial awareness shapes students' aspirations and encouraging them to engage in the Pakistani entrepreneurial landscape confidently.

According to the second assumption regarding the moderating effects of government support on entrepreneurial education and entrepreneurial intention, as illustrated in Figure 4. The findings indicate that the slope of the moderating increases significantly at a higher level of entrepreneurial awareness, resulting in a stronger and more influential entrepreneurial intention for university students from Pakistan. In essence, when university students are at a higher level of presence of government support, it not only raises students' entrepreneurial intention but also fosters their perception to choose entrepreneurship as a future occupation. Conversely, at the lower level of government support, the slope becomes less steep, indicating that the moderating effects of government support can be a powerful force in shaping students' entrepreneurial intention and confidence in choosing entrepreneurship.

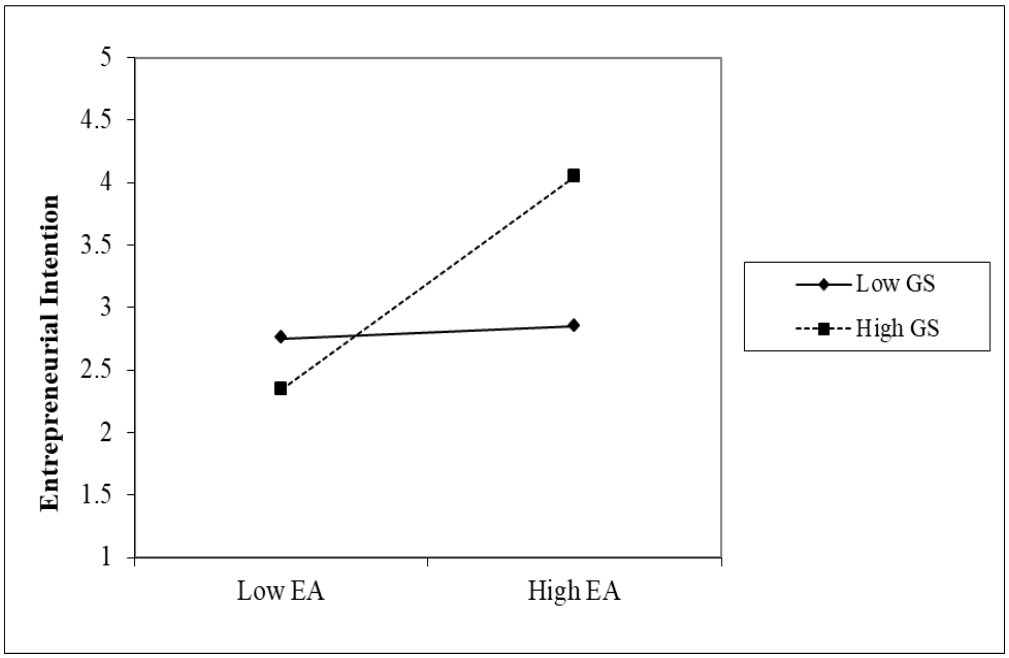


Figure 4: Moderation Analysis of GS x EA -> EI

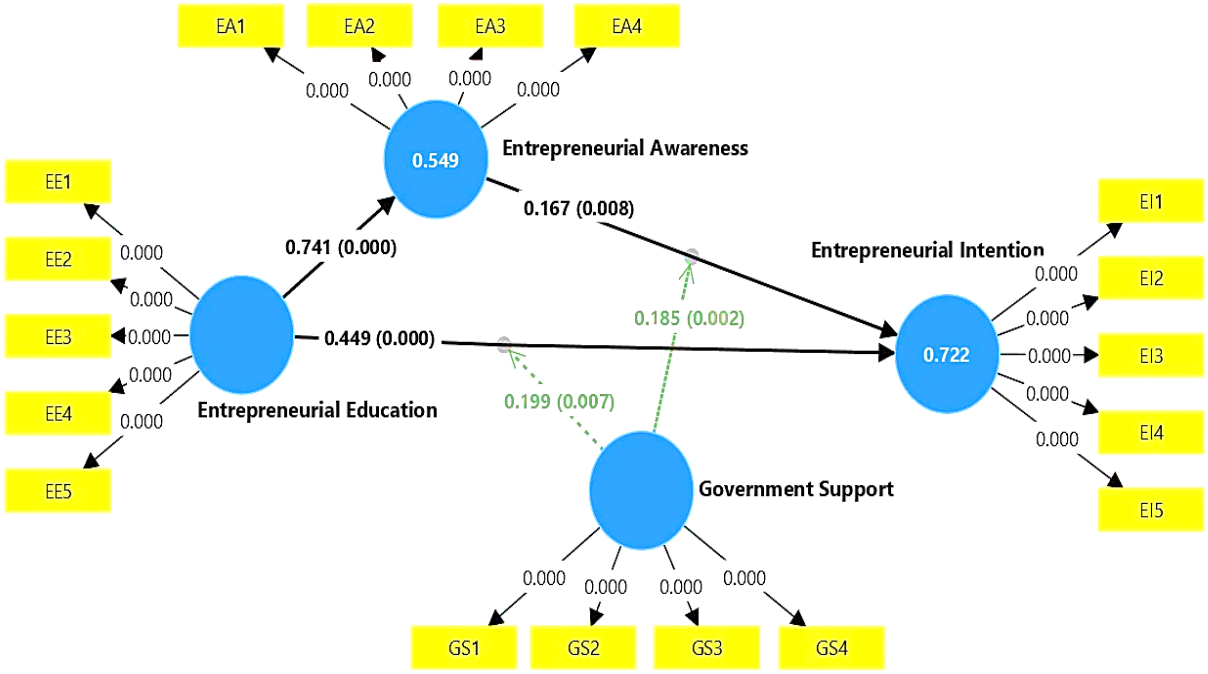


Figure 5 Structural Model

Discussion of the Findings

The prime objective of the study is to explore the key factors that inspire an individual's entrepreneurial perception and willingness to develop an entrepreneurial mindset, ultimately guiding them in choosing entrepreneurship for a future career. According to the findings of hypothesis 1, the statistical analysis supports that entrepreneurial education greatly enhances students' entrepreneurial intention at Pakistani universities. The analysis yields a path measurement of 0.449, with a t-value of 3.896 and a p-value of 0.000 (at a 5% significance level). The findings demonstrated that entrepreneurial education significantly strengthens

students' entrepreneurial intentions by providing entrepreneurial knowledge, awareness, and self-confidence. Additionally, the findings also align with the study of Munawar et al. (2023), who argued that entrepreneurial education, especially within higher institutions, provides practical learning experiences that cultivate an entrepreneurial mindset. Thus, it reinforces shaping students' entrepreneurial aspirations, empowering them with essential knowledge and awareness, which is needed to manage their future perception of choosing entrepreneurship more confidently.

