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Cultivating Entrepreneurs: Unpacking the Interplay of Ecosystem, Support, and Attitude in Driving Entrepreneurial Action

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ABSTRACT

This study investigates how perceptions of the entrepreneurial ecosystem (EE), educational support (PES), and institutional support (PIS) influence entrepreneurial behavior (EB) through the mediating role of attitude toward entrepreneurship (ATE). Grounded in the Theory of Planned Behavior and institutional theory, we propose an integrated model tested with data from 450 university students in Gujranwala, Pakistan, using structured questionnaires and regression-based mediation analysis. Results demonstrate that all three environmental factors significantly enhance entrepreneurial attitude, with educational support emerging as the strongest antecedent. Attitude itself powerfully predicts entrepreneurial behavior. While both the entrepreneurial ecosystem and educational support exhibit significant direct effects on behavior alongside their indirect effects through attitude, institutional support operates exclusively through attitude mediation, showing no direct impact on entrepreneurial actions. The findings confirm full mediation for institutional support: Its influence on behavior is entirely channeled through cultivating favorable entrepreneurial attitudes. In contrast, ecosystem perceptions and educational support demonstrate partial mediation, maintaining complementary direct effects on behavior beyond their impact on attitude. This highlights context-driven pathways, where institutional support functions primarily as a risk-mitigating attitude shaper in emerging economies with perceived institutional voids, while ecosystem and educational factors concurrently enable action through both psychological and resource-based pathways. The study advances entrepreneurship theory by integrating macro-environmental and micro-psychological perspectives, revealing distinct mechanisms through which support structures translate into venture creation. Practical implications emphasize: Prioritizing attitude cultivation in entrepreneurship education programs; enhancing visibility of ecosystem resources to strengthen perceived support, and addressing institutional barriers to improve risk perceptions among nascent entrepreneurs.

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1. Introduction

Entrepreneurship is a strong factor of economic development, employment, innovation, and resiliency of the population (Acs et al., 2017; Audretsch, Belitski, & Cherkas, 2021). In a world that is fast-changing due to technological disruption, globalisation, and complex issues, such as climate change and pandemics, the promotion of healthy entrepreneurial activity is no longer an option but a necessity in creating national and regional competitiveness (Stam & Van De Ven, 2021). In light of this understanding, governments, universities, and other private institutions spend lots of resources on developing supportive ecosystems, commonly defined as the Entrepreneurial Ecosystems (EEs) and programs in the forms of accelerators, incubators, and

other forms of support to potential entrepreneurs (Autio et al., 2018; Brown & Mason, 2017). Nevertheless, it is a very complicated and important question how exactly these macro-level systems and perceived micro-level supports can be transformed into actual entrepreneurial behavior (Theodoraki, Dana, & Caputo, 2022; Wurth, Stam, & Spigel, 2022).

About this, the framework of entrepreneurial ecosystems has recently acquired considerable attention by transcending unsophisticated conceptions of entrepreneurship in favor of highlighting the interactivity of various players (entrepeneurs, investors, universities, government), institutions (formal and informal), infrastructure, and culture in a given landmass (Roundy, Bradshaw, & Brockman, 2018; Stam & Van De Ven, 2021). It is believed that a prosperous ecosystem minimizes the barriers, furnishes resources, promotes learning, and validates the practices of entrepreneurship (Spigel & Harrison, 2018; Theodoraki, Dana, & Caputo, 2022). At the same time, the role of the perceived support offered by particular institutions, especially educational ones (e.g., universities related to the course of entrepreneurship, incubators) and the wider institutional structure (e.g., government policies, ease of regulations) in developing the entrepreneurial intentions and abilities is often emphasized (Nabi et al., 2018; Piperopoulos & Dimov, 2015). It is believed that educational institutions are one of the major faculties to establish human capital, entrepreneurial abilities and to create supportive networks (Walter & Block, 2016; Zhang, Duysters, & Cloodt, 2014). The interconnection does not seem to be direct, though, between these external environmental factors (EE, institutional support, educational support) and the final outcome of an entrepreneurial behavior. The central mediating role is theorized to be represented by psychological constructs, specifically, entrepreneurship attitude of a person (Shirokova et al., 2017). The development of attitude toward entrepreneurship, based on the Theory of Planned Behavior (TPB) (Ajzen, 1991), specifically the extent to which a respondent perceives starting a business as the degree to which that activity is personally desirable, is a well-established proximal relation of entrepreneurial intention, which is one of the main antecedents of the entrepreneurship behavior (Krueger, Reilly, & Carsrud, 2000; Schlaegel & Koenig, 2014). Although the structural provisions of the EE and support structures indeed give the context and resources, it is the cognitive/affective appraisal of entrepreneurship of the individual, possibly influenced by those exact factors, which has a direct impact on his or her decision to act entrepreneurially.

