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From Entrepreneurial Learning to Entrepreneurial Career Intention: A Mediation-Moderated Framework

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ABSTRACT

The purpose of this study is to explore the effect that entrepreneurship education has on entrepreneurial career intention among undergraduate students in a developing economy. The study also examines the parallel mediating effects of entrepreneurial opportunity recognition and entrepreneurial resilience and the serial mediating effect of entrepreneurial competence and the moderating effect of perceived family support. A quantitative, positivist, deductive research design method was used. For collecting data, three phases were used with purposive and snowball sampling with undergraduate students from Pakistani universities and resulted in a number of valid responses of 359. The data was analyzed with the functionalities of SPSS and SmartPLS. The entrepreneurship education had a significant impact on opportunity recognition and entrepreneurial resilience, which positively affected entrepreneurial competence. Entrepreneurial competence was a significant contributor to entrepreneurial career intention, in turn. The opportunity recognition and the relationship between opportunity recognition and resilience were very significant in the relationship between entrepreneurship education and entrepreneurial competence. The relationship between competence and career intention did not significantly depend on the perceived family support. The study extends social cognitive career theory to the framework of original integrated mediations between entrepreneurship education and entrepreneurial career intention in a developing-economy context through mediations of cognitive, adaptive and competence-building processes. The results motivate universities and policymakers to focus on improving experiential entrepreneurship education, opportunity-recognition training, the development of young university graduates' resilience, the provision of university incubation support, and competence-based entrepreneurship programmes to make entrepreneurship a meaningful career pathway for young university graduates in the whole country.

Introduction

In developing economies, entrepreneurship is being seen as a critical career option for the university-educated youth as numbers of educated youth are growing in the formal labour markets that may not be strong enough to absorb them (Amolegbe, 2026). This is especially a concern in Pakistan where there is great uncertainty regarding transition from University to jobs for undergraduate students (Ullah & Ullah, 2026). The youth unemployment rate of 12.5% in Pakistan (2024-25) is evident in the Pakistan Labour Force Survey, demonstrating the employment dilemma in the transition from education to work for the youth (Umair et al., 2024). This is because entrepreneurial career intention (ECI) is important because it is the measure of how much students deliberate to pursue entrepreneurship or to create a new venture as their future careers (Duong & St-Jean, 2024). In developing countries, entrepreneurial career intention has also been defined as entrepreneurial intention to become an entrepreneur as a profession (Chagi et al., 2025), and the studies have confirmed that entrepreneurial exposure and cognitive factors could impact the formation of entrepreneurial career intention. While not all students who intend to work as entrepreneurs end up actually starting one, it is important to understand how the career intention develops among undergraduates to expand career opportunities for graduates and increase the viability of entrepreneurship as a career path (Qwabe et al., 2025).

The present study emphasises that entrepreneurial education is the beginning of the process of developing entrepreneurship. Entrepreneurial education consists of students' knowledge, skills, cognitions and experiences gained from entrepreneurship education learning activities (Rosa et al., 2025). It seems that entrepreneurial education has the potential to foster students' opportunity-recognition skills and boost their entrepreneurial intentions (Parker et al., 2026). Entrepreneurial opportunity recognition and entrepreneurial resilience are two parallel mediators in the proposed framework. Opportunity recognition and resilience are two aspects that have been connected to entrepreneurship. Opportunity recognition can be defined as the skill of noticing and assessing potential business opportunities (Wach et al., 2026), while resilience can be defined as the ability to adjust, rebound and persevere in the face of uncertainty and business failures (Shehzad et al., 2026). Recent research also showed that there is a link between entrepreneurship education, entrepreneurial resilience, opportunity recognition and entrepreneurial intentions among undergraduate students (Bui et al., 2025). Both of these above mechanisms then help to develop entrepreneurial competence, that is, students' ability to use entrepreneurial knowledge and skills in planning, organizing and mobilizing resources and implementing businesses. Entrepreneurial competence is expected to have these impacts on ECI. The previous research conducted by university students has found that there are significant relationship between business education, entrepreneurial competence and entrepreneurial intention (Ncube & Matlala, 2025). Finally, an entrepreneurial competency-ECI relationship is hypothesized to be moderated by perceived family support for entrepreneurship (Tung et al., 2026), as this is expected to influence whether or not competent students make a serious career decision to become entrepreneurs.

Although the field of entrepreneurship education and entrepreneurial intentions has been gaining ground and momentum in research, there are also several gaps in this understanding (Mitschke, 2026). Previous research has often looked at direct education-intention relationships or individually or serially at mediating mechanisms. For instance, Bui et al. (2025) first explored the relationship between entrepreneurship education and intention through the perspective of opportunity recognition and resilience. While, Song et al. (2026) explored self-efficacy, entrepreneurial alertness and opportunity recognition as the three pathways linking entrepreneurship education to entrepreneurial intention. The entrepreneurial mindset and alertness were found to be the mediators between entrepreneurship education and entrepreneurial intentions of graduating university students as revealed by (Xing et al., 2026). However, these streams do not offer particularly much insight into if these processes of opportunity recognition and resilience are working concurrently as competing learning processes (Kromidha & Bachtiar, 2024). Also, how entrepreneurial competence comes first in shaping career intention, or if these processes build up entrepreneurial competence first, which forms the basis for shaping career intention. Similarly, family support previously has been linked to entrepreneurial intentions and has been found to reinforce some of the boundary relationships between the antecedents and intentions (Ahmed, 2022), but the boundary relationship between entrepreneurial competence and career intention has been relatively under-researched. These restrictions highlight the importance of developing a process model that is more integrated, particularly in the undergraduate setting.

Therefore, the present study makes a contribution to the entrepreneurship and career literature by contributing a moderated parallel and serial mediation model in order to understand how entrepreneurial learning can lead to entrepreneurial career intention (Song et al., 2026). The study recognizes first of all the two processes of opportunity recognition and entrepreneurial resilience as two parallel processes, acknowledging that entrepreneurial learning may result in building an opportunity-oriented cognitive capability and an adaptive psychological resource (Mitchell, 2020). Second, it frames entrepreneurial competence as a second intervening variable, after the issue of whether entrepreneurial education is merely a boost to the desire to become an

entrepreneur has been addressed (Tam et al., 2026). It looks toward how learning-related resources are transformed into entrepreneurial skills that facilitate an entrepreneurial career choice. Thirdly, the introduction of family support as a moderator results in an important contextual boundary condition (Ozdemir & Chang, 2026). This is in line with the general ideas of Social Cognitive Career Theory (SCCT), which suggests that learning experiences, capabilities and supports of the environment are all important in the career-interest and career-choice processes (Guo & Tian, 2026). In higher education setting, recent SCCT research also shows that entrepreneurial career processes are a function of all three factors: educational experiences, perceived opportunities, individual capabilities and contextual influences. The model thus extends the knowledge regarding entrepreneurial career development and offers evidence in a context specific way of a developing economy.