According to assumption hypothesis 2, entrepreneurial awareness is pivotal in shaping students' entrepreneurial intention in Pakistan. The numerical analysis also reinforces with a positive effect, showing a p-value of 0.015 000 (at a 5% significance level), a path measurement 0.332, and a t-value of 2.184. These results underscore the importance of entrepreneurial awareness in fostering an entrepreneurial mindset and fueling students' drive to pursue entrepreneurial intention. Moreover, the findings align with Rincy's study (2019), which emphasizes that entrepreneurial awareness plays a decisive role in fostering and shaping entrepreneurial perception and choosing entrepreneurship as a future pathway. Hence, entrepreneurial awareness does more than inform; it also cultivates confidence and resilience in students, enabling them to manage a business with more courage and agility. Indeed, entrepreneurial awareness can empower students to think critically and act decisively. It can become a cornerstone for building a strong entrepreneurial mindset and reinforcing their abilities to succeed in the competitive business world.

The findings confirm that entrepreneurial awareness significantly affects students' entrepreneurial intention at Pakistani universities, with p 0.671, 0.0023. The results align with the prior studies of Shahzad et al. (2021) that emphasize the role of awareness as a cognitive mechanism that translates educational exposure into entrepreneurial aspirations that shape students' perceptions of entrepreneurship not only as a viable but also as an attractive career choice. This supports the notion that awareness is a psychological bridge between learning and action, enabling students to internalize entrepreneurial knowledge and envision themselves as future entrepreneurs.

According to hypothesis 3a, the moderating effect of entrepreneurial awareness on fostering students' entrepreneurial intention. The statistical analysis confirms the crucial mediating role in identifying new business opportunities by facilitating several strategies, plans, and policies, ultimately shaping their future entrepreneurial intention. The findings also reveal a positive moderating effect with a path measurement value of 0.741, a t-value of 3.431, and a p-value of 0.000 (at a 5% significance level). These analyses resiliently indicate a strong positive moderating effect in cultivating students' entrepreneurial intention at Pakistani universities. The findings align with the study of Xingzhong et al. (2019), which indicated that increasing awareness can be achieved through various methods, such as explaining relevant policies for a clearer understanding of entrepreneurial circumstances and inspiring them by establishing coordinated supportive networks with business professionals. These networks help students to understand the complexities of entrepreneurship more efficiently. Therefore, entrepreneurial awareness acts as a potent mediator, significantly influencing students' future decisions regarding pursuing entrepreneurship through thought, equipping them with insights and supportive systems needed to transform entrepreneurial potential into action as a rewarding and attainable career path.

