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Abstract: *The purpose of this research is to determine if an environment created by a university-based entrepreneurial system can cause entrepreneurial education to be converted into a student's or graduate's desire to start up and create a business. Using theoretical models for entrepreneurial education, entrepreneurial self-efficacy, and ecosystems, the study examined how entrepreneurial education affects the outcome (desire and ability) of starting a new business; as well as whether entrepreneurial self-efficacy/mindset acts as a mediator between these two variables and whether the level of support for entrepreneurship within the ecosystem will moderate the relationship between entrepreneurial education and the desired and actual outcomes of creating a new business. A survey-based methodology was used in which 201 responses were received from both public and private universities in Karachi. Reliability, validity, correlation, mediation, and moderation analyses were conducted using procedures available through Partial Least Squares Structural Equation Modeling (PLS-SEM). Findings indicate that entrepreneurial education has a significant impact upon entrepreneurial self-efficacy/mindset and startup intention/creation. Additionally, entrepreneurial self-efficacy/mindset serves as a mediator in this relationship. Furthermore, while the support for entrepreneurship in the ecosystem did not have a significant moderate effect in this relationship, it had a positive direct association with startup outcomes.*

Introduction

The emergence of entrepreneurship as a key driver of economic growth, innovation, employment and youth engagement has been one of the most significant trends observed over the last few decades (Fubah et al., 2025), particularly in emerging economies with underdeveloped formal job markets. Formal job markets have failed to accommodate the increasing numbers of qualified graduates resulting from expanding tertiary education. As a result, entrepreneurship is seen as an alternative route through which young people can create wealth, employ others, and contribute to social and technological advancements (Audretsch et al., 2026; Cervelló-Royo et al., 2026). Consequently, universities are being

asked to go beyond their historical functions of educating and researching. Rather than merely serving to educate and conduct research, they are being called upon to serve as entrepreneurial institutions that help students identify opportunities, solve real-world business problems, and turn innovative ideas into viable businesses.

A key element in enabling universities to fulfill their emerging entrepreneurial functions is providing entrepreneurial education (Cervelló-Royo et al., 2026). Entrepreneurial education involves planned educational and experiential experiences for students to develop entrepreneurial knowledge, creativity, opportunity identification, business planning abilities, risk taking and venture development capabilities (Addy et al., 2026). This type of education may take many forms including entrepreneurship courses, startup projects, business plans, case studies, innovation competitions, mentorship programs and exposure to incubators. However, providing entrepreneurial education will increase a student's likelihood of starting a business (entrepreneurial behavior) does not necessarily guarantee that he/she will start a business if the student does not believe that they possess the necessary confidence and mental preparedness to behave entrepreneurially. Thus, entrepreneurial self-efficacy and entrepreneurial mindset are two critical intervening variables in determining whether entrepreneurial education influences a student's intentions to become entrepreneurs and/or start new ventures (Ahmad et al., 2026).

Entrepreneurial self-efficacy is defined as student's beliefs about their ability to complete entrepreneurial tasks including identifying opportunities; acquiring and allocating resources; managing uncertainties; developing a business model; creating and launching new ventures (Jiatong et al., 2026). Students who have higher levels of entrepreneurial self-efficacy are more likely to translate their entrepreneurial learning into practical actions due to their increased feelings of competence in dealing with the challenges faced in creating new businesses (Duong, 2026a). An entrepreneurial mindset allows students to be creative thinkers; proactive; tolerant of uncertainty; and motivated to pursue opportunities regardless of available resources (Du & Qiao, 2026; Shahat et al., 2026). Thus, entrepreneurial education is more likely to impact on both the formation of a student's startup intent and his/her decision to launch a new venture when the education increases the student's confidence; ability; and willingness to engage in entrepreneurial behaviors (Thevenet & Hamelin, 2026).

The entrepreneurial outcomes influenced by individual-level psychological characteristics (i.e., entrepreneurial self-efficacy), are also impacted upon by the broader entrepreneurial ecosystem (Chernyak-Hai & Solodoha, 2026). The entrepreneurial ecosystem is comprised of various stakeholders and resources that facilitate the creation of new ventures. Examples of such stakeholders and resources include universities; incubators; mentors; investors; industry partners; government agencies; networking sites; and programs that support startups (Ud Din et al., 2026). Through providing students with practical resources; market access; advisory services; financing options; credibility; and professional networks, the overall level of support provided within the entrepreneurial ecosystem enhances the probability that students will convert their entrepreneurial learning into tangible entrepreneurial initiatives.

This study addresses this gap by examining the effect of entrepreneurial education on startup intention and venture creation among university students and recent graduates in Karachi, Pakistan. Specifically, it investigates whether entrepreneurial self-efficacy/mindset mediates the relationship between entrepreneurial education and startup outcomes, and whether entrepreneurial ecosystem support moderates this relationship. By integrating educational, psychological, and ecosystem perspectives, this study contributes to entrepreneurship education literature and offers practical insights for universities,

incubation centers, policymakers, and entrepreneurship educators seeking to design programs that move beyond awareness creation toward actual venture development.

Literature Review

Entrepreneurial education has become one of the major areas of research today, as universities are being asked to produce graduates who will be both employable and able to create new ventures (McMahon et al., 2026; Reza et al., 2026). According to the Nzembayie et al., (2026), Entrepreneurial Education is defined as formal and experiential learning which enables students to acquire entrepreneurial knowledge, identify opportunities, encourage creativity, assist them in creating a business plan and ultimately, enable them to establish new ventures. This research has suggested that participation in entrepreneurship courses, business plan projects, startup competitions, incubator exposure and hands-on learning experiences will increase entrepreneurial intentions among students by providing them with greater insight into how to establish and manage a business.

However, entrepreneurial education does not always directly translate into an intent to launch a new venture (Duong, 2026b; Liang et al., 2025). The impact of educational efforts is typically described using the concepts of entrepreneurial self-efficacy (the degree to which individuals believe in themselves) and entrepreneurial mindset (individual's willingness to be creative, take initiative, seek out new opportunities and tolerate ambiguity). If students have confidence in their entrepreneurial capabilities, they will be more likely to translate classroom-based entrepreneurial learning into entrepreneurial actions. Furthermore, an entrepreneurial mindset will encourage students to think creatively, proactively pursue opportunities (Iddris, 2025), and be comfortable with ambiguity; therefore, entrepreneurial self-efficacy/mindset can serve as a mediator linking entrepreneurial education with either an intent to start-up or actual venture creation (Chagi et al., 2025; Hui & Leung, 2025).

