STUDENTS' MOTIVATIONS TOWARDS ENTREPRENEURSHIP: THE STRATEGIC ROLE OF ENTREPRENEURIAL EDUCATION

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How to cite this paper: Abdelwahed, N. A. A., Ramish, M. S., Al Doghan, M.A., & Soomro, B. A. (2025). Students' motivations towards entrepreneurship: The strategic role of entrepreneurial education [Special issue]. *Corporate & Business Strategy Review, 6*(3), 347–357.
https://doi.org/10.22495/cbsrv6i3siart11

ISSN Online: 2708-4965
ISSN Print: 2708-9924

Received: 02.09.2024
Revised: 08.12.2024; 24.07.2025
Accepted: 28.08.2025

JEL Classification: L1, L2, L6, O3, Q5
DOI: 10.22495/cbsrv6i3siart11

Abstract

The paper explores students' entrepreneurial developments and motivations in Egypt. The study is cross-sectional, where random sampling is applied to get the response from students of different universities in Egypt. The base of the study is on the studies of Adekiya and Ibrahim (2016) and Bhatta et al. (2024). The study utilized a 340-sample size where the results of structural equation modeling (SEM) demonstrate a positive and significant effect of entrepreneurial capability (EC), entrepreneurial competencies (ECs), and entrepreneurial orientation (EO) on students' motivation towards entrepreneurship (MTE). On the other hand, entrepreneurial education (EE) has a negative effect on MTE. Moreover, the investigation confirms EE's mediating effect in developing the relationship between EC and ECs, except for EO and MTE among university students. The findings assist university management, policymakers, and planners in designing policies that may further motivate university students towards entrepreneurship. The university authorities may develop practical EE courses as these significantly divert students' minds towards self-employment and starting their business enterprises to ensure their future. Finally, the study would assist in tackling the unemployment issues and make their bright future MTE. This study fills the gaps in confirming the role of EE as a mediator between ECs, EO, and MTE, which has yet to be considered generally and specifically in Egypt's university context.

Keywords: Motivation Towards Entrepreneurship, Entrepreneurial Capability, Entrepreneurial Competencies, Entrepreneurial Orientation, Entrepreneurial Education, University Students

Authors' individual contribution: Conceptualization — N.A.A.A.; Methodology — N.A.A.A. and B.A.S.; Software — B.A.S.; Validation — M.A.D.; Formal Analysis — B.A.S.; Investigation — N.A.A.A. and M.S.R.; Resources — N.A.A.A. and M.A.D.; Data Curation — N.A.A.A. and M.A.D.; Writing — N.A.A.A., M.S.R., and B.A.S.; Visualization — N.A.A.A. and M.A.D.; Supervision — N.A.A.A.; Project Administration — M.A.D.; Funding Acquisition — N.A.A.A.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: The Authors thank the King Faisal University for awarding the deanship of scientific research, Vice Presidency for graduate studies and scientific research, King Faisal University, Saudi Arabia [Project No. GRANTKFU252425].

1. INTRODUCTION

In modern times, entrepreneurship is crucial for enhancing economic development and the well-being of society. It drives the developing economies from different economic and income-related problems (Unim & Inakwu, 2024). In this connection, the entrepreneurial motivation (EM) is the basic and core predictor of entrepreneurial activity (Adams et al., 2017). In the previous literature, there are several factors, such as entrepreneurial orientation (EO), entrepreneurial capability (EC), entrepreneurial competencies (ECs), entrepreneurial education (EE), entrepreneurial attitudes and intentions, need for achievement, perceived behavioural control, market orientation, entrepreneurial performance, entrepreneurial traits, self-efficacy and entrepreneurial learning etc. are found to be significant predictors of EM and entrepreneurial intention (EI) (San-Martín et al., 2022; Chen et al., 2023). More specifically, we consider the vital importance of EC, ECs, EO, and EE towards the development of motivation towards entrepreneurship (MTE). However, studies are still being conducted. The literature has determined whether the MTE and EE are integrated through enablers such as EC, ECs, and EO. Moreover, the mediating contribution of EE between EC, ECs, EO, and MTE still needs to be considered.