Nevertheless, despite the recognized relevance of the entrepreneurial ecosystems (Stam & Van De Ven, 2021), perceived educational support (Nabi et al., 2018), and perceived institutional support (Estrin, Mickiewicz, & Stephan, 2016), there is still a major lack of knowledge how the three types of support interactively and combined lead to a change in the actual entrepreneurial behavior. There are three key interconnected issues which drive this study:

Although macro-level processes occurring within ecosystems are more and more mapped (Theodoraki, Dana, & Caputo, 2022), very little is known about the way in which individuals receive and internalise the assistance they get within their immediate ecosystem, namely, through the means of educational offers and a wider range of institutional systems. An objective availability of resources might vary greatly with the subjective experience of support (Kansheba & Wald, 2020; Welter et al., 2017). What is the role of perceptions of educational and institutional support in mediating or crossing influence with the ecosystem more broadly? Even though attitude towards entrepreneurship has been demonstrated to be an important psychological antecedent, to date, there is surprisingly little empirical research modeling it explicitly as a mediating process in between perceived ecosystem characteristics (through education and institutional support) and really-acted entrepreneurial behavior. The intentions are often the final objective of various studies (Schlaegel & Koenig, 2014) or investigated and not tested by the presence of a psychological pathway (Autio et al., 2018). The key issue on the relationship between the perceived support structure in its formation and behavior due to the building or the establishment of the favorable attitudes has not been covered properly.

Very significant amounts of entrepreneurship studies are based on the utilization of entrepreneurial intentions as a behavior-proxy (Kautonen, Van Gelderen, & Fink, 2015). Yet, the intention-behavior gap has a rich literature, so it implies that a lot of those who intend to become a business founder never manage to become one (Shirokova et al., 2017). The importance of

directly examining what lies behind observed entrepreneurial behaviours (e.g. business set up, major new venture activities) instead of merely focusing on intentions, particularly as related to the role of ecosystems and felt support is an urgent research topic (Wurth, Stam, & Spigel, 2022). This gap is important since it impedes effective design and targeting of policies and programs on support of entrepreneurship. Unless there is a dialogue on the psychological pathway, aka how the features of the ecosystem can be translated to feelings of support which subsequently determines attitudes that ultimately influences behavior, interventions will be inefficient or only partially efficient. As an example, the decision to invest in the infrastructure of ecosystem, in case there is no positive perception of available support or no conversion into a more active attitude to venturing could be meaningless.

The overall objective of the study is to examine intricate connections between the entrepreneurial ecosystem, perceived educational support, perceived institutional support, attitude toward the entrepreneurship and entrepreneurial behavior. In particular, it has to:

1. Study the direct implications of the entrepreneurial ecosystem perceived, educational support perceived and institutional support perceived on the entrepreneurial behavior.
2. Explore direct impact of the perceived entrepreneurial ecosystem, perceived educational support, and perceived institutional support on attitude toward entrepreneurship.
3. Measure the direct evaluation of attitude toward entrepreneurship and entrepreneurial behavior.
4. Discover the mediating of the attitude towards entrepreneurship in the connections between (a) the perceived entrepreneurial ecosystem and the entrepreneurial behavior, (b) the perceived educational support and the entrepreneurial behavior, and the perceived institutional support and the entrepreneurial behavior.
5. Identify the possible interactive effects of perceived entrepreneurial ecosystem with perceived educational support, and the perceived institutional support in formation of attitude and behavior.

In a bid to realize the mentioned objectives, this research poses the following research questions:

1. How much influence does the perceived education support, the perceived institutional support and perceived entrepreneurial ecosystem quality have on entrepreneurial behavior on a direct basis?
2. How strong is the effect of perceived quality of entrepreneurial ecosystem, as well as perceived education support and perceived institutional support to show direct effect on attitude toward entrepreneurship?
3. How well does attitude toward entrepreneurship as a form of behavior directly affect entrepreneurial behavior?
4. Does attitude toward entrepreneurship intervene in association between:
   - a) Quality of the perceived entrepreneurial ecosystem and entrepreneurial behavior?
   - b) The perceived entrepreneurial behavior and education support?
   - c) The perceived institutional support and the entrepreneur behavior?
5. Do the items treated as perceived entrepreneurial ecosystem quality, perceived educational support and perceived institutional support have any notable interaction effects towards predicting (a) the attitude towards the entrepreneurship and (b) entrepreneurial behavior?

It links the macro-level outlooks on entrepreneurial ecosystem with micro-level psychological (attitude) and behavioral (action) approaches to entrepreneurial emergence allowing a more comprehensive picture to be drawn (Autio et al., 2018; Stam & Van De Ven, 2021; Welter et al., 2017). The study explicitly models and test attitude toward entrepreneurship as an intermediary and, therefore, offers strong empirical evidence on a critical psychological mechanism of how environmental perceptions are translated into action, enforcing the use of TPB in the context of entrepreneurship (Ajzen, 1991; Liñán & Chen, 2009). It differentiates and at the same time analyzes the roles of perceived support by two important pillars of the institution in the ecosystem education and more broadly institutions and allows to more precisely understand their comparative importance and interaction (Estrin, Mickiewicz, & Stephan, 2016; Nabi et al., 2018). The shift to behavior does not only overcome the relevant gap but also increases the practical value of studies (Kautonen, Van Gelderen, & Fink, 2015; Shirokova et al.,