Individual capacities represent only one side of the equation; the larger entrepreneurial ecosystem in which students operate also plays a significant role in shaping their entrepreneurial outcomes. According to the Mujica, (2026); Murariu et al., (2025), an entrepreneurial ecosystem consists of multiple components including universities, incubators/accelerators, mentors/investors, industry partners, government agencies/suppliers, professional associations/networking groups and startup-related programs.

This variety of ecosystems provide students with knowledge, access to capital/resources, legitimacy, funding options and connections to markets; thus, enabling students to take their ideas and turn them into viable ventures (Lausi, 2026). Ecosystem support should strengthen the relationship between entrepreneurial education and startup outcomes since students are more likely to act upon the entrepreneurial knowledge gained from education if they have access to mentorship, incubation space, funding sources and/or established networks within industries (Azeem et al., 2025; Qureshi et al., 2021). As such, the entrepreneurial education and ecosystem support studied herein are particularly relevant in the case of Karachi as there is currently a rapidly developing university system, business incubation center systems, startup competition systems and various types of entrepreneurial support programs in place (Kumar, 2020).

Conceptual Framework

This conceptual framework explains how the entrepreneurial education process affects both startup intentions and venture creation for university students and recent graduates within the city of Karachi. To better understand the relationship of education with entrepreneurial actions; education (entrepreneurship) is identified as the independent variable. The independent variable includes formal and experiential learning activities related to entrepreneurship including but limited to;

Entrepreneurship Courses, Curriculum Quality, Business Plan Projects, Startup Courses, Innovation Competitions and Practical Experience with Venture Development. Formal and Experiential learning activities should contribute to developing students' entrepreneurial knowledge, students' ability to recognize opportunities, and students' preparedness to establish businesses.

Self-Efficacy/Mindset towards Entrepreneurship will serve as the mediator in the theoretical framework. Self-Efficacy/Mindset refers to the psychological mechanism by which education can lead to entrepreneurial activity. Students who have received good education in terms of entrepreneurship are more likely to increase their confidence, creativity, ability to take risks and their perception that they have the capability to identify opportunities and create ventures. Increased Self-Efficacy increases their likelihood of establishing a business.

Ecosystem Support for Entrepreneurs will be employed as the moderator in the theoretical framework. Ecosystem support is defined as incubators, mentoring, funding sources, connections to industries, programs provided by the government, networking events and platforms for startups. The theoretical framework implies that the presence of an ecosystem for entrepreneurs can reinforce the positive effects of entrepreneurial education on intentions to start-up and venture creation. As a result, the dependent variable of this research is startup intention/venture creation; i.e., students' desire/willingness to move forward with creating a new business.

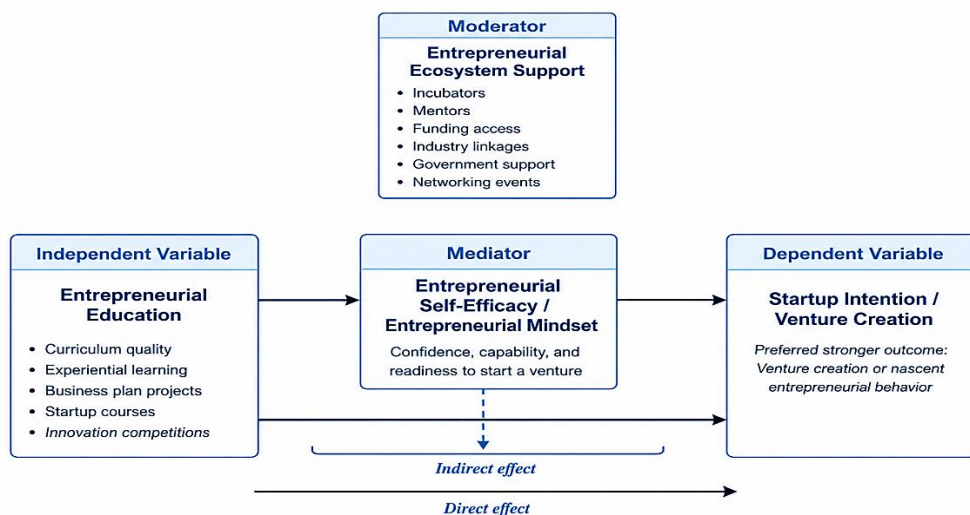


Figure 1. Conceptual Framework of Entrepreneurial Education (EE), Entrepreneurial Self-Efficacy (ES)/Mindset, Entrepreneurial Ecosystem Support (EES), and Startup Intention/Venture Creation (SI/VC)

Methodology

A quantitative survey-based research study design will be utilized to assess the relationship between entrepreneurial education, entrepreneurial self-efficacy/mindset, entrepreneurial ecosystem support, and startup intention/venture creation among university students and recent graduates in Karachi.

The uploaded dataset has 201 valid responses. The respondents are students from both public & private universities of Karachi. The data also has information regarding students' exposure to entrepreneurship courses, incubation centers, start-up experience, and entrepreneurial activities.

Population and Sample

The population to be studied will include university students and new graduates in Karachi that have been engaged with entrepreneurial education or other related entrepreneurial activity such as:

- Entrepreneurship courses

- Business incubation centers
- Startup competitions
- Business plan projects
- Innovation events
- Mentoring and networking programs

A total of 201 subjects were included within the uploaded dataset; this number is sufficient for a PLS-SEM based on the nature of the research model (i.e., it has several latent variables and multiple mediations/moderations).

Variables used from the data

Variable Type	Construct	Items in Excel
Independent Variable	Entrepreneurial Education	EE1, EE2, EE3, EE4, EE5
Mediator	Entrepreneurial Mindset / Self-Efficacy	EM1, EM2, EM3, EM4
Moderator	Entrepreneurial Ecosystem Support	EES1, EES2, EES3, EES4, EES5, EES6
Dependent Variable	Startup Intention / Venture Creation	VC1, VC2, VC3, VC4, VC5

Table 1. Measurement Constructs and Corresponding Items Used for PLS-SEM Analysis