More clearly, the EC is defined as the individuals' ability to deal with business or entrepreneurial tasks (Linan, 2008; Geri, 2013). They deal with all the business or entrepreneurial activities and fulfil the entrepreneurial task with extraordinary capability. Likewise, ECs underline the individuals' competencies in identifying the customers' wants through negotiations and developing customer relationships (Man et al., 2008). These ECs massively assist individuals in inspiring and attracting consumers towards their particular entrepreneurial initiatives through their effectiveness. Further, the EO aspect underlines three main activities: innovativeness, risk-taking, and pro-activeness of individuals in launching new product lines, radical changes, high-risk appetite, goal orientation, and the exploration of opportunities (Covin & Slevin, 1989). Finally, the EE is the protagonist factor that helps individuals develop entrepreneurial attitudes and enables them to become entrepreneurs. It also provides those skills and the ability to run their business smoothly (Adekiya & Ibrahim, 2016; Walter & Block, 2016).

In the domain literature, there are many factors, such as entrepreneurial attitudes, EC, entrepreneurial traits, EO, EI, need for achievement, EE, entrepreneurial learning, self-efficacy, ECs, etc. are confirmed to be the positive enablers of MTE in the diverse contexts (Adekiya & Ibrahim, 2016; San-Martín et al., 2022; Chen et al., 2023; Lingappa et al., 2024; Yong et al., 2024). Nevertheless, the studies did not investigate EC, ECs, EO, EE, and MTE in an integrated model. Contextually, prior studies do not consider Egyptian universities, particularly in the MTE domain. Therefore, keeping in view the importance of students' MTE and anxious to know how they choose their career paths, we raised research questions:

RQ1: What is the role of EC, ECs, EO, and EE in developing MTE among university students?

RQ2: How does EE mediate the connection between EC, ECs, and EO among university students?

This study investigates the effect of EC, ECs, EO, and EE on MTE directly and indirectly through EE among university students in Egypt. The study offers novel insights into the development of MTE. The study offers a novel contribution to the constructs that robustly enhance the MTE among students to enhance their business enterprises after completing their education. It would assist in working independently and running their own business with good ideas and better financial gains. The domain literature will be enriched with the contribution of this study, particularly for developing Arab countries.

The rest of the paper is structured as follows. Section 2 offers the literature review and the development of the hypotheses. Section 3 presents methods. Section 4 provides the results of the study. Section 5 discusses the main findings. Section 6 concludes the paper.

2. REVIEW OF LITERATURE AND HYPOTHESES DEVELOPMENT

The MTE and EE are the most frequent aspects of entrepreneurship, which can be developed through EO and dynamic capabilities (Monteiro et al., 2017). However, while intangible resources do not significantly influence EO directly, they do so indirectly through dynamic capabilities. According to the behavioural learning hypothesis, modifications to entrepreneurial learning affect improvements to entrepreneurs' abilities (Jiao et al., 2010). EO enhances the dynamic capacities of Taiwanese electronics companies, which in turn increases firm performance (Chen et al., 2023; Yusuf et al., 2024). Among Indian university students, EI is positively affected by EM (Karan et al., 2024).

Governmental organizations and others normally employ the notion of ECs in pursuing economic growth and the success of the business. In many studies, the notion of ECs is typically utilized to examine entrepreneurial performance and business success (Mitchelmore & Rowley, 2010). The students who possess ECs and perceived behavioural control have a substantial attitude towards the intention of success (San-Martín et al., 2022).

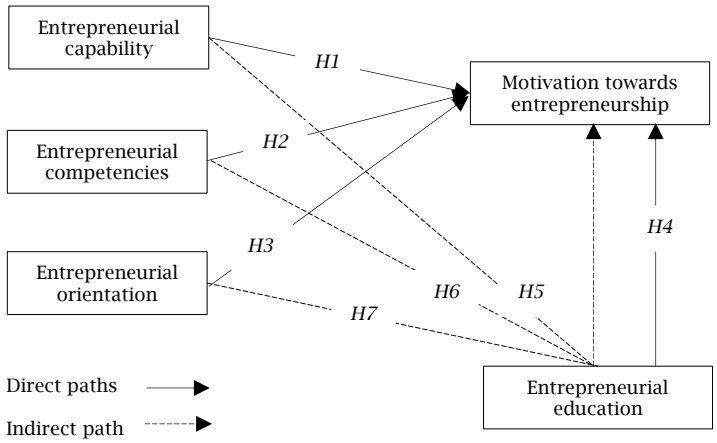
According to Mantok et al. (2019), business performance and organizational learning are the consequences of EO. Organizational learning mediates the association between EO and business performance. The empirical assessment of Maleki and Hajipour (2021) exerts a positive and significant connection between EO and coaching, and unwavering as the building stone of sustainable EO.