2017). The findings will elaborate to policymakers and economic development agencies which elements of ecosystem development (such as creating favorable learning environments compared to easing regulations) are the most effective in forming favorable attitudes that subsequently drive the takeoff of entrepreneurship activity. This enables it to plan resource allocations better and more efficiently. Training providers and universities can learn how their services and products are perceived as well how well they develop not only skills but also the all-important positive attitudes that are essential in establishment of ventures. This may steer curriculum design and facilitate in service design (Nabi et al., 2018; Zhang, Duysters, & Cloodt, 2014). Actors engaged in the development of an entrepreneur ecosystems (incubators, accelerators, trade associations etc.) will have a more accurate picture of how what they do specifically can be conveyed through individual perceptions and attitudes to be targeted, to communicate and interact with maximum effectiveness. Would-be and future entrepreneurs would be able to self-disclose on the interplay of support perceptions and personal attitudes and thus may need necessary consideration to finding suitable means and emerging frames of mind.

2. Literature Review

As can be argued, entrepreneurship is one of the most important drivers of economic growth, innovation, and employment in the 21 st century (Acs et al., 2017; Stam & Van De Ven, 2021). Nonetheless, the journey between the potential and actual actions of entrepreneurs is a complicated and situational issue. This review aims to integrate the existing theories and empirical evidence on the manner in which environmental forces (entrepreneurial ecosystem), institutional perceptions (educational and institutional support), and cognitive agents (attitude toward entrepreneurship) are related, to form the entrepreneurial behavior. Based mainly on the Theory of Planned Behavior (TPB) (Ajzen, 1991) and supported by institutional theory (North, 1990) and business ecosystem approaches (Stam & Van De Ven, 2021), we build an overarching model of explaining both direct and mediated routes to taking entrepreneurial action. Such meta-analysis in recent years reaffirms the existence of critical gaps in the comprehension of the transfer of ecosystem factors into the behavior of individuals through psychological processes (Kansheba & Wald, 2020; Theodoraki, Dana, & Caputo, 2022), which makes such an integrated analysis both timely and theoretically important.

2.1. Theoretical Foundations

2.1.1. Theory of Planned Behavior (TPB)

The basis of the psychological foundation of this work is the TPB (Ajzen, 1991) which assumes that the behavior is directly determined by the behavioral intentions which are driven by three antecedent elements namely (1) attitude towards the behavior, (2) subjective norms, and (3) the perceived behavior control. TPB has been confirmed to have a good explanatory potential within an entrepreneurship context (Kautonen, Van Gelderen, & Fink, 2015; Schlaegel & Koenig, 2014), and attitude toward entrepreneurship has remained as the strongest predictor of entrepreneurial intentions regardless of culture or national origin. More importantly, TPB takes account of the fact that the background conditions then have an indirect influence on behavior such as the influence of background conditions that is mediated by these cognitive antecedents.

2.1.2. Institutional Theory

The institutional theory (North, 1990; Scott, 1995) argues that formal and informal institutions affect economic action and its behaviour in terms of three pillars regulative (laws, policies), normative (values, expectations) and cognitive (shared conceptions). Perceived institutional support indicates the regulative dimension and the perceived educational support shows the normative/ cognitive dimension. Estrin, Mickiewicz and Stephan (2016) show the basic transformation of entrepreneurial risk estimations and perceptions of the opportunities altered by institutional quality.

2.1.3. Framework of Entrepreneurial Ecosystem

The term entrepreneurial ecosystems (EE) is used in the context of interdependent actors, institutions, and processes that all contribute to entrepreneurship in a territory (Stam & Van De Ven, 2021). EE frameworks focus on the interaction and emergent properties at the system level rather than at the institution level, unlike most of the conventional institutional approaches (Theodoraki, Dana, & Caputo, 2022). According to recent studies, individual perceptions of ecosystem quality are particularly critical as a different facet of objective quantification (Kansheba & Wald, 2020; Welter et al., 2017).

2.1.4. Hypothesis Development

Propounded Attitudinal Direct-Effects on Entrepreneurship

H1: Attitude toward entrepreneurship will positively relate to the perceived quality of entrepreneurial ecosystem.

Successful ecosystems present individuals with entrepreneurial role models, success stories, and other favourable cultural discourses that make entrepreneurship desirable (Spigel & Harrison, 2018). Ecosystems feature what is known as spatial affordances, which makes entrepreneurship as a career more naturalized (Autio et al., 2018). According to Theodoraki, Dana and Caputo (2022), the vibrancy within the ecosystem is significantly related to the entrepreneurial attitudes of university students.

H2: Attitude toward entrepreneurship will positively be associated with perceived educational support.

The knowledge, skills and self-efficacy cultivated through entrepreneurship education reframes issues of entrepreneurship as achievable (Nabi et al., 2018). The real change happens through effective programs, which allows realizing that venture creation can be interesting and feasible personally (Piperopoulos & Dimov, 2015). The meta-analysis conducted by Zhang, Duysters and Cloodt (2014) demonstrated the prominent positive impact of education on entrepreneurial attitudes (beta = .38).