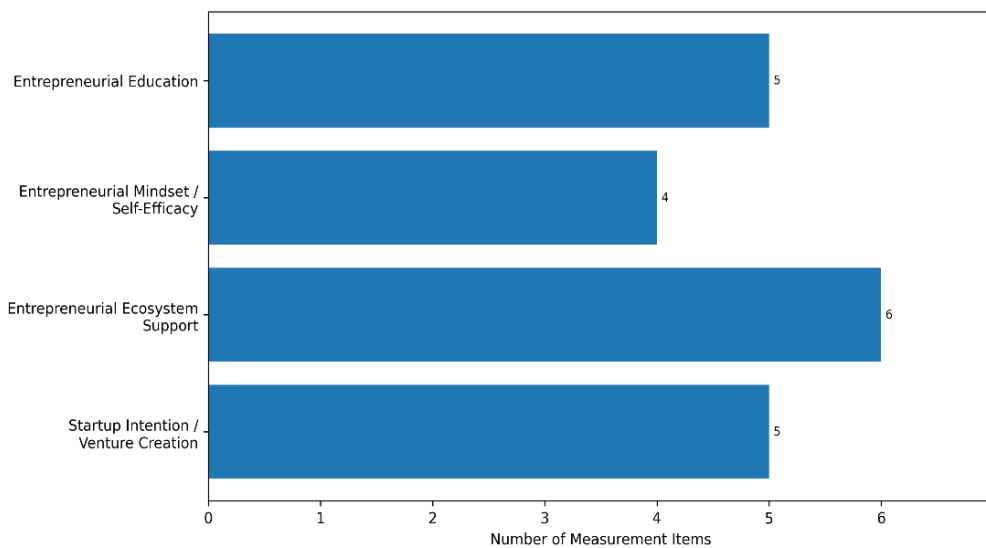


Figure 2. Measurement Constructs and Corresponding Items Used for PLS-SEM Analysis

All items are measured on a **five-point Likert scale**, where:

1 = Strongly Disagree

5 = Strongly Agree

Measurement of Constructs

- **Entrepreneurial Education** is measured through five items covering curriculum quality, experiential learning, business plan projects, startup courses, and innovation competitions.
- **Entrepreneurial Mindset / Self-Efficacy** is measured through four items related to student’s confidence, capability, opportunity recognition, and readiness to start a venture.
- **Entrepreneurial Ecosystem Support** is measured through six items covering incubators, mentors, funding access, industry linkages, government support, and networking events.

- **Startup Intention / Venture Creation** is measured through five items related to intention to start a business, opportunity search, practical startup steps, effort toward venture creation, and nascent entrepreneurial behavior.

Data Analysis Technique

The study will utilize Partial Least Squares Structural Equation Modeling (PLS-SEM), SmartPLS, to assess the research questions due to its ability to analyze complex relationships that include mediation and moderation.

PLS-SEM is appropriate for this study because the model examines:

1. Direct effect of entrepreneurial education on startup intention/venture creation
2. Indirect effect through entrepreneurial self-efficacy/mindset
3. Moderating effect of entrepreneurial ecosystem support
4. Predictive relationship among multiple latent constructs

Proposed Hypotheses

- **H1:** Entrepreneurial education has a positive effect on startup intention/venture creation.
- **H2:** Entrepreneurial education has a positive effect on entrepreneurial self-efficacy/mindset.
- **H3:** Entrepreneurial self-efficacy/mindset has a positive effect on startup intention/venture creation.
- **H4:** Entrepreneurial self-efficacy/mindset mediates the relationship between entrepreneurial education and startup intention/venture creation.
- **H5:** Entrepreneurial ecosystem support moderates the relationship between entrepreneurial education and startup intention/venture creation.

Measurement Model Assessment

Before testing the hypotheses, the measurement model should be assessed using:

Test	Recommended Value
Factor Loadings	Above 0.70 preferred
Cronbach’s Alpha	Above 0.70
Composite Reliability	Above 0.70
Average Variance Extracted, AVE	Above 0.50
HTMT Ratio	Below 0.85 or 0.90

Table 2. Threshold Values for Assessing Reliability and Validity in the Measurement Model

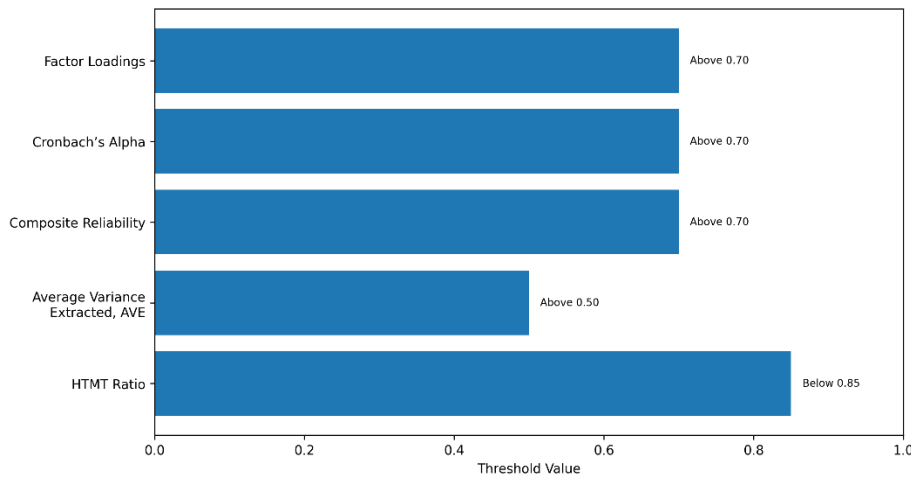


Figure 3. Threshold Values for Assessing Reliability and Validity in the Measurement Model
Based on the survey data, the preliminary reliability values are acceptable:

Construct	Cronbach's Alpha
Entrepreneurial Education	0.861
Entrepreneurial Mindset / Self-Efficacy	0.768
Entrepreneurial Ecosystem Support	0.875
Startup Intention / Venture Creation	0.800

Table 3. Cronbach's Alpha Values for Internal Consistency Reliability of Constructs

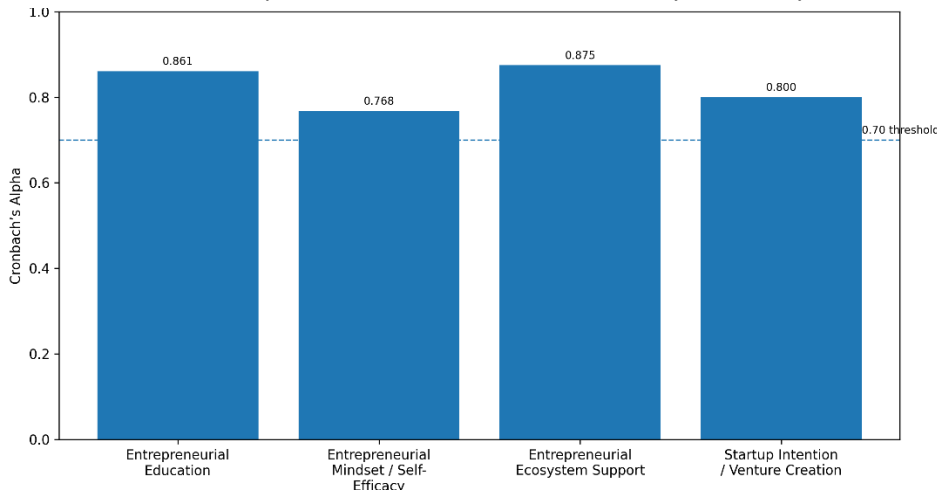


Figure 4. Cronbach's Alpha Values for Internal Consistency Reliability of Constructs

This means the items are internally consistent and suitable for further PLS-SEM analysis.