In the light of this background, the main research question of this study was: What are the effects of entrepreneurial education on the entrepreneurial career intention of the under-graduate students in the developing economy and the conditions under which it happens? Specifically, this study is designed to test the ability of entrepreneurial opportunity recognition and entrepreneurial resilience as parallel mediators between entrepreneurial education and entrepreneurial competence. The study as well as the ability of entrepreneurial competence as a serial mediator between these learning mechanisms and entrepreneurial career intention and whether perceived family support for entrepreneurship moderates the relationship between entrepreneurial competence and entrepreneurial career intention. In doing so, the study aims to get a process oriented view on the transition of an undergraduate student from entrepreneurial education to a career choice of entrepreneurship. The results can be practically implemented in developing more experience-oriented and competence-based entrepreneurship courses at universities, enhancing opportunity recognition and resilience skill sets of students in the universities. Similarly, in this context, studying entrepreneurial incubators and career development centres also provide policymakers with information to help them define the importance of contextual support in turning entrepreneurial ability into entrepreneurial intention.

Literature Review

Theoretical Foundation

Social Cognitive Career Theory

Social Cognitive Career Theory (SCCT) theorises career development as an ongoing process where career interests, goals, and choices are a function of both one's learning experiences and one's personal capabilities and environmental context (Lent et al., 2002). SCCT is based on social cognitive theory, which focuses on the importance of exposure to relevant learning experiences to help people build up cognitive and behavioural resources that may affect their perceptions of the career being possible and desirable (Lent & Brown, 1996; D. Wang et al., 2022). The developmental learning process in which undergraduate students gain entrepreneurial knowledge and exposure is entrepreneurial education in the present study, and entrepreneurial opportunity recognition and entrepreneurial resilience are important cognitive and adaptive resources for coping with entrepreneurial opportunities and uncertainty. The following resources are then suggested to augment entrepreneurial competence, and students' ability to use their entrepreneurial knowledge and skills leads to an increase in entrepreneurial career intention as a career choice goal. Concurrently, perceived family support for entrepreneurship is an entrepreneurial contextual support factor that can enhance or diminish the extent of how entrepreneurial competence is manifested in career intention. For this reason, SCCT offers a suitable theoretical framework for the study because it accounts for entrepreneurial career intention (Wasilczuk, 2026). As a result of the interaction among education, educational opportunity, and people's individual capability development and the supportive social context and specifies opportunity recognition, resilience, and competence as the mechanisms that connect entrepreneurial learning with entrepreneurial career choice.

Hypothesis Development

Entrepreneurship education and entrepreneurial opportunity recognition

Entrepreneurship education is structured learning experiences that enable students to gain knowledge about entrepreneurship and become aware of the market and opportunities for new businesses (Mandel & Noyes, 2016). The concept of opportunity recognition on learning experiences from the SCCT perspective, learning experiences affects individuals' cognitive resources and perceptions of their ability to pursue a specific career path (Jimoh et al., 2026). Suguna et al. (2024) endorsed that entrepreneurship education can then improve the skills of students to understand information in the environment, link problems in the market with possible solutions, and identify opportunities for entrepreneurship. This is supported by empirical evidence as Otache et al. (2024) revealed that exposure to entrepreneurship education positively influenced students' opportunity recognition ability in addition to other

entrepreneurial cognitions. Thus, the students who got more entrepreneurship education should be more able to identify entrepreneurial opportunities (Nafukho & El Mansour, 2025). Likewise, study proposed following hypothesis:

H1: Entrepreneurship education has a positive effect on entrepreneurial opportunity recognition.

Entrepreneurship education and entrepreneurial resilience

Entrepreneurship is associated with uncertainty, failure, limited resources, and repeated failures (Gali et al., 2024); therefore, students need psychological resources in order to adapt and persevere when entrepreneurial activities do not go as planned. Entrepreneurship education can foster resilience through various means, including presenting students with realistic entrepreneurial challenges and scenarios, incorporating experiential learning activities, addressing failures, conducting business simulations, and engaging in problem-solving exercises (Georgiou, 2025). These experiences give opportunities to learn how to do something constructive as opposed to avoiding difficult situations. González-López et al. (2019) demonstrated that entrepreneurship education interventions can lead to greater personal resilience, and more recent research with undergraduate students found links between entrepreneurship education, personal resilience, and the development of entrepreneurial intentions. As such, it is believed that entrepreneurship education will build students' ability to bounce back, adjust and persevere in entrepreneurial settings (Larsen & Neergaard, 2024). Therefore, study describes following hypothesis:

H2: Entrepreneurship education has a positive effect on entrepreneurial resilience.

Entrepreneurial opportunity recognition and entrepreneurial competence

Identifying a viable opportunity is a key cognitive prerequisite to entrepreneurial action since it offers students a real context within which they can use entrepreneurial knowledge and skills (Atrup et al., 2023). Students who can identify customer needs gaps, identify potential value creation opportunities are more likely to participate in activities related to evaluation, planning, resource mobilization, networking, and implementation (Killian et al., 2024). Cognitive engagement can help to develop skills needed to achieve entrepreneurial career aspirations from an SCCT. Opportunity-related capability is another key component in entrepreneurial competency development that is recognized by research (Lili et al., 2026). Under the present approach, entrepreneurial competence is defined mainly as the ability to initiate and run entrepreneurial actions (Carruthers et al., 2019), which means that opportunity recognition, as part of entrepreneurial competence, is positioned more as a precondition of entrepreneurial competence than as a component of entrepreneurial competence. Hence, study predicted following hypothesis:

H3: Entrepreneurial opportunity recognition has a positive effect on entrepreneurial competence.