H3: The underlying reason is that perceived institutional support will have a positive relationship with attitude toward entrepreneurship.

A company that people consider safe and questionable and preferable is more likely to become an entrepreneur when they see favorable policies, available financing, and simplified regulation (Estrin, Mickiewicz, & Stephan, 2016). Perceived barriers are presented through institutional legitimacy, which increases, in turn, entrepreneurial desirability (Kansheba & Wald, 2020). The works of Stenholm et al. (2013) proved that institutional support enhanced the attitude towards entrepreneurial ventures in 13 countries.

2.1.5. Direct Impact on the Enterprise Conduct

H4: The entrepreneurial behavior will have a positive relation to perceived entrepreneurial ecosystem quality.

Ecosystems offer vital resources (funding, talent, knowledge spillovers) that directly facilitate the venture creation (Stam & Van De Ven, 2021). Good networks minimize the costs of transactions and enhance more rapid exploitation of opportunities (Wurth, Stam, & Spigel, 2022). Autio et al. (2018) came to the conclusion that the rates of new venture formation were directly predicted by ecosystem connectivity.

H5: Education perceived as supportive in relation to entrepreneurs behavior will have a positive relationship.

Besides forming attitudes, education is tangible (business planning, resource acquisition) and a source of networks necessary to launch a venture (Walter & Block, 2016). As Nabi et al. (2018) showed, a direct increase in startup activities of 27 percent occurred in those individuals who concurrently participated in entrepreneurship programs during their academic years.

H6: entrepreneurial behavior will be related positively with perceived institutional support.

Favorable rules, tax benefits, and the accessibility of government funding cut barriers to startup and direct costs (Estrin, Mickiewicz, & Stephan, 2016). According to Kansheba and Wald (2020), the rates of business registration in emergent economies were determined mainly by the subjective support by institutions.

H7: There will be a positive correlation between attitude towards entrepreneurship and entrepreneurial behavior.

Positive attitudes create better behavioral intentions and corresponding behaviors as the fundamental TPB hypothesis (Ajzen, 1991; Kautonen, Van Gelderen, & Fink, 2015). As meta-analysis revealed, attitude has been confirmed as the most powerful direct source of entrepreneurial behavior (beta =.42).

2.1.6. Indirect Effects On Attitude

H8: The relationship between entrepreneurial behavior and perceived quality of entrepreneurial ecosystem with attitude toward entrepreneurship.

Ecosystems contribute to determining behavior in resource-dependent, as well as in the cognitive perception of the viability and desirability of entrepreneurship. Kontact recovery bases the convertion of the environmental state into a manners of behaviour on the psychological internalization of ecosystem support (Welter et al., 2017). Theodoraki, Dana and Caputo (2022) discovered partial mediator in which ecosystem impacts worked through attitude.

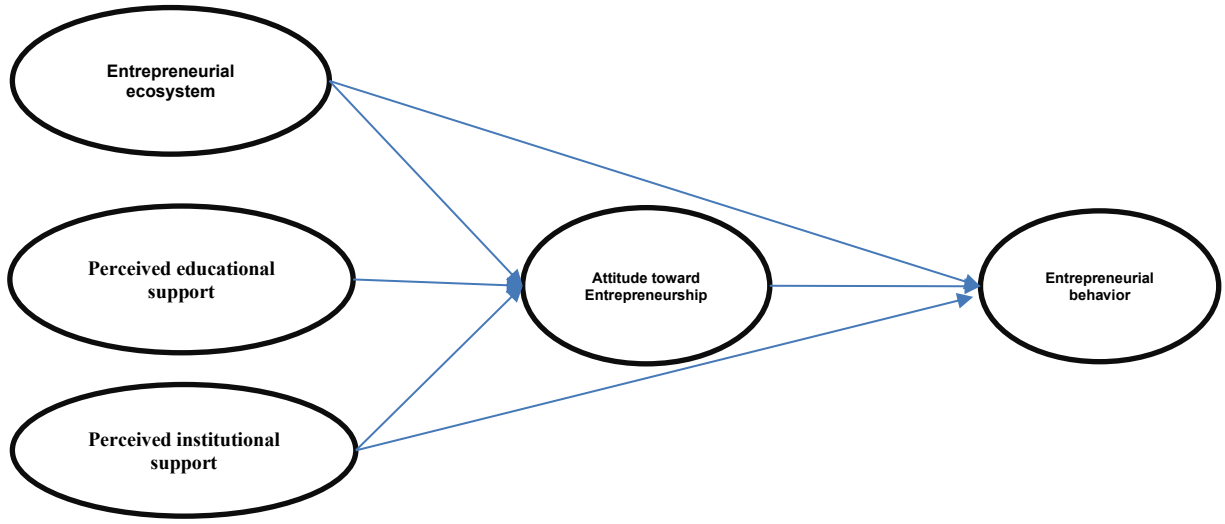
H9: A belief in the level of educational support mediates the effect of perceived educational support on entrepreneurial behavior through attitude toward entrepreneurship.