The EE and training effectively elicit a significant student-level outcome of EI and success (Aboobaker & D., 2020). In higher educational institutes, Yousef & Ahmed (2024) and Perez et al. (2024) claim a weak, significant association between EE and EI. The EE partially mediates the influence of the need for achievement, innovativeness, and locus of control on EI (Biswas & Verma, 2022). Although the EE did not directly impact EI, it did so indirectly through perceptions of behavioural control and attitudes toward entrepreneurship. A significant piece of research by Duong (2022) shows that EI was positively and significantly correlated with behavioural control perception and attitude. The study also identifies that educational backgrounds influence the relationships between predictors and entrepreneurial inclination. According to Saadat et al. (2022), EE significantly positively influences the entrepreneurial mindset and entrepreneurial alertness. Among university students, EE positively correlated with EI and employability (Gazi et al., 2024).

Participants in entrepreneurship programmes frequently exhibit higher EM and are more likely to commence their enterprises (Solesvik, 2013). The link between MTE and innovative work behaviour is moderated by EI (Bhatta et al., 2024).

Hence, the existing literature offers significant gaps that need to be filled. First, the scholars confirmed several constructs, i.e., EE, need for achievement, entrepreneurial learning, EO, EC, self-efficacy, ECs, entrepreneurial attitudes and intentions, entrepreneurial performance, and entrepreneurial traits, which significantly predict MTE (San-Martín et al., 2022; Chen et al., 2023; Lingappa et al., 2024; Yong et al., 2024). However, in the presence of EC, ECs and EO, the role of EE is not determined by earlier studies. Second, EE is not investigated as a mediating construct between EC, ECs, EO, and MTE. Finally, contextually, Egyptian universities are not considered by the prior studies, particularly in the MTE domain. Based on relationships and gaps, we conceptualized Figure 1 to confirm among the university students of Egypt.

Figure 1. Conceptual model



Source: Conceptualized by the Authors.

2.1. Entrepreneurial capability and motivation towards entrepreneurship

An essential personal quality to becoming an entrepreneur is EC, which is the competence people need to choose, recognize, and take advantage of business possibilities. EC positively impacts people's motivation for entrepreneurship in an entrepreneurial setting. Li and Kang (2024) state that entrepreneurs must have entrepreneurial and cultural skills when making business decisions. Besides, immigrant business owners who cite a high degree of personal achievement as their starting point often mention high levels of EC in terms of opportunity recognition, managerial innovativeness, and pro-activeness (Rametse et al., 2018). According to Shiri et al. (2013), students' entrepreneurial incentives can be increased by their attitude toward entrepreneurship, role model, and entrepreneurship education courses. Strengthening women's entrepreneurial skills and capacities through training courses and mentorship programmes will boost their EI, self-efficacy, and opportunity motivation. Therefore, the literature demonstrates the link between EC and MTE in different contexts, excluding university students of Egypt. Thus:

H1: EC assists in the positive and significant development of individuals' MTE.

2.2. Entrepreneurial competencies and motivation towards entrepreneurship

ECs are important for MTE. Entrepreneurs in the Middle East and North Africa region, particularly in Algeria, Egypt, Iran, Tunisia, Turkey, the United Arab Emirates, Jordan, Lebanon, Morocco, Yemen, Syria, and Saudi Arabia, are more likely to take advantage of market opportunities if they have higher levels of education and competency. The cultural concept of individualism encourages males to become more opportunity-driven entrepreneurs. Students' entrepreneurial awareness and skills can be developed through motivation for growth and innovation (Ruswaji et al., 2024). In the study of Singh et al. (2024), ECs mediate the link between digital entrepreneurship training and EI. Nonetheless, these associations need the concentration of investigation in the Egyptian context. Hence:

H2: ECs assist in the positive and significant development of individuals' MTE.