Entrepreneurial resilience and entrepreneurial competence

Knowing how to apply technical knowledge is not enough to make a person competent as an entrepreneur because, to be competent in the application of technical knowledge, a student should be able to do it under conditions of difficulty and uncertainty (Lynch et al., 2021). Entrepreneurial resilience helps people persist, gain insight from failure, adapt their current practices, and grow their competencies despite negative events (Ali & Rhita, 2025). Thus, resilient students are likely to have a better chance of turning entrepreneurial experiences into entrepreneurship skills, as they are more inclined to persevere through experimentation, failures, and complex entrepreneurial activities (Bhoyar et al., 2025). Research focuses on entrepreneurship education highlights the importance of learning resilience as a developmental resource for students to face entrepreneurial challenges (Wang & Xun, 2026) and recent evidence has connected students' resilience with entrepreneurial outcomes related to entrepreneurial capability. Resilience, therefore, should be crucial in the development and use of entrepreneurial competence (Seraj et al., 2022). Moreover, study proposed following hypothesis:

H4: Entrepreneurial resilience has a positive effect on entrepreneurial competence.

Entrepreneurial competence and Entrepreneurial career intention

Entrepreneurial competence is the perceived ability of an individual to undertake activities necessary for entrepreneurship, such as planning, organizing resources, communication with stakeholders, solving business problems and implementing entrepreneurial ideas (González-López et al., 2021). Some people feel more likely to form career goals when they believe they can successfully complete the activities of the career, says SCCT (Lent, 2005). Consequently, students with high entrepreneurial competency must feel entrepreneurship as a more possible and achievable occupation choice that will solidify their intention to become entrepreneurs (Sánchez, 2013). In the light of empirical studies, there is evidence that links entrepreneurial competence with students'

entrepreneurial intentions and that competence is one of the most significant mechanisms by which students' entrepreneurial intentions are influenced (Lv et al., 2021). In addition to this, study describes following hypothesis:

H5: Entrepreneurial competence has a positive effect on entrepreneurial career intention.

Mediation role of entrepreneurial opportunity recognition

It is not a simple matter to pass entrepreneurial competence through entrepreneurship education; the impact of entrepreneurship education can be manifested through the cognitive resources produced in the process of learning (Fernández-Pérez et al., 2019). One of such mechanisms is opportunity recognition. Entrepreneurship education enhances the exposure of students to market data, entrepreneurial issues, and methods for identifying business opportunities, which helps build their capacity to spot business opportunities (Karimi et al., 2016). Students are given a meaningful context of an opportunity for applying and developing planning, resource-management, networking and implementing skills (Otermans et al., 2025). Earlier studies have proven that opportunity recognition acts as a valuable mechanism in the transmission of the impact of entrepreneurship education to entrepreneurial outcomes (Hou et al., 2022). In the context of competence development, the present study suggests that entrepreneurship education can contribute to entrepreneurial competence by fostering students' opportunity-recognition competence (Otache et al., 2024). Likewise, study proposed following hypothesis:

H6: Entrepreneurial opportunity recognition mediates the positive relationship between entrepreneurship education and entrepreneurial competence.

Mediation role of entrepreneurial resilience

The second way in which entrepreneurial education can help in competence development is through entrepreneurial resilience (González-López et al., 2019). While education can give entrepreneurial knowledge and hands-on experience, students vary in their abilities to persist in entrepreneurial learning when the learning process is ambiguous, a failure, or challenging task (Peschl et al., 2021). Resilience-building educational experiences can help students to keep going, learn from failure, and adjust their approaches and strategies to allow entrepreneurial knowledge to be converted into actionable competence (Ahmed et al., 2024). Previous studies show the potential of resilience as an explanatory mechanism in the link between entrepreneurship education and entrepreneurial outcomes (Hoang et al., 2023), but focus has tended to be on entrepreneurial intention, not competence development. The present study continues the argument and treats resilience as a developmental process, which can be used as a stepping stone to develop entrepreneurial competence of students in entrepreneurship education (González-López et al., 2019). Therefore, study describes following hypothesis:

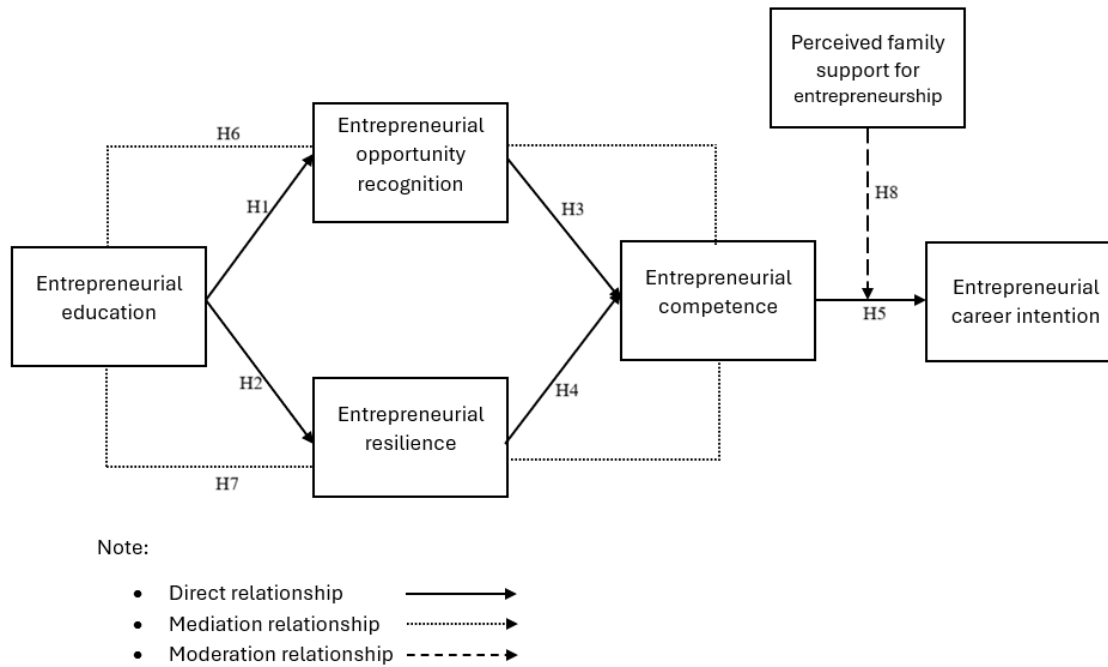
H7: Entrepreneurial resilience mediates the positive relationship between entrepreneurship education and entrepreneurial competence.