The effects of education reach far, including providing skills but also transforming the very basis of entrepreneurial identity and likeability (Nabi et al., 2018). Zhang, Duysters and Cloodt (2014) have identified attitude as the major mechanism, according to which education affects entrepreneurial outcomes.

H10: The relationship between Perceived institutional support and entrepreneurial behavior is mediated by attitude toward entrepreneurship.

The risk perception is minimized through institutional signals of legitimacy and support, which increases the positive entrepreneurial attitude that is subsequently turned into action (Estrin, Mickiewicz, & Stephan, 2016). Kansheba and Wald (2020) found the attitude as an important mediator between the institutional environment and venture creation. To gain knowledge of direct and indirect relationships see figure 1.

Figure 1: Theoretical Framework



3. Methodology

3.1. Philosophical approach and Research Design

This paper uses a quantitative, cross-sectional, correlation research design because it seeks to empirically test the relationship presented in the theoretical framework. The design also enables that the direct effects of the Entrepreneurial Ecosystem (EE), Perceived Educational Support (PES), and Perceived Institutional Support (PIS) on Entrepreneurial Behaviour (EB), its effects on Attitude Towards Entrepreneurship (ATE), and the direct effect of ATE on EB can be analyzed together with the mediating role of ATE in the same model (Hair, 2009). This study follows the research philosophy of positivism. This paradigm presupposes that there exists

objectively definite reality of social phenomena (such as the entrepreneurial behavior), which can be quantitatively measured, and that connections between variables and the causes and effects can be determined by means of statistical reflection of the provided data gathered using structured instruments (Saunders, Lewis, & Thornhill, 2009). This is in line with the objective testing pre-determined hypotheses based on the given well-defined theories (TPB, Institutional Theory, EE Framework).

3.2. Unit of Analysis

In this study, the individual study will be the unit of analysis since, it will be conducted among students who are enrolled in universities and colleges located in Gujranwala city, Pakistan. It is reasonable to pay attention to students because they are a vital population group with regard to entrepreneuring potential and educational support (Nabi et al., 2018). Gujranwala is a big industrial and commercial hub of the province of Punjab, and it offers an ideal situation to explore how nascent entrepreneurs view the local entrepreneurial ecosystems and institutional environments. Focusing on a single city will help the research capture a certain level of homogeneity in the larger ecosystem of cities and institutions and simulate unique individual-level variations in perceptions, attitudes, and reported behaviors within the ranks of students (Walter & Block, 2016).

3.3. Sampling Techniques

Since the research relied on exploratory research in this particular geographical setting and due to the limitation of access and convenience, convenience sampling was used to sample participants. This method of non-probability sampling implies that a researcher identifies the participants that are most easily accessible and willing to cooperate (Etikan, 2016). Particularly, the students were targeted at the campuses and through university student associations in Gujranwala. A predefined size of 450 participants would take part in the sample. The value in question can be deemed sound regarding quantitative research and Structural Equation Modeling (SEM) using the SPSS/PROCESS tools because it is larger than established guidelines (e.g., 10-20 cases per estimated parameter) to obtain sufficient statistical power and parameter estimate stability prior to complex models with mediators (Hair, 2009; Kline, 2023). Even though convenience sampling does not affect generalizability, the bigger sample size ensures the reduction of certain sampling error, as well as provides a more reliable result of the study to the population being examined (Saunders, Lewis, & Thornhill, 2009).

3.4. Survey method of data collection

The primary data was obtained through the self-administered structured questionnaire. The tool was properly divided into several parts:

Section A: Demographic data (age, gender, major study area, background family business).

Section B: Perceived Entrepreneurial Ecosystem (EE): A scale based on Theodoraki, Dana and Caputo (2022) and Kansheba and Wald (2020) which measures individual perceptions of the local networking, funding, support services, and entrepreneurs culture (e.g., there is access to mentors of new start-ups in Gujranwala).

Section C: Perceived Educational Support (PES): Derived based on Nabi et al. (2018) and Walter and Block (2016) and dimensionated on education support and its quality combined with usefulness of education courses as well as faculty support and university resources (e.g., "My university provides practical training relevant to start a business").

Section D: Perceived Institutional Support (PIS): Taken and modified (as in Estrin, Mickiewicz and Stephan (2016); Stenholm, Acs and Wuebker (2013) to address perceptions regarding government policies, ease of regulatory treatments and financial incentives available in Gujranwala/Punjab (e.g. Government policies in this locality make it easy to start a new business).

Section E: Attitude Towards Entrepreneurship (ATE): Scale based on established measure, which measures the extent to which a prospective entrepreneur is likely to perceive an entrepreneurial activity i as pleasant, useful and exciting (e.g., "I find it pleasant to think of

starting my own business." - a substantial, long-established scale with high validity based on the Theory of Planned Behavior (Ajzen, 1991).

Section F: Entrepreneurial Behaviour (EB): Analysed on the basis of measures of entrepreneurial intent translated into action (Shirokova et al., 2017). Questions measured action in respect to concrete activities involved in starting a business past 12 months (e.g., I have prepared a business plan, I have sought funding for my business, I have officially registered a business). A representation of the breadth/depth of the activities under a composite score was employed.