Structural Model Assessment

Once the reliability and validity of the measures have been confirmed, the structural model will be assessed by conducting bootstrap analyses in SmartPLS. The following information should be included when reporting the results of these analyses:

- Path coefficients, beta values
- t-values
- p-values
- R-square values

- Effect size, f-square
- Predictive relevance, Q-square
- Mediation effect
- Moderation effect

For mediation, the use of bootstrapping in SmartPLS will determine if there is a significant relationship between entrepreneurial education and startup intention/venture creation through entrepreneurial self-efficacy/mindset.

For moderation, an interaction term should be created:

Entrepreneurial Education × Entrepreneurial Ecosystem Support

This will show to determine if entrepreneurial ecosystem support has a moderating effect on the relationship between entrepreneurial education and startup intention/venture creation, an interaction term needs to be created. An interaction term shows whether the effect of entrepreneurial education on startup intention/venture creation is increased or decreased because of entrepreneurial ecosystem support.

Using the composite mean scores from the uploaded data:

- Entrepreneurial Education mean = **3.47**
- Entrepreneurial Mindset / Self-Efficacy mean = **3.92**
- Entrepreneurial Ecosystem Support mean = **3.34**
- Startup Intention / Venture Creation mean = **4.00**

This suggests that participants show relatively strong entrepreneurial mindset and startup intention, while ecosystem support is moderate.

The preliminary correlation pattern also supports the proposed model:

Relationship	Correlation
Entrepreneurial Education → Entrepreneurial Mindset	0.352
Entrepreneurial Education → Startup Intention / Venture Creation	0.257
Entrepreneurial Mindset → Startup Intention / Venture Creation	0.447
Ecosystem Support → Startup Intention / Venture Creation	0.421

Table 4. Correlation Matrix Supporting the Proposed Conceptual Model

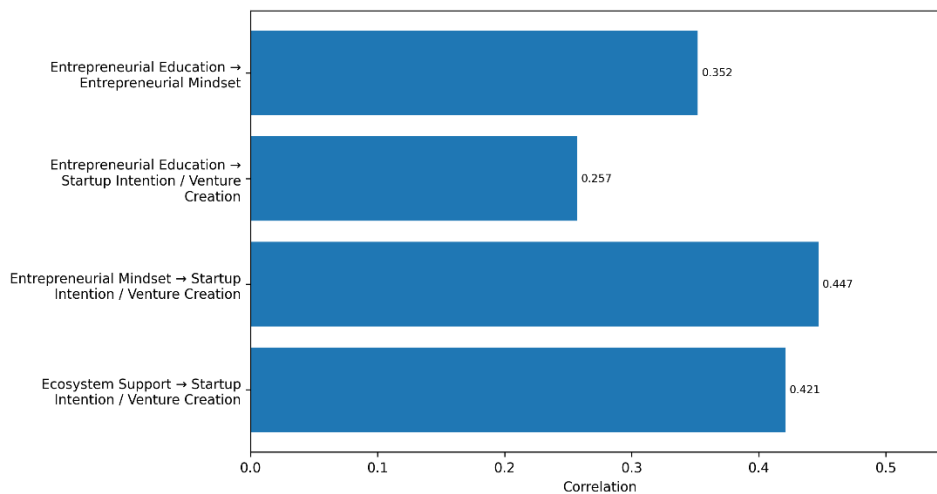


Figure 5. Correlation Matrix Supporting the Conceptual Model

These results demonstrate that entrepreneurial education; entrepreneurial mindset; and entrepreneurial ecosystem support each contribute positively to startup intention/venture creation among university students and recent graduates in Karachi, Pakistan.

This study utilizes a quantitative survey methodology to investigate how entrepreneurial education affects startup intent and venture creation among university students and recent graduates in Karachi, Pakistan. A total of 201 responses were obtained via a structured questionnaire. For example, entrepreneurial education was defined as: curriculum quality; experiential learning; business plan projects; startup courses; and innovation competitions. As a mediating variable, entrepreneurial self-efficacy/mindset was utilized. Similarly, as a moderating variable, entrepreneurial ecosystem support was utilized. Finally, as a dependent variable, startup intention/venture creation was used. Each construct was evaluated utilizing five-point Likert-scale items.

Because the model being examined contains both mediation and moderation effects, PLS-SEM using SmartPLS will be employed to evaluate the data. Therefore, once again, assessment of the measurement model will consist of evaluating factor loadings, Cronbach's Alpha, Composite Reliability, Average Variance Extracted (AVE) and Heterotrait-Monotrait Ratio (HTMT); while evaluation of the structural model will involve examining path coefficients, t-statistics, p-values, R-squared values, F-squared values, Q-squared values, mediation analysis and moderation analysis.

Results

Respondent Profile

The study employed data from 201 respondents who are university level students and recent graduates from Karachi, Pakistan. Of the total number of respondents, 119 (59.2%) were males, and 82 (40.8%) were females. Regarding types of universities, there was a split with 126 respondents (62.7%), who attended private universities, and 75 respondents (37.3%), who attended public universities. Most respondents were enrolled in BBA/BS programs which made up 157 (78.1%) respondents, and MBA/MS programs which made up 44 (21.9%) respondents.

As far as their entrepreneurial education exposure, 146 (72.6%) of the respondents had taken an entrepreneurship course, and 55 (27.4%) had not. Furthermore, 76 (37.8%) of the respondents were exposed to incubation centers, while 125 (62.2%) of the respondents had not. Lastly, 63 (31.3%) of the respondents had some form of start-up experience, and 138 (68.7%) of the respondents had no prior start-up experience. Thus, these results demonstrate that this sample will be able to assess the impact of entrepreneurial education on the development of university-based entrepreneurs in Karachi.

Descriptive Statistics

The descriptive statistics of the major components (entrepreneurial education, entrepreneurial self-efficacy/mindset, entrepreneurial ecosystem support and start-up intention / venture creation) were obtained. Results indicated that Start-Up Intention/Venture Creation exhibited the largest mean ($M = 4.00$; $SD = 0.70$), with entrepreneurial Self-Efficacy/Mindset having the second largest mean ($M = 3.92$; $SD = .68$). A moderately to high mean ($M = 3.47$; $SD = .79$) was also found for Entrepreneurial Education and a moderately low mean ($M = 3.34$; $SD = .85$) for Entrepreneurial Ecosystem Support. Thus, it appears that respondents generally reported an entrepreneurial Mindset and intent to start a business, but the degree to which they perceive their environment as supportive is much lower than both of these values.