Moderating role of perceived family support for entrepreneurship

SCCT places emphasis on not only personal capabilities in career selection, but also contextual supports and barriers (Lent et al., 2000). Therefore, entrepreneurial competency does not always translate to career intention as entrepreneurial career as the social environment could have an impact on the transformation of entrepreneurial competency into entrepreneurial career intention (Zeb et al., 2025). However, perceived family support for entrepreneurship can offer emotional support, approval, information, networks, legitimacy, and sometimes material resources which can make an entrepreneurial career seem more possible (Osorio et al., 2017). In this context, SCCT explicitly posits that the role of contextual factors in the translation of individual capabilities and career interests into intentions could be either facilitating or inhibiting, depending on the context (Li et al., 2024), and empirical studies of entrepreneurship do support that family support can influence the nature of these relationships in entrepreneurship intention formation. Therefore, it is expected that entrepreneurship strong students are more likely to convert their entrepreneurial competences into entrepreneurial career intention for higher family support for entrepreneurship (Le & Loan, 2022). In addition to this, study describes following hypothesis:

H8: Perceived family support for entrepreneurship positively moderates the relationship between entrepreneurial competence and entrepreneurial career intention, such that the positive relationship is stronger when perceived family support is high.

Figure 1: Theoretical framework



Source: Author designed

Method

Research design, data collection and sampling

The study focused on a descriptive research design with the positivist philosophical approach using a deductive approach to test the hypotheses (Gomm, 2018). Primary data were collected from undergraduate students from universities in Pakistan with the help of survey strategy through a combination of purposive and snowball sampling techniques (Doran et al., 2026; Naderifar et al., 2017). Data was collected in three waves, to decrease potential common method bias and to alleviate concerns about collinearity (Kaewsaeng-On et al., 2022). The first phase of data collection focused on entrepreneurship education, entrepreneurial opportunity recognition and entrepreneurial resilience. The second phase was dedicated to entrepreneurial competency and perceived family support for entrepreneurship and the final phase was dedicated to the collection of entrepreneurial career intention data. Following screening of responses, and discarding of cases where responses were missing or incomplete, a final sample of 359 valid responses was obtained for further statistical analysis. The study also used control variables that indirectly influence entrepreneurial career intention. These control constructs consisted of gender, age, category of universities, categories of degrees and family profession.

Questionnaire and pretesting

The study scale used in this study was adapted from previous studies. The entrepreneurship education scale was taken from (Kobylińska, 2022) and was adapted according to the three items scale. The entrepreneurial opportunity recognition was endorsed the five items scale and adopted from (Kuckertz et al., 2017). Similarly, entrepreneurial resilience taken up from the Sinclair and Wallston (2004) and emphasised four items scale. The entrepreneurial career intention was measured in three items borrowed from Kobylińska (2022) and used as a dependent variable. The scale of entrepreneurial competence was obtained based on (C. Wang et al., 2022) and a predicted three-item scale. Also, the moderating variable was also considered to include perceived family support for entrepreneurship to absorb contextual factors and was presented five item scale adopted from (Krueger, 1993). To pilot test the questionnaire, five professors and three senior students of last year undergraduates who were experts in the field of entrepreneurship were sent the questionnaire. These scholars analyzed the items critically and provided feedback on their content validity, suitability of the language used, and conceptual fit of the questions, and of constructs being measured. These comments helped to clarify the wording, to remove superfluous items and to enable the scale to measure each construct. In doing so, experts helped to improve the content validity of the instrument and, to the creation of face validity whereby the answers to the questions would appear relevant and meaningful to the respondents. The pretest phase was carried out on a sample of 50, who were selected

by using the target population to statistically test the reliability and validity of the scale. After confirmation of reliability and validity, the final data samples of 359 were finalized to run the detailed analysis.

Data Analysis and Findings

This study used a two-stage data analysis and hypothesis testing process. The descriptive statistics involved included measures of central tendency and dispersion to summarize the characteristics and distribution of the data in the first stage. The second phase was the confirmatory factor analysis (CFA) to evaluate the measurement model, reliability and validity of the study constructs and measurement scales in relation to their components. After satisfactory assessment of the measurement model, the structural model was evaluated, a model which tests the hypothesized direct, mediating and moderating relationships among the study variables.

Common method variance

Table 1 shows the variance inflation factor (VIF) values as an indicator of possible multicollinearity among the constructs of the study. The reported VIF values are within the range of 1.001 to 1.284, the entrepreneurial education shows the lowest VIF value of 1.001, and entrepreneurial competence shows the highest VIF value of 1.284. The values are far below the commonly accepted value of 5.0 and even lower than the more conservative value of 3.3, suggesting that multicollinearity will not be a problem in the structural model (Kock, 2015). The predictor constructs are thus sufficiently different from each other and the relationships estimated can be interpreted without fear that excessive intercorrelations among the predictors are driving the results. Overall, the results indicate a satisfactory degree of collinearity for the model and that the next step of the structural model evaluation should be continued.

Table 1: Variance inflation factor

Constructs	VIF
Entrepreneurial competence	1.284
Entrepreneurial education	1.001
Entrepreneurial opportunity recognition	1.207
Entrepreneurial resilience	1.247
Perceived family support	1.244

Source: Author calculated through SmartPLS

Demographic profile

The demographic characteristics of the 359 respondents are summarized in Table 2. The sample was almost equal by gender with 51.25% (184) females and 48.75% (175) males. The majority of the respondents fall in the age category of 21-25 years (89.42%), with comparatively smaller proportion of the respondents falling in the age group of 26-30 years (4.18%), 31-35 years (4.74%) and above 35 years (1.67%). In terms of academic background, majority of the participants were business education (85.52%), other social sciences (7.52%) and economics (6.96%). In terms of the type of university, 65.74% of respondents were studying at the government universities while 34.26% were from the private universities. Moreover, 54.87% of the respondents had a family business background and 45.13% had a non-business background. In general, the demographic profile of this sample suggests that the sample was mainly made up of young undergraduate students with a business background and reasonably represented by male and female students as well as students from various family occupational backgrounds, in government universities.