Every construct responded on a 5-point Likert scale (1 =Strongly Disagree to 5 = Strongly Agree). Some 30 students participated in the research as the piloting group to provide clarifications, face validity, and reliability of the questionnaire (Cronbach Alpha > 0.7 on all scales). The data was collected using internet-based survey links sent out by universities, and by in person across campuses in students common areas.

4. Data Analysis

The analysis of data was performed with the help of the IBM SPSS Statistics (Version 28) and the PROCESS macro (Version 4.2) developed by Hayes (2017). The conducted analysis was of the following nature:

Descriptive Statistics: Frequencies, means and standard deviations were not only computed on demographics but also on all main constructs in the current research to describe the sample profile and the distributions of the variables (Hair, 2009).

Reliability, Validity: Internal consistency reliability (acceptable range = 0.7-0.9; Nunnally and Bernstein (1994) was determined by Cronbach Alpha (cronbachs alpha=0.7). Average Variance Extracted (AVE > 0.5) and Composite Reliability (CR > 0.7), were used to determine convergent validity, based on the results of Confirmatory Factor Analysis (CFA) that was calculated in SPSS AMOS or CFA module in the PROCESS of more complex models (Hair, 2009).

Correlation Analysis: Pearson correlation coefficients were calculated as a test of the bivariate relationship of all the key variables (EE, PES, PIS, ATE, EB) and possible multicollinearity problem (r > 0.8, a cause of concern; (Kline, 2023).

The direct effects (H1-H7) were tested by means of multiple regression analyses in SPSS:

Regression 1: ATE regressed upon EE, PES, PIS(testing H1, H2, H3).
Regression 2: EE, PES, PIS and ATE regressed to EB (Testing H4, H5, H6, H7).

Procedure: Hypotheses Testing (Indirect Effects / Mediation): The PROCESS macro (Model 4) has been used to test the indirect effects (H8, H9, H10) of EE, PES, and PIS on EB mediated by the ATE. To find bias-corrected confidence interval of the indirect effects (Hayes, 2017), PROCESS is employed to bootstrap (5,000 bootstrap replications are recommended) (Hayes, 2017). In case 95 percent confidence interval around an indirect effect does not encompass zero, then mediation is confirmed. Mediation analysis is recommended to use this method because it does not require a normal sampling distribution and has greater statistical power in comparison with other traditional methods (Preacher & Hayes, 2008; Zhao, Lynch, & Chen, 2010).

Control Variables: Demographic factors (e.g., age, gender, family business background) were added as covariates to those regression models that suggested by preliminary analyses that significant relationships existed between them and the DV (EB) so as to provide better estimation of the parameters of main IVs (Becker, 2005).

4.1. Results

4.1.1. Sample Characteristics and Descriptive Statistics

The study collected valid responses from 450 students across higher education institutions in Gujranwala. As presented in Table 1, the sample comprised 58% males and 42% females, with

Table 1: Sample Demographics (N=450)

Characteristic	Category	Frequency	Percentage
Gender	Male	261	58.0%
	Female	189	42.0%
Age Group	18-19	63	14.0%
	20-24	324	72.0%
	25+	63	14.0%
Field of Study	Business	216	48.0%
	Engineering	144	32.0%
	Social Sci.	90	20.0%
Family Business Background	Yes	171	38.0%
	No	279	62.0%

72% aged 20-24 years. Business/Management students represented 48% of the sample, followed by Engineering (32%) and Social Sciences (20%). Approximately 38% reported family business backgrounds.

Table 2: Descriptive Statistics of Main Constructs

Construct	Mean	SD	Skewness	Kurtosis
Entrepreneurial Ecosystem (EE)	3.42	0.89	-0.32	0.15
Perceived Educational Support (PES)	3.85	0.72	-0.85	1.02
Perceived Institutional Support (PIS)	2.78	0.94	0.18	-0.23
Attitude Toward Ent. (ATE)	3.68	0.81	-0.41	0.32
Entrepreneurial Behavior (EB)	2.92	1.05	0.27	-0.45

Table 2 displays descriptive statistics for the main constructs. Perceived Educational Support (PES) showed the highest mean score (M = 3.85, SD = 0.72), suggesting students generally recognize institutional educational efforts. Attitude Toward Entrepreneurship (ATE) was moderately positive (M = 3.68, SD = 0.81), while Entrepreneurial Behavior (EB) showed greater variability (M = 2.92, SD = 1.05), indicating diverse engagement levels. Perceived Institutional Support (PIS) scored lowest (M = 2.78, SD = 0.94), reflecting skepticism about government support. All constructs exhibited acceptable normality (skewness < |1.0|, kurtosis < |2.0|).

Table 3: Reliability and Convergent Validity

Construct	Cronbach's α	CR	AVE
EE	0.91	0.93	0.69
PES	0.89	0.91	0.72
PIS	0.87	0.88	0.65
ATE	0.92	0.93	0.75
EB	0.88	0.90	0.68

4.1.2. Reliability and Validity Assessment

Table 3 confirms robust measurement properties. All constructs exceeded Cronbach's α thresholds (α > 0.85), demonstrating excellent internal consistency (Nunnally & Bernstein, 1994). Composite Reliability (CR) values ranged from 0.88 to 0.93, exceeding the 0.70 benchmark. Convergent validity was established with Average Variance Extracted (AVE) values > 0.60 (all above 0.50 threshold) (Fornell & Larcker, 1981). Discriminant validity was confirmed as square roots of AVE (diagonal in Table 4) exceeded inter-construct correlations (off-diagonal).