Construct	Mean	Standard Deviation	Minimum	Maximum
Entrepreneurial Education	3.47	0.79	1.40	5.00

Construct	Mean	Standard Deviation	Minimum	Maximum
Entrepreneurial Self-Efficacy / Mindset	3.92	0.68	2.25	5.00
Entrepreneurial Ecosystem Support	3.34	0.85	1.17	5.00
Startup Intention / Venture Creation	4.00	0.70	1.80	5.00

Table 5. Descriptive Statistics for Entrepreneurial Education, Entrepreneurial Self-Efficacy/Mindset, Entrepreneurial Ecosystem Support, and Startup Intention/Venture Creation.

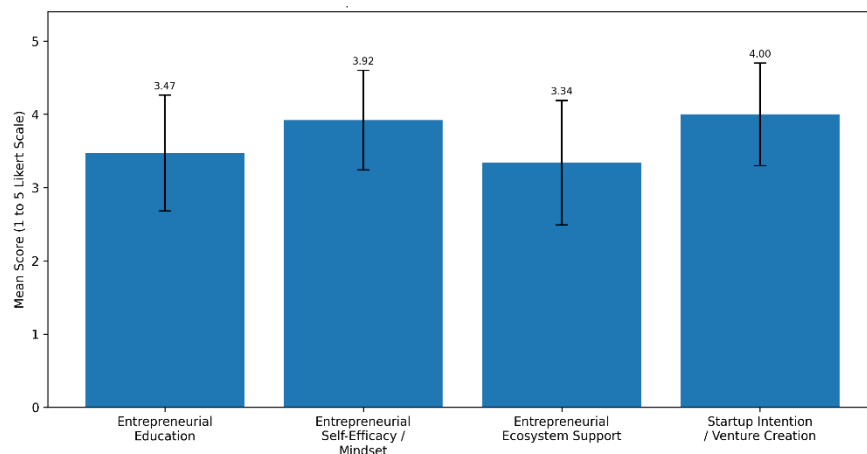


Figure 6. Descriptive Statistics for EE, E. Self-Efficacy/Mindset, EES, and Startup Intention/Venture Creation

Reliability and Validity Assessment

The reliability of the constructs was assessed using Cronbach’s alpha and composite reliability. The Cronbach’s alpha values ranged from 0.768 to 0.875, exceeding the recommended threshold of 0.70. Entrepreneurial education reported a Cronbach’s alpha of 0.861, entrepreneurial self-efficacy/mindset reported 0.768, entrepreneurial ecosystem support reported 0.875, and startup intention/venture creation reported 0.800. These values indicate acceptable internal consistency among the measurement items.

Composite reliability values were also above the recommended threshold of 0.70. Entrepreneurial education reported a composite reliability of 0.900, entrepreneurial self-efficacy/mindset reported 0.852, entrepreneurial ecosystem support reported 0.906, and startup intention/venture creation reported 0.862. The average variance extracted values were also above 0.50 for all constructs, confirming convergent validity.

Construct	Cronbach’s Alpha	Composite Reliability	AVE
Entrepreneurial Education	0.861	0.900	0.642
Entrepreneurial Self-Efficacy / Mindset	0.768	0.852	0.591
Entrepreneurial Ecosystem Support	0.875	0.906	0.616
Startup Intention / Venture Creation	0.800	0.862	0.556

Table 6. Reliability and Convergent Validity Assessment of Measurement Constructs

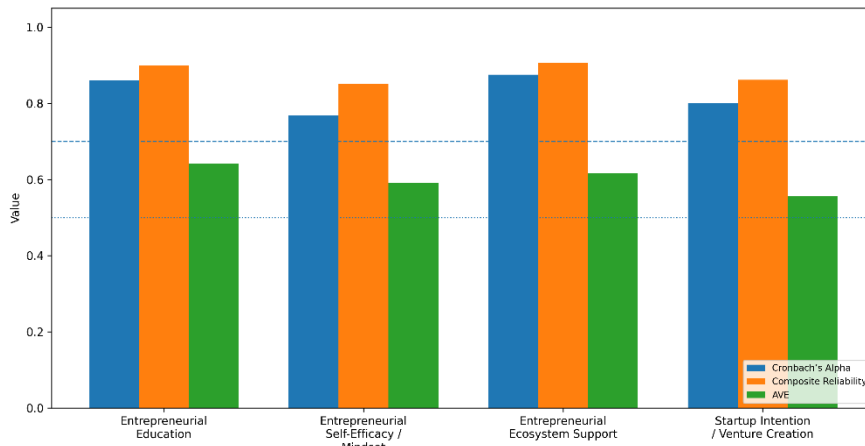


Figure 7. Reliability and Convergent Validity Assessment of Measurement Constructs

Discriminant validity was assessed using the HTMT criterion. All HTMT values were below the conservative threshold of 0.85, indicating that the constructs are statistically distinct from one another. The highest HTMT value was observed between entrepreneurial self-efficacy/mindset and startup intention/venture creation, with a value of 0.568, which is still within the acceptable range.

Relationship	HTMT
Entrepreneurial Education – Entrepreneurial Mindset	0.431
Entrepreneurial Education – Ecosystem Support	0.096
Entrepreneurial Education – Startup Intention / Venture Creation	0.310
Entrepreneurial Mindset – Ecosystem Support	0.450
Entrepreneurial Mindset – Startup Intention / Venture Creation	0.568
Ecosystem Support – Startup Intention / Venture Creation	0.502

Table 7. Heterotrait-Monotrait Ratio Results for Discriminant Validity

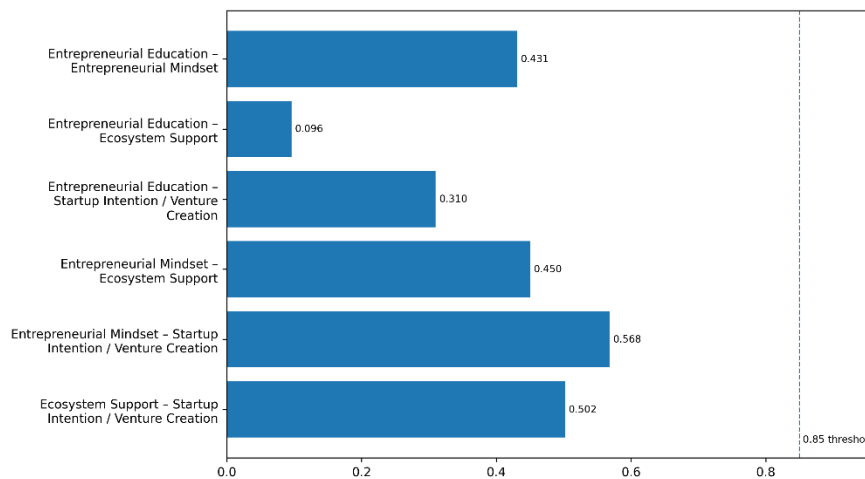


Figure 8. Heterotrait-Monotrait Ratio Results for Discriminant Validity

Correlation Analysis

Pearson's correlation test was used for analyzing the starting relationship of all study variable. The results of Pearson's correlation test were as follows: entrepreneurial education had an important and positive relationship with entrepreneurial self-efficacy/mindset ($r = 0.352, p < .01$) which supports the idea that training in entrepreneurship will improve students' confidence and preparedness for