2.3. Entrepreneurial orientation and motivation towards entrepreneurship

EM and EO are strongly correlated, which improves subsistence entrepreneurs' wealth and productivity (Eijdenberg, 2016). Hassan et al. (2021) claim that EE fosters individual EO, and incentives have a favourable relationship with EI. Entrepreneurship aspects, EM, and opportunity perception are correlated with one another and improve a firm's performance in the small and medium-sized enterprises (SME) sector. A firm's performance is specifically influenced by opportunity openness with proactive behaviour, motivational heterogeneity with creative behaviour, and risk-taking with proactive behaviour (Kusa et al., 2021). EM and EO directly influence EI and indirectly through EE (Marques et al., 2013; Anwar et al., 2022). The study of Ibrahim and Mas'ud (2016) claims EO as a moderator between entrepreneurial skill and intention.

The EO contributes to improved organizational performance. When taken separately from EO, proactivity and competitive aggressiveness are linked with organizational success (Adams et al., 2017). Based on the non-availability of confirmation of these associations among Egyptian university students, we proposed the following:

H3: EO assists in the positive and significant development of individuals' MTE.

2.4. Entrepreneurial education and motivation towards entrepreneurship

A crucial step in foreseeing and expanding entrepreneurial activity is understanding the impact of EM, and entrepreneurial activity has a substantial contribution to advancing the economy. The importance of EE in supplying students with the knowledge they need, developing their skills as potential entrepreneurs, and changing their mindsets about starting a new business cannot be overstated. Positive effects of EE on boosting entrepreneurship and igniting student entrepreneurs' motivation are observed. EE aids in encouraging student entrepreneurship (Yang, 2015). In addition to facilitating individual EO and entrepreneurial incentives, EE also has a favourable correlation with EI (Hassan et al., 2021). Besides, connections between EO, EE, and EI are considerably mediated by entrepreneurial incentives (Solesvik, 2013). The study's results by Mónico et al. (2021) show that entrepreneurial universities indirectly influence EI through the students' entrepreneurial tendencies. The social norms significantly and favourably influenced the EM of secondary students.

As a result, several scholars supported EE's positive effect on EM (Mónico et al., 2021; Hassan et al., 2021). However, some scholars did not confirm EE's positive predictive and robust role in developing EM. To confirm these contradictions of results, we developed the following:

H4: EE assists in the positive and significant development of individuals' MTE.

2.5. Entrepreneurial education as a mediator

EE and innovation are positively correlated. An awareness of entrepreneurial potential mediates between perceived EE and creativity (Wei et al., 2019). Due to the self-mediating efficacy's role, there is a significant link between EE and EI (Puni et al., 2018; Anwar et al., 2022). EE is a mediator between EO and EM (Otache et al., 2022). Among women entrepreneurs, the MTE and EI are positively associated through dynamic capabilities (Nigam & Shatila, 2024). The empirical results demonstrate a positive connection between EI and entrepreneurial attitude mediated by EE (Shi et al., 2020; Otache et al., 2021). In SMEs, entrepreneurial imaginativeness and intention are connected through attitudes and MTE (Nasser & Akbawi, 2024). However, while EE did not directly impact EI, it did so indirectly through perceptions of behavioural control and attitudes toward entrepreneurship (Duong, 2022).

Consequently, EE is found to be the significant mediator that develops the connection between different factors, i.e., between attitudes, EI, attitudes towards entrepreneurship, subjective norms, self-efficacy, EO, EM, and entrepreneurial ambitions etc. (Wei et al., 2019; Otache et al., 2021; Duong, 2022). In this way, to confirm its different role, we proposed the following:

H5: EE mediates the connection between EC and individuals' MTE.

H6: EE mediates the connection between ECs and individuals' MTE.

H7: EE mediates the connection between EO and individuals' MTE.

3. METHODS

3.1. Research approach and respondents

The study examines the entrepreneurial trends and the development of MTE among university students in Egypt. Hence, we decided to apply a quantitative approach due to specific reasons. First, this is the best quantifiable approach to