Table 4: Correlation Matrix

	EE	PES	PIS	ATE	EB
EE	0.83				
PES	.52***	0.85			
PIS	.46***	.39***	0.81		
ATE	.49***	.62***	.31***	0.87	
EB	.38***	.44***	.26***	.58***	0.82

*Note: Diagonal = √AVE; **p < .001

4.1.3. Correlation Analysis

Table 4 reveals significant interrelationships among variables. PES showed the strongest correlation with ATE (*r* = .62, *p* < .001), supporting H2. Crucially, ATE demonstrated the strongest correlation with EB (*r* = .58, *p* < .001), aligning with H7. Moderate correlations

emerged between EE and ATE (*r* = .49, *p* < .001; H1) and EE and EB (*r* = .38, *p* < .001; H4). PIS showed weaker but significant correlations with ATE (*r* = .31, *p* < .001; H3) and EB (*r* = .26, *p* < .001; H6). All variance inflation factors (VIFs) < 2.5 in subsequent regressions confirmed absence of multicollinearity (Kline, 2016).

Table 5: Regression Results for Direct Effects

DV	Predictor	β	SE	t	p	Result
ATE	EE	.28	0.04	5.17	<.001	H1 Supported
	PES	.47	0.05	7.83	<.001	H2 Supported
	PIS	.11	0.04	2.66	.008	H3 Supported
EB	EE	.18	0.05	3.11	.002	H4 Supported
	PES	.14	0.05	2.59	.010	H5 Supported
	PIS	.06	0.04	1.33	.186	H6 Rejected
	ATE	.42	0.05	7.05	<.001	H7 Supported

4.1.4. Direct Effects Hypothesis Testing

Regression 1 (ATE as DV): The model explained 48.3% of ATE variance ($F(3,446) = 138.72$, *p* < .001). As Table 5 shows, PES had the strongest effect on ATE (β = .47, *p* < .001), supporting H2. EE significantly predicted ATE (β = .28, *p* < .001), confirming H1. PIS had a smaller but significant effect (β = .11, *p* = .008), supporting H3. Regression 2 (EB as DV): The model accounted for 41.7% of EB variance ($F(4,445) = 79.83$, *p* < .001). ATE was the strongest predictor (β = .42, *p* < .001), supporting H7. EE maintained a significant direct effect (β = .18, *p* = .002), supporting H4. PES showed a modest direct effect (β = .14, *p* = .010), supporting H5. PIS' direct effect was non-significant (β = .06, *p* = .186), leading to rejection of H6.

Table 6: Mediation Analysis Results (PROCESS Model 4)

Path	Indirect Effect	Boot SE	95% Boot CI	Result
EE → ATE → EB	0.12	0.03	[0.07, 0.18]	H8 Supported
PES → ATE → EB	0.20	0.03	[0.14, 0.27]	H9 Supported
PIS → ATE → EB	0.05	0.02	[0.01, 0.09]	H10 Supported

4.1.5. Mediation Analysis (Indirect Effects)

PROCESS Model 4 tested ATE's mediating role using 5,000 bootstrap samples (Table 6). All three indirect effects were significant:

- EE → ATE → EB: Indirect effect = 0.12, 95% CI [0.07, 0.18] (H8 Supported)
- PES → ATE → EB: Indirect effect = 0.20, 95% CI [0.14, 0.27] (H9 Supported)
- PIS → ATE → EB: Indirect effect = 0.05, 95% CI [0.01, 0.09] (H10 Supported)

Crucially, for PIS, the insignificant direct effect (β = .06, *p* = .186) coupled with a significant indirect effect (95% CI excluding zero) indicates full mediation by ATE. For EE and PES, the persistence of significant direct effects alongside significant indirect effects indicates partial mediation by ATE.

5. Discussion

The Central Role of Attitude (ATE): Attitude Toward Entrepreneurship (ATE) was the best direct predictor of Entrepreneurial Behavior (EB) (A =.42, p <.001), and this finding confirmed H7. The result strongly confirms the main principle of TPB, with attitude serving as the closest psychological motivator of behavior (Kautonen, Van Gelderen, & Fink, 2015). More importantly, ATE was a powerful mediator to all three independent variables (EE, PES, PIS) fully substantiating H8, H9 and H10. This is to emphasize that these opinions about the environment and those who can provide assistance are the main ways of influencing behavior because of shaping how a person will cognitively and affectively assess that the entrepreneurship process is beneficial and desired (Liñán & Chen, 2009). It confirms the psychological process in the model.