entrepreneurship. Additionally, there is a significant and positive relationship between entrepreneurial education and startup intention/ venture creation ($r = 0.257, p < .01$). In addition to this, there are strong positive correlations between entrepreneurial self-efficacy/mindset and startup intention/venture creation ($r = 0.447, p < .01$) and between entrepreneurial ecosystem support and startup intention/venture creation ($r = 0.421, p < .01$). Conversely, there is a very small and insignificant negative correlation between entrepreneurial education and entrepreneurial ecosystem support ($r = -0.050, p > .05$).

Relationship	Correlation	Significance
Entrepreneurial Education → Entrepreneurial Mindset	0.352	$p < 0.001$
Entrepreneurial Education → Startup Intention / Venture Creation	0.257	$p < 0.001$
Entrepreneurial Mindset → Startup Intention / Venture Creation	0.447	$p < 0.001$
Ecosystem Support → Startup Intention / Venture Creation	0.421	$p < 0.001$
Entrepreneurial Education → Ecosystem Support	-0.050	Not significant

Table 8. Correlation Matrix of Entrepreneurial Education, Entrepreneurial Mindset, Ecosystem Support, and Startup Intention/Venture Creation

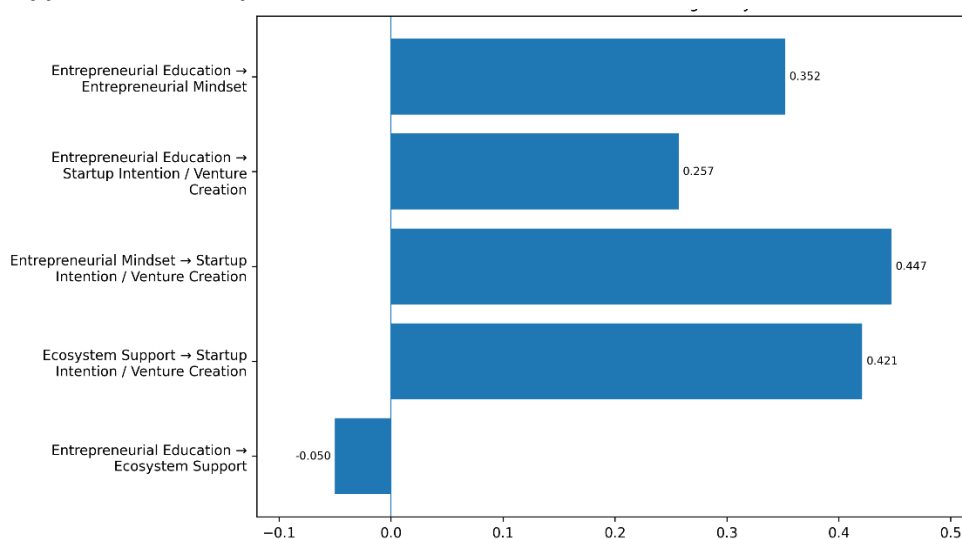


Figure 9. Correlation Matrix of EE, E. Mindset, ES, and Startup Intention/Venture Creation

Structural Model Results

Entrepreneurship education was evaluated in a structural model to test the assumed causal relationships among entrepreneurial education; entrepreneurial self-efficacy/mindset; entrepreneurial ecosystem support; and entrepreneurial intentions/venturing.

There were significantly positive effects of entrepreneurial education on entrepreneurial self-efficacy/mindset ($\beta = 0.303, t = 5.299, p < .001$) for which there was sufficient statistical evidence supporting H2. Thus, it appears that students with greater exposure to entrepreneurial education will be more confident about their entrepreneurial potential, recognize opportunities better than others and will feel more prepared to pursue a venture. There was a statistically significant positive relationship between entrepreneurial education and student intent to create ventures/startups ($\beta = 0.227, t = 3.757, p < .001$), thereby providing statistical evidence that supports H1. Thus, participation in courses or experiences focused on entrepreneurship such as experiential learning, business plan competitions, and startup course work, along with other entrepreneurial oriented educational activities contribute to both

the desire by students to create ventures and actual actions toward creating a new venture.

Further, when entrepreneurial self-efficacy/mindset was included as the mediating variable, there was a statistically significant positive relationship between entrepreneurial self-efficacy/mindset and student intent to create ventures/start-ups ($\beta = 0.416$, $t = 6.034$, $p < .001$), thus indicating sufficient statistical evidence to support H3. Additionally, although the direct effect of entrepreneurial education on startup intentions/venture creation remained positive ($\beta = 0.101$, $t = 1.695$, $p = .092$), it lost significance at the .05 level.

This suggests that a major portion of the positive impact of entrepreneurial education on both entrepreneurial intentions and venturing occurs through increased self-efficacy/mindsets among students.

Hypothesis	Relationship	Beta	t-value	p-value	Decision
H1	Entrepreneurial Education → Startup Intention / Venture Creation	0.227	3.757	< 0.001	Supported
H2	Entrepreneurial Education → Entrepreneurial Mindset	0.303	5.299	< 0.001	Supported
H3	Entrepreneurial Mindset → Startup Intention / Venture Creation	0.416	6.034	< 0.001	Supported