According to hypothesis 4 explains the moderating role of government support, strengthening the link of entrepreneurial education and the entrepreneurial intention to motivate the young Pakistani generation at the university level. According to numerical analysis, the findings reveal that government support moderates significantly and strengthens students' attitudes to go for entrepreneurial education that can foster entrepreneurial intention, with a coefficient of 0.195 and a p-value 0.007, indicating that government support acts as a catalyzing force, amplifying the impact of entrepreneurial education on students' entrepreneurial intention. Indeed, the findings demonstrate that government support acts as a moderating catalyst in increasing the impression of entrepreneurial education and increasing the entrepreneurial intention of students at Pakistani universities. Additionally, the findings align with the study of Ibrahim et al. (2022), which underlines that government support plays a vital role in emphasizing entrepreneurial education through several initiatives, including workshops, training sections, and education infrastructure that ultimately foster the entrepreneurial intention of university students. Therefore, the government supports a transformative role in shaping the educational ecosystem by providing resources and opportunities that bridge the gap between education and the practical application of an effective learning atmosphere, which can inspire a new generation of entrepreneurs, driving economic growth and development in Pakistan.

According to hypothesis 5, the moderating effects of government support on entrepreneurial awareness and students' entrepreneurial intention were observed. The numerical analysis has confirmed that government support significantly moderates the effect of entrepreneurial awareness, with a path measurement value 0.199, a t-value 2.896, and a p-value 0.001 at a 5% significance level, indicating a statistically significant correlation. The findings highlight a substantial and statistically significant positive, and government support plays a decisive role in boosting entrepreneurial awareness and indications of entrepreneurial intention through several strategies, such as workshops, training sessions, and adequate educational infrastructure. Additionally, the results also align with Ibrahim et al. (2022), who found that government support as a moderator plays a crucial role in promoting entrepreneurial awareness through several entrepreneurial activities that can raise entrepreneurial perception to choose entrepreneurship as a future occupation. Therefore, untimely government support is considered a moderating force in enhancing entrepreneurial awareness through nurturing students' entrepreneurial intention at Pakistani universities and transforming entrepreneurial aspirations into action. Within this context, the Higher Education Commission of Pakistan has been instrumental in strategically aligning higher education with the evolving needs of the entrepreneurial landscape. Through the establishment of incubation centers and the provision of continuous training and workshops, the HEC has cultivated a thriving entrepreneurial ecosystem within higher education that not only enhances students' skills and knowledge but also empowers them to envision entrepreneurship as a viable and desirable career path, thereby contributing to the nation’s economic progress and social development.

Conclusion, Limitations, and Future Research

The study emphasizes the crucial impact of entrepreneurial education in fostering students' entrepreneurial intention at Pakistani universities despite challenges such as limited funding, a traditional schooling system, and limited entrepreneurial activities at the university. It highlights how entrepreneurial education and awareness are key factors in developing an entrepreneurial mindset to increase students' intention to pursue entrepreneurship. Further, governmental support through grants, effective educational policies, academic reforms, and other educational activities can enhance entrepreneurship development at the university level. The study offers valuable insight for policy-makers, academicians, and governmental organizations to focus on developing the experimental base learning education system at Pakistani educational universities and curriculum improvement, ultimately fostering entrepreneurship among young Pakistani university students.

While this study provides valuable insights with specific limitations that open up exciting opportunities for future research, first, the study focuses on final-year business students from these universities in the Punjab region, Pakistan, which limits the generalizability of the findings to other student populations. Second, the likely use of a cross-sectional design question used for collecting data at a single time prevents the establishment of causal links between the constructs. Third. The reliance on self-reported data from the structured questionnaires raises the possibility of standard method bias and social desirability bias, where respondents may provide an answer they believe is socially acceptable rather than entirely accurate. Furthermore, the scope of this study may not have fully explored other potentially influential factors, such as university culture.

These limitations suggest several promising directions for further research. Expanding the sample to encompass students from diverse disciplines, regions of Pakistan, or other countries would enhance the generalizability of the findings. Employing longitudinal studies, which track data over time, would allow for establishing a causal relationship between entrepreneurial education, entrepreneurial awareness, and governmental support in fostering entrepreneurial intention. Integrating qualitative methodologies, such as in-depth interviews or focus groups, would provide more prosperous, more nuanced insights into students' experience and perception of entrepreneurship and other factors shaping their intention. Finally, comparative analysis between different universities or regions could offer valuable insights into the efficacy of these approaches to entrepreneurial education and entrepreneurial intention.

Competing Interest

The author has disclosed no potential conflicts of interest about this article’s research, authorship, and publication.

Conflict of interest: the authors have no conflicts of interest while publishing this paper.

Author Contribution

Conceptualization and methodology: G.M.; formal analysis: G.M., SAM; investigation: G.M. and MH; Data screening: G.M., MH; Writing-original draft preparation: G.M.; Review and editing: G.M.; Visualization: G.M.; Supervision: G.M.; Project administration: G.M.; final Draft: G.M., MH, SAM. All authors have read and approved the final version of the manuscript.

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