Table 2: Demographic analysis

Constructs	Particulars	Frequency	Percent
Gender	Male	175	48.75
	Female	184	51.25

Age	21 to 25 years	321	89.42
	26 to 30 years	15	4.18
	31 to 35 years	17	4.74
	More than 35 years	6	1.67
Category of degree	Business education	307	85.52
	Economics	25	6.96
	Other social sciences	27	7.52
Category of university	Government university	236	65.74
	Private university	123	34.26
Family Profession	Business	197	54.87
	Non business	162	45.13

Source: Author calculated through SPSS

Descriptive statistics and data normality

The descriptive statistics and distributional characteristics of the study variables are presented in Table 3 and based on 359 valid responses (Mishra et al., 2019). The mean values of the focal constructs were generally high and ranged from 3.658 for perceived family support to 4.232 for entrepreneurial opportunity recognition, reflecting relatively favorable perceptions of respondents on the most important constructs of the study. Entrepreneurial career intention reported a mean of 4.154 (SD = 0.657), followed by entrepreneurial education (M = 4.090, SD = 0.722), entrepreneurial resilience (M = 4.038, SD = 0.590), and entrepreneurial competence (M = 3.924, SD = 0.613). The skewness values ranged from -0.767 to -0.056, and the kurtosis values ranged from -0.274 to 0.970 indicating that the distributions of the main study variables showed no serious departures from normality. Other demographic variables were more informative with respect to normality assessment, as age and degree category had relatively high skewness and kurtosis values due to the high number of respondents in certain categories. The descriptive results generally reveal enough variation in both of the study constructs and a fairly normal distribution for further multivariate analysis.

Table 3: Descriptive analysis and normality of data

Constructs	N	Minimum	Maximum	Mean	SD	Skewness	Kurtosis
Gender	359	1	2	1.513	0.501	-0.050	-2.009
Age	359	1	4	1.187	0.590	3.301	10.285
Category of degree	359	1	3	1.220	0.568	2.462	4.627
Category of university	359	1	2	1.343	0.475	0.666	-1.565
Family Profession	359	1	2	1.451	0.498	0.197	-1.972
Entrepreneurial career intention	359	1	5	4.154	0.657	-0.706	0.970
Entrepreneurial opportunity recognition	359	1	5	4.232	0.491	-0.268	-0.274
Entrepreneurial education	359	1	5	4.090	0.722	-0.767	0.714
Entrepreneurial competence	359	1	5	3.924	0.613	-0.056	-0.192
Entrepreneurial resilience	359	1	5	4.038	0.590	-0.297	-0.174

Perceived family support	359	1	5	3.658	0.765	-0.348	0.039
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Source: Author calculated through SPSS

Correlation matrix

The correlation coefficients for main study constructs with demographic variables are shown in Table 4 (Hadd & Rodgers, 2020). The findings show that all constructs of entrepreneurship are positively correlated with each other at 0.01 level of significance. The strongest associations with entrepreneurial career intention are with entrepreneurial opportunity recognition ($r = .522$, $p < .01$), followed by entrepreneurial competence ($r = .443$, $p < .01$), entrepreneurial resilience ($r = .395$, $p < .01$), perceived family support ($r = .351$, $p < .01$), and entrepreneurship education ($r = .275$, $p < .01$). Additionally, entrepreneurship education is strongly related with entrepreneurial opportunity recognition ($r = .389$), entrepreneurial competence ($r = .472$), entrepreneurial resilience ($r = .473$) and perceived family support ($r = .419$). Moreover, the entrepreneurial competency is shown to be positively correlated with opportunity recognition ($r = .463$) and entrepreneurial resilience ($r = .467$). The highest correlation is between entrepreneurial resilience and perceived family support ($r = .541$, $p < .01$), although the correlations are still quite low and low correlations are generally not indicative of high correlation. By contrast, most demographic variables have weak and statistically non-significant relationships with the main constructs of the study. Overall, the results of the correlation analysis suggest that there are theoretical positive relationships among the variables of interest, and it is appropriate for further testing of the measurement and structural models, with the proposed causal, mediating and moderating relationships being assessed separately by testing the structural models.

Table 4: Correlation statistics

Sr. No.	Constructs	1	2	3	4	5	6	7	8	9	10	11
1	Gender	1										
2	Age	.101	1									
3	Category of degree	.142**	.352**	1								
4	Category of university	-.165**	-.039	-.052	1							
5	Family Profession	-.068	.017	.112*	.100	1						
6	Entrepreneurial career intention	.085	.000	.009	.003	.071	1					
7	Entrepreneurial opportunity recognition	-.047	-.032	-.088	-.060	-.007	.522**	1				
8	Entrepreneurial education	.008	.041	-.042	-.039	-.007	.275**	.389**	1			
9	Entrepreneurial competence	.012	-.022	-.067	-.076	-.040	.443**	.463**	.472**	1		
10	Entrepreneurial resilience	.098	-.024	-.054	-.093	.075	.395**	.436**	.473**	.467**	1	
11	Perceived family support	.144**	.004	.018	-.072	.145**	.351**	.281**	.419**	.468**	.541**	1

Note: **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Source: Author calculated through SPSS

Measurement model assessment

Measurement of convergent validity and internal consistency reliability for the study constructs is shown in Table 5 and Figure 2. All the item loadings are standardized between 0.607 and 0.870, which suggest that the items in all the latent constructs contribute meaningfully. A few indicators (EOR5, ER3, ER4, PFS1 and PFS3) have loadings below the level of 0.70, but not below 0.60 and were kept as overall construct reliability and validity criteria were satisfactory (Hair et al., 2025). The scale Cronbach's alpha values are between 0.730 and 0.793 and the composite reliability (CR) values are between 0.811 and 0.851, which were above the recommended minimum of 0.70, indicating good internal consistency (Hair et al., 2014). In addition, the range of average variance extracted (AVE) is from 0.521 to 0.658, which are greater than the recommended value of 0.50, indicating that the constructs accounted for over half of the variance of their indicators (Hair et al., 2014). Overall, the results indicate that the measurement model is satisfactory to proceed with structural analysis, as the items of entrepreneurial competence, entrepreneurial opportunity recognition, entrepreneurial resilience, entrepreneurial intention to pursue a career, and perceived family support are found to have a satisfactory level of reliability and convergent validity.