Table 9. Structural Model Results and Hypothesis Testing

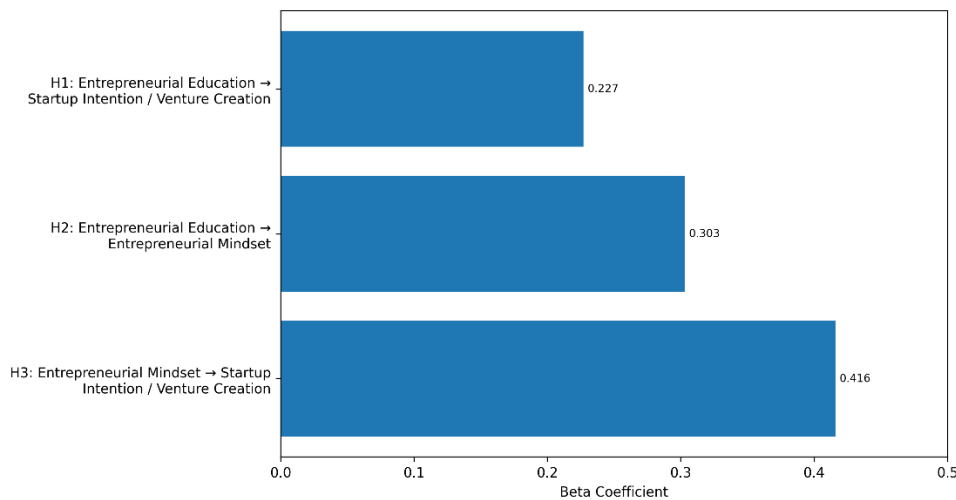


Figure 10. Structural Model Results and Hypothesis Testing

Mediation Analysis

The mediation effects of this study were assessed in order to test if ESE/MSE acts as a mediator of the relationship between EE and SI/Venture Creation. The results indicated that the indirect effect of Entrepreneurial Education (EE) on Startup Intention (SI)/Venture Creation through the mediation of ESE/MSE was positive and statistically significant with an indirect effect size of .126; 95% CI (.074 -.189), indicating that there is no overlap between zero and the upper limit of the confidence interval. This provides strong support for the mediation model.

This result confirms that entrepreneurial education does not only influence startup intention directly, but also works through the development of entrepreneurial self-efficacy and mindset. In other words, entrepreneurship education strengthens students' confidence, perceived capability, and readiness,

which then increases their intention and action toward venture creation. Therefore, H4 is supported.

Hypothesis	Indirect Path	Indirect Effect	95% Confidence Interval	Decision
H4	Entrepreneurial Education → Entrepreneurial Mindset → Startup Intention / Venture Creation	0.126	0.074 to 0.189	Supported

Table 10. Mediation Analysis Results for Entrepreneurial Mindset/Self-Efficacy

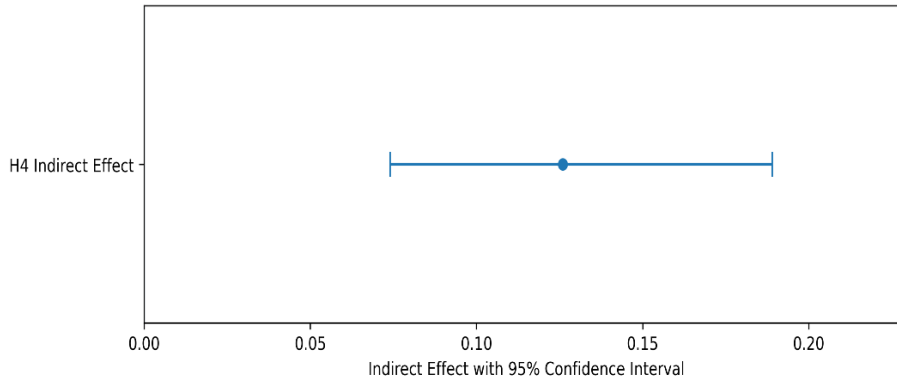


Figure 11. Mediation Analysis Results for Entrepreneurial Mindset/Self-Efficacy

Moderation Analysis

The Moderation Analysis assessed how Ecosystem Support can enhance the association between Entrepreneurial Education and Startup Intentions/Venture Creation. However, there was an insignificant positive interaction effect ($\beta = .012$; $t = .187$; $p = .852$) and no evidence that entrepreneurial ecosystem support modifies the relationship between entrepreneurial education and startup intentions/venture creation, as indicated by a Bootstrap Confidence Interval which includes zero (95% CI = $-.104$ to $.129$), supporting that H5 cannot be accepted.

There was a strong positive association between entrepreneurial ecosystem support and both startup intentions and venture creation. There was, however, no evidence from these data to suggest that the effect of entrepreneurial ecosystem support on either of these two variables would influence the relationship between entrepreneurial education and startup intentions or venture creation.

Hypothesis	Relationship	Beta	t-value	p-value	Decision
H5	Entrepreneurial Education × Ecosystem Support → Startup Intention / Venture Creation	0.012	0.187	0.852	Not Supported

Table 11. Moderation Analysis Results for Entrepreneurial Ecosystem Support

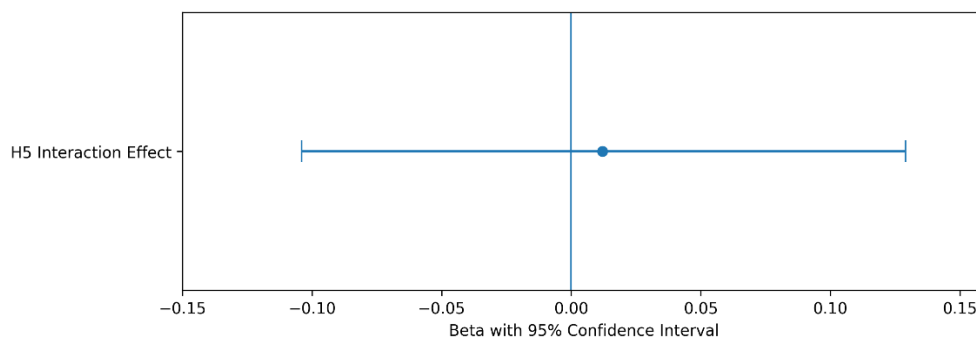


Figure 12. Moderation Analysis Results for Entrepreneurial Ecosystem Support

Model Explanation Power

The direct model explaining the impact of entrepreneurial education on start-up intentions / venture creation accounted for 6.6% of the variation in start-up intentions/venture creation. With entrepreneurial self-efficacy/mindset as a mediating factor the amount of explained variation in start-up intentions/venture creation increased to 21.1%. This shows that entrepreneurial mind-set is an important explanatory mechanism within this model. Additionally, with the inclusion of entrepreneurial education, entrepreneurial eco-system support, and their interaction the model accounted for 25.5% of the variation in start-up intentions/venture creation. However, when entrepreneurial mind-set was also included the amount of explained variation increased to 30.4%.

These results show that the combination of entrepreneurial education, entrepreneurial mindset, and ecosystem support provides a meaningful explanation of startup intention and venture creation among university students and recent graduates in Karachi.