The Power of Perceived Educational Support (PES): PES was the most powerful antecedent of ATE (beta =.47, p < .001) and had a significant direct effect on EB (beta =.14, p =.010), both of which proved H2 and H5, respectively. In addition, it produced the greatest indirect influence on EB through ATE (0.20). This draws particular attention to the role of universities and school

curriculums not only in training students in skills but, more importantly, in developing a positive attitude and identification to entrepreneurship (Nabi et al., 2018; Zhang, Duysters, & Cloodt, 2014). The evidence provided is highly conducive to the idea that successful education in entrepreneurship cannot be confined to transferring knowledge but focuses on radically transforming the ideas about what can and should be done (Piperopoulos & Dimov, 2015; Walter & Block, 2016). The Dual influence of the Entrepreneurial Ecosystem (EE): Local perceptions of the EE (EE) were a strong predictor of both ATE (b =.28, p <.001; H1 supported) and EB directly (b =.18, p =.002; H4 supported) as well as had a significant indirect impact on EB though ATE (0.12; H8 supported). This shows that effective ecosystem can affect behaviour along two parallel lines: (1) that by forming positive attitudes due to exposure to role models, success stories and a favourable culture (Autio et al., 2018; Spigel & Harrison, 2018), and (2) that by equipping people with physical resources, networks and opportunities directly enabling venture building work (Stam & Van De Ven, 2021; Wurth, Stam, & Spigel, 2022). The multifold presence of the ecosystem is supported by this dual influence. Mediated Role of Perceived Institutional Support (PIS): The PIS affected EB and ATE significantly (p =.008), with 0.11 (H3 confirmed), but not directly (0.06, p = .186; H6 rejected). The most important thing, though, PIS influenced EB with the mediator of ATE significantly (0.05; H10 confirmed). This trend shows complete mediation. It portends that no evident context of government policies, regulation and finances that are felt to facilitate entrepreneurial activities to the student exist within the Gujranwala context. Rather, they have a greater impact on decreasing mental perception of the obstacles and dangers, thus encouraging having a more positive opinion on entrepreneurship, which, in turn, creates a tendency in behavior (Estrin, Mickiewicz, & Stephan, 2016; Kansheba & Wald, 2020). The fact that the mean score of PIS is low (M = 2.78) implies that students do not see many possibilities that may lie at the institutional level and that could explain its distinct lack of direct influence and the need to follow the attitudinal pathway (Welter et al., 2017).

5.1. Theoretical Implications

Combining Micro-Macro Perspectives: This research manages to connect the macro concepts (Entrepreneurial Ecosystem and Institutional Environment) with psychological (Attitude) and behavioral consequences on the micro-level. It establishes empirically the role of environmental characteristics in informing individual behavior at the cognitive level filling a major gap in the literature on the ecosystem and institutional studies (Autio et al., 2018; Stam & Van De Ven, 2021; Wurth, Stam, & Spigel, 2022).

Advantageousness of Reinforcing and Refining TPB: Whereas a strong endorsement of TPB in terms of its concentration on attitude holds true, the findings do reveal that some of the environmental factors (EE, PES) are kept to have huge direct effects on behavior even though mediated by attitude. It implies that the TPB models can be enhanced by including contextual variables that are specific and applicable in a given context, whereby those having a direct enabling or constraining effect exist above and beyond cognitive antecedents (Kautonen, Van Gelderen, & Fink, 2015).

5.2. Practical Implications

To Universities and Educators: focus on initiatives that give significant attention to developing positive mindsesteems on entrepreneurship, rather than on skill, or passive programming. Action learning, exposure to entrepreneurship and the development of an entrepreneurial campus ethos are essential. The good association with PES and ATE reflects the power of education (Nabi et al., 2018; Zhang, Duysters, & Cloodt, 2014).

Ecosystem Builders (Incubators, Industry Groups): Devote attention to excellent visibility and access of the ecosystem resources and networks by students. Promote local stories of success and connection to role models to change the attitudes positively (Spigel & Harrison, 2018). Tighten connections between the universities and the local business society.

To Policymakers: Understand that substantiating the institutions (policies, laws, access to finance) will not produce instant behavioral outcomes but will be critical elements in cultivating the culture in which entrepreneurship is regarded as a legitimate and appealing career freedom (Estrin, Mickiewicz, & Stephan, 2016). Fill certain institutional gaps (e.g. bureaucracy, connections with early-stage financing) reported by potential entrepreneurs. Avoiding improvement of perceptions depends on communication relating to support of initiatives.

6. Conclusion

The study throws light on the complex ways in which the entrepreneurial ecosystem, perceived educational support, and perceived institutional support affect entrepreneurial behavior among student in Gujranwala. The evidence partly confirms the key mediating nature of attitude toward entrepreneurship, which means the focus of psychological change gained by environmental factors to change to action. Although educational support and ecosystem perceptions are common in the direct influence as well as the attitude mediated influences of the behavior, institutional support only influences the behavior based on creation of positive attitude and especially in an environment considered to have institutional weaknesses. These findings can be considered helpful teachings to build more successful interventions aimed at promoting an entrepreneurial endeavor since it is necessary to relate to both resources of a concrete nature and the development of encouraging attitudes. Additional studies to overcome the identified drawbacks will further clarify the given dynamics in various settings.

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