Table 5: Convergent validity

Constructs	Items	Loadings	Alpha	CR	AVE
Entrepreneurial education	EE1	0.726	0.744	0.851	0.658
	EE2	0.831			
	EE3	0.870			
Entrepreneurial opportunity recognition	EOR1	0.715	0.779	0.849	0.531
	EOR2	0.740			
	EOR3	0.762			
	EOR4	0.800			
	EOR5	0.613			
Entrepreneurial resilience	ER1	0.810	0.787	0.811	0.521
	ER2	0.779			
	ER3	0.663			
	ER4	0.618			
Entrepreneurial competence	EC1	0.807	0.793	0.830	0.619
	EC2	0.793			
	EC3	0.760			
Perceived family support	PFS1	0.642	0.777	0.843	0.521
	PFS2	0.746			
	PFS3	0.607			
	PFS4	0.778			
	PFS5	0.816			
Entrepreneurial career intention	ECI1	0.758	0.730	0.847	0.648

ECI2 0.836

ECI3 0.819

Source: Author calculated through SmartPLS

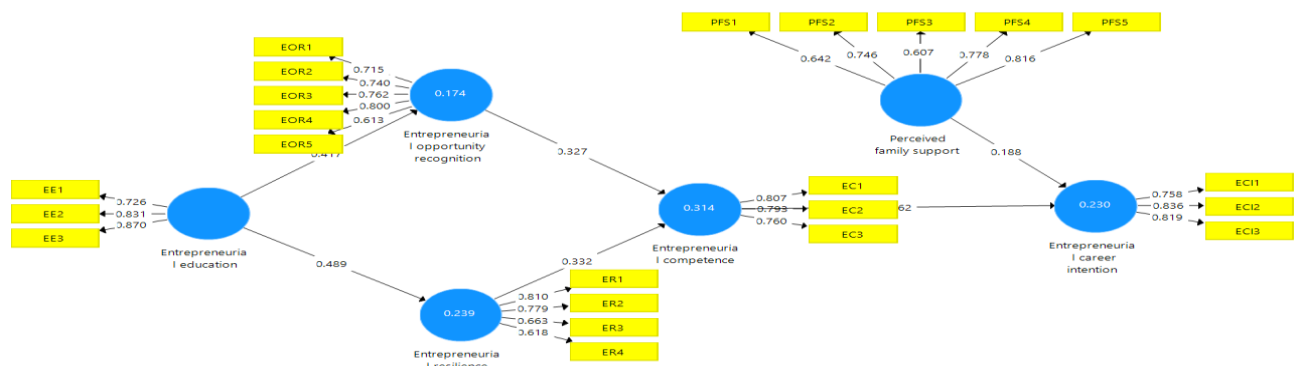
Table 6 shows the Heterotrait–Monotrait (HTMT) ratio to evaluate the discriminant validity of the study constructs (Henseler et al., 2015). The range of HTMT values is between 0.349 and 0.734, with the lowest HTMT value found between entrepreneurial opportunity recognition and perceived family support (HTMT = 0.349) and the highest HTMT value found between entrepreneurial resilience and perceived family support (HTMT = 0.734). Most importantly, all pairwise HTMT values are less than the conservative value of 0.85, which indicates that the constructs are empirically different from each other. The findings, therefore, support the satisfactory discriminant validity of entrepreneurial career intention, entrepreneurial competence, entrepreneurship education, entrepreneurial opportunity recognition, entrepreneurial resilience and perceived family support. In total, the results showed that all constructs reflect a unique, conceptually different dimension within the proposed measurement model, thus indicating its validity and suitability for further testing of the structural model and hypothesis.

Table 6: HTMT Ratio

Constructs	ECI	EC	EE	EOR	ER	PFS
ECI						
EC	0.619					
EE	0.370	0.658				
EOR	0.701	0.617	0.515			
ER	0.550	0.684	0.663	0.594		
PFS	0.436	0.640	0.542	0.349	0.734	

Note: ECI=Entrepreneurial career intention, EC=Entrepreneurial competence, EE=Entrepreneurial education, EOR=Entrepreneurial opportunity recognition, ER=Entrepreneurial resilience, PFS=Perceived family support

Source: Author calculated through SmartPLS

Figure 2: Measurement model evaluation

Source: Author designed through SmartPLS

Model fit criteria

Table 7 shows the goodness of fit indices for the global model (both saturated and estimated) model (Sivo et al., 2006). The SRMR value for the saturated model is 0.097 and is quite close to the upper limit of 0.10 commonly used for assessments of the global fit of a structural model, while the estimated model shows a relatively higher SRMR value of 0.137, indicating that the global fit of the

structural model is not particularly good according to conventional criteria. The NFI values for both the saturated model (0.610) and the estimated model (0.572) are also fairly low, suggesting moderate incremental fit. While the reported d_ULS values (2.618 and 5.179) and d_G values (0.631 and 0.748) should not be judged alone, they are typically compared with the d_ULS and d_G values of the corresponding reference values (based on HI95 or HI99) reported as bootstrapped values in SmartPLS. Likewise, the chi-square value of 1338.537 and 1470.533 are also some additional information but not the major model fit criterion in PLS-SEM. The overall results indicate mixed fit of the global model, underscoring the need to consider the structural model with caution, and to use other criteria for assessing the model for explanation and prediction, including but not limited to, R², Q², effect sizes (f²), path significance, and predictive performance.

Table 7: Model fit standards

Criteria	Saturated Model	Estimated Model
SRMR	0.097	0.137
d_ULS	2.618	5.179
d_G	0.631	0.748
Chi-Square	1338.537	1470.533
NFI	0.610	0.572

Source: Author calculated through SmartPLS

Structural model assessment

Table 8 and Figure 3 show the results from the structural model and hypothesis testing. The results suggest that seven of the eight hypotheses proposed are confirmed (Hair et al., 2013). In this regard, entrepreneurship education has a positive and significant effect on entrepreneurial opportunity recognition ($\beta = 0.417$, $t = 9.035$, $p < 0.001$) and entrepreneurial resilience ($\beta = 0.489$, $t = 11.357$, $p < 0.001$), which leads to the support of H1 and H2. The results also confirm the hypotheses H3 and H4, which state that entrepreneurial competence is also significantly increased by entrepreneurial opportunity recognition ($\beta = 0.327$, $t = 6.175$, $p < 0.001$) and entrepreneurial resilience ($\beta = 0.332$, $t = 6.399$, $p < 0.001$). Furthermore, entrepreneurial competence positively influences entrepreneurial career intention ($\beta = 0.362$, $t = 6.656$, $p < 0.001$), which is in line with the hypothesis H5. The mediation results also support H6 and H7 as there are significant indirect effects of entrepreneurship education on entrepreneurial competence via entrepreneurial opportunity recognition ($\beta = 0.136$, $t = 4.799$, $p < 0.001$) and entrepreneurial resilience ($\beta = 0.163$, $t = 5.020$, $p < 0.001$). The interaction between entrepreneurial competence and perceived family support, however, does not significantly predict entrepreneurial career intention ($\beta = -0.061$, $t = 0.981$, $p = 0.163$), and the confidence interval for this interaction is not different from zero (-0.156 to 0.045). So, H8 cannot be supported, and Figure 4 also highlights this stance. The overall results replicate the proposed direct and indirect pathways, but the hypothesized moderating influence of perceived family support on the relationships among the variables is not supported by the data.