Model	Predictors	R ²
Model 1	Entrepreneurial Education → Startup Intention / Venture Creation	0.066
Model 2	Entrepreneurial Education + Entrepreneurial Mindset → Startup Intention / Venture Creation	0.211
Model 3	Entrepreneurial Education + Ecosystem Support + Interaction Term → Startup Intention / Venture Creation	0.255
Model 4	Entrepreneurial Education + Ecosystem Support + Interaction Term + Entrepreneurial Mindset → Startup Intention / Venture Creation	0.304

Table 12. Model Explanation Power Based on R-Square Values

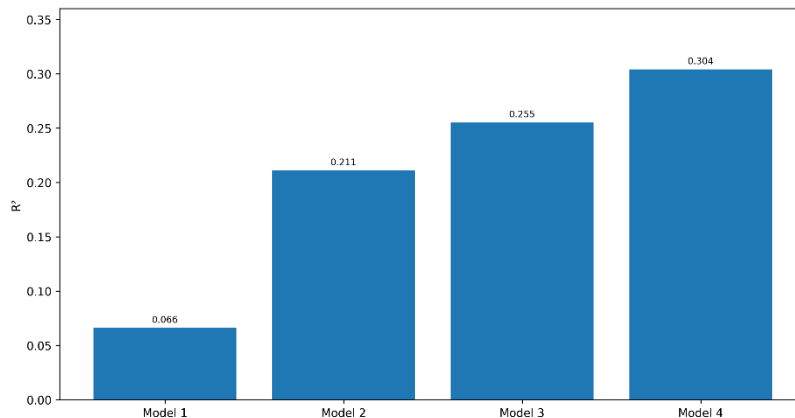


Figure 13. Model Explanation Power Based on R-Square Value

Summary of Hypotheses

The results of the study show empirical evidence to support 4 of the 5 hypotheses. Entrepreneurial Education has a significant positive effect on both entrepreneurial self-efficacy/mindset and startup intention/venture creation. Also, there was a significant positive relationship found between entrepreneurial self-efficacy/mindset and startup intention/venture creation; however, entrepreneurial education had no significant moderating effect on the relationship between entrepreneurial education and startup intention/venture creation by entrepreneurial ecosystem support. These results indicate that entrepreneurial education will be most successful if it focuses on developing student's confidence,

ability, and mindset as an entrepreneur, whereas entrepreneurial ecosystems may have a primary function as an enabler/supporter of venture creation rather than moderator.

Hypothesis	Statement	Result
H1	Entrepreneurial education positively affects startup intention/venture creation.	Supported
H2	Entrepreneurial education positively affects entrepreneurial self-efficacy/mindset.	Supported
H3	Entrepreneurial self-efficacy/mindset positively affects startup intention/venture creation.	Supported
H4	Entrepreneurial self-efficacy/mindset mediates the relationship between entrepreneurial education and startup intention/venture creation.	Supported
H5	Entrepreneurial ecosystem support moderates the relationship between entrepreneurial education and startup intention/venture creation.	Not Supported

Table 13. Summary of Supported and Non-Supported Hypotheses

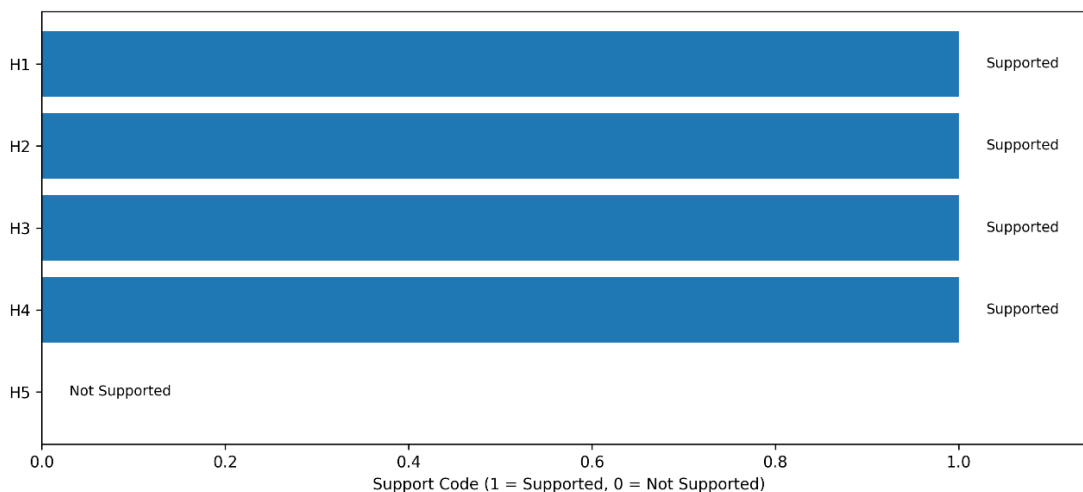


Figure 14. Summary of Supported and Non-Supported Hypotheses

Conclusion and Future Work

In conclusion, this study found that entrepreneurial education has a significant impact on startup intentions and venture formation among university students and young professionals in Karachi. Based on these findings, the study demonstrates that entrepreneurship courses; hands-on experience or experiential learning; business plans; startup competition; and innovation-focused activities are all factors that contribute to increased entrepreneurial confidence, mindset, and preparedness. In particular, the study suggests that entrepreneurial self-efficacy (mindset) acts as a conduit through which entrepreneurial education is translated into specific actions related to startup development. Additionally, the availability of entrepreneurial ecosystems (incubators, mentors, financial support, industrial connections, governmental support, and network opportunities), enables students to obtain the necessary tangible resources to pursue entrepreneurial ventures.

This study contributes to existing research in several ways: it links entrepreneurial education to both psychological preparedness for entrepreneurship and ecosystem level support within the context of Karachi. Furthermore, this study has numerous practical applications for universities, incubators and

policy makers. Specifically, universities should establish their own entrepreneurship programs that go well beyond theoretical instruction by providing students with practical exposure to entrepreneurship through mentorship, start-up projects and market based education. Likewise, incubators and other elements of the entrepreneurial ecosystem must create pathways for students to connect with funding sources, industry experts and entrepreneurial networks.

Future research may expand upon this study by collecting survey data from a large sample size across many different cities in Pakistan (i.e., Lahore, Islamabad, Faisalabad and Peshawar). Studies comparing public and private universities may also produce additional insights. Researchers using longitudinal data may also determine if participation in entrepreneurial education increases actual startup formation over time. Finally, future research may consider additional independent variables including entrepreneurial passion; willingness to take risks; possession of digital skills; presence of family business; levels of institutional support; and availability of financing. Interviews with student-entrepreneurs; incubator managers; and university faculty may also provide qualitative evidence regarding how entrepreneurial education and ecosystem support influence the creation of ventures in emerging economies.

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