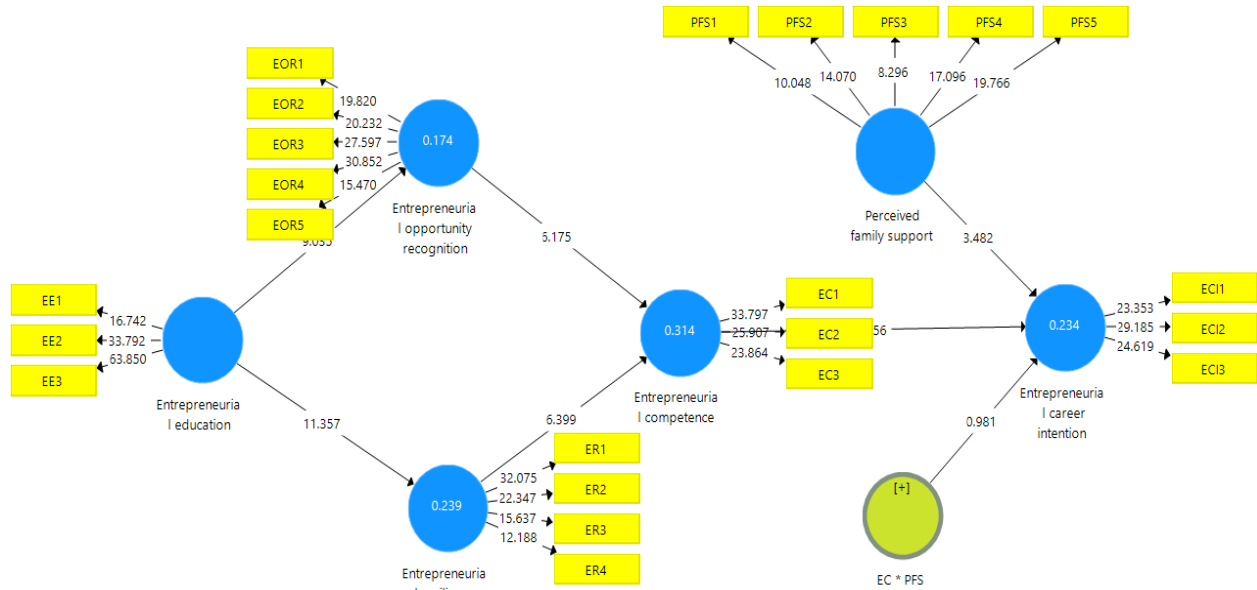
Table 8: Hypothesis testing

Hypothesis	Relationship	(O)	STDEV	T	P	5.00%	95.00%	Remarks
H1	EE -> EOR	0.417	0.046	9.035	0.000	0.350	0.499	Accepted
H2	EE -> ER	0.489	0.043	11.357	0.000	0.423	0.563	Accepted
H3	EOR -> EC	0.327	0.053	6.175	0.000	0.242	0.410	Accepted
H4	ER -> EC	0.332	0.052	6.399	0.000	0.246	0.419	Accepted
H5	EC -> ECI	0.362	0.054	6.656	0.000	0.276	0.445	Accepted
H6	EE -> EOR -> EC	0.136	0.028	4.799	0.000	0.095	0.189	Accepted
H7	EE -> ER -> EC	0.163	0.032	5.020	0.000	0.112	0.220	Accepted

H8	EC * PFS -> ECI	-0.061	0.062	0.981	0.163	-0.156	0.045	Rejected
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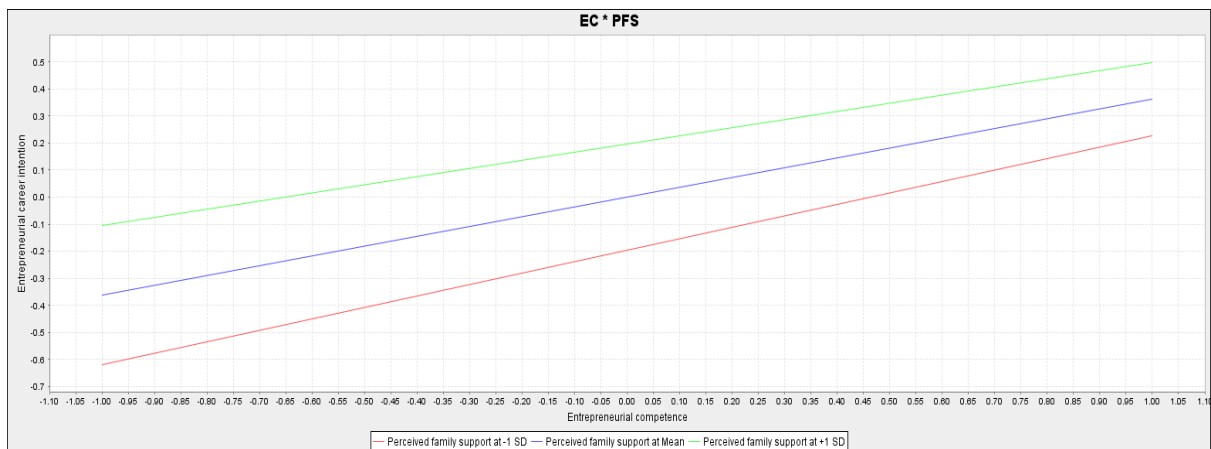
Source: Author calculated through SmartPLS

Figure 3: Structural model evaluation



Source: Author designed through SmartPLS

Figure 4: Interaction term (simple slope analysis)



Source: Author designed through SmartPLS

Discussion and Implications

Discussion

The results give strong support to the direct relationships as hypothesized in the model. Entrepreneurship education was found to have a strong impact on both entrepreneurial opportunity recognition (H1) and entrepreneurial resilience (H2). The opportunity recognition and entrepreneurial resilience in turn positively influenced entrepreneurial competence as hypothesized in H3 and H4, and the entrepreneurial competence in turn positively affected entrepreneurial career intention as hypothesized in H5. Based on these findings, it is concluded that entrepreneurship education can positively stimulate students' career intention by facilitating the acquisition of cognitive, adaptive, and capability related resources as outlined in the Social Cognitive Career Theory (Duong et al., 2024; Duong & St-Jean, 2024).

The results of mediation also confirmed the H6 and H7, namely the entrepreneurial opportunity recognition and entrepreneurial resilience very strongly transmit the impact of entrepreneurial education to entrepreneurial competence. This suggests that entrepreneurship education is not just about developing competence directly, but also about enhancing students' capacity to recognize opportunities, and be flexible and adaptive with entrepreneurial uncertainty (Astrup et al., 2023; Bernadó & Wrobel, 2026). The somewhat higher indirect effect from entrepreneurial resilience further indicates that the ability to persist and bounce back from challenges could be relevant for entrepreneurial learning to competence (Chadwick & Raver, 2020; Lafuente et al., 2019).

But the relationship between entrepreneurial competence and entrepreneurial career intention was not moderated, since perceived family support was not found to be statistically significant (Ikhrum & Novadjaja, 2020). The finding suggests that students who are able to perform well can have entrepreneurial career intentions, even if they feel they have low family entrepreneurial support (Yue et al., 2026). Personal capability and educational experiences, therefore, in the context of university students, may have a more direct impact on entrepreneurial career intentions than family-based contextual support (Duong, 2026), but further research is required to determine if this is the case across different cultural, institutional or socioeconomic environments (Spilbergs et al., 2026).

Theoretical contribution

The current study has several theoretical contributions to the entrepreneurship and career-development literature. First, it builds upon Social Cognitive Career Theory (SCCT) and explains how entrepreneurial education could be implemented as a chain of cognitive, psychological and capability-based mechanisms leading to entrepreneurial career intention. Instead of examining entrepreneurship education as a direct predictor of career intention, the study shows that the effect of entrepreneurship education on career intention is achieved through two mediating pathways entrepreneurial opportunity recognition and entrepreneurial resilience that are parallel and then reinforce entrepreneurial competence. Secondly, this integrated structure broadens the scope of the application of SCCT and demonstrates that learning experiences have a number of internal avenues through which they can influence one's career-related outcomes such as the capacity to recognise opportunities, manage uncertainty, and build the competence to consider entrepreneurship as a viable career path.

Thirdly, the study makes a contribution by introducing entrepreneurial competence as an important linking element between students' learning-related resources and entrepreneurial career intention. The importance of the mediating role of opportunity recognition and resilience suggests an approach to entrepreneurship education that can help develop competence in both cognitive and adaptive ways. Finally, at the same time, the non-significant moderating role of perceived family support offers a theoretical boundary condition. The relationship between entrepreneurial competence and career intention may not be universally dependent on family support. The discovery helps to further narrow down the contextual assumptions of SCCT, the individuals capacity to develop entrepreneurial abilities may have a more direct impact on their career intention than the support from their families when they are undergraduate students. In general, the study contributes to the understanding of entrepreneurial career development from a process perspective, which has been further developed by integrating the role of personal resources with that of contextual conditions in educational experiences.

Practical implications

The results of this study have significant implications for practice for students, university administrators, and policymakers in developing economies. Entrepreneurship education in a way that actively involves students is important to boost opportunity recognition, resilience and entrepreneurial competence, which can help develop entrepreneurial career intentions. The results indicate that for the university administrator, entrepreneurship education must go beyond classroom teaching and engage in

experiential learning that involves business simulation, start-up projects, mentoring, incubation, networking, and exposure to real business challenges. It is therefore important that universities establish enabling environments to facilitate the transfer of entrepreneurial knowledge to entrepreneurial competence and entrepreneurial action. The study highlights the importance of policy support, student startup funding, incubation facilities, entrepreneurship grants, industry–university collaboration and making it easier for young graduates to launch new businesses for governments in developing economies to strengthen university entrepreneurship. These concerted activities may increase graduate employability, stimulate entrepreneurship, and promote entrepreneurship as an economic career choice in situations where formal jobs are scarce.

Policy implications

The results of this research study have implications for policy to support entrepreneurship as an option for career paths in developing economies. Policymakers need to create an integrated entrepreneurship policy which goes beyond the classroom and emphasizes the opportunity recognition capability of students and their resilience, and entrepreneurial capability through the use of incubation program, start-up grants, mentoring, experiential learning, and enhanced university–industry connections. There is need to link higher education and youth-employment policies with entrepreneurship education and provide access to finance, business advisory services, ease in registering a start-up and post-graduation support to first-time entrepreneurs. Moreover, governments could promote universities to integrate entrepreneurship into academic programs and set measurable indicators for competence development and entrepreneurial career intentions. The findings suggest that interventions that focus on institutional and competence-building mechanisms that students can access more directly might be more successful in strengthening the competence-career intention relationship, since perceived family support did not significantly strengthen the relationship. In general, a policy framework that integrates the roles of universities, industry, financial institutions and the government in a coordinated network has the potential to influence the link between entrepreneurship education and entrepreneurial career opportunities for young graduates in a way that is sustainable.

Future direction and limitations

The study has a number of limitations, which also serve as avenues for further research. Firstly, the findings of the study may not be generalizable to other undergraduate students in universities in Pakistan because purposive sampling and snowball sampling was used to obtain the sample in this study, which could be broadly sampled and further studies could be conducted with students of other countries, academic disciplines and cultural environment. Second, the data were gathered in three waves, but the study is predominantly a cross-sectional survey study, and the measures are self-reported, therefore, further studies should use longitudinal designs and behavioral measures to assess if entrepreneurial career intention will lead to actual entrepreneurial venture creation. Last, the non-significant moderating effect of perceived family support implies a possible focus on other contextual moderators for future research, including university support, entrepreneurial passion, availability of finance, and social support, which may help explain how entrepreneurial competence can impact entrepreneurial career intention.

Concluding remarks

Finally, this research shows that entrepreneurial education can enhance entrepreneurial career intention as a result of opportunity recognition ability and resilience, and entrepreneurial competence of students. The results suggest that entrepreneurial competence is a significant pathway between educational experiences and students' career aspirations, and that perceived family support did not significantly moderate this relationship. The study contributes to the knowledge about the entrepreneurial career development in a context of developing economy and highlights the importance of capability based entrepreneurship education for the students of the undergraduate program to consider entrepreneurship as an option for their professional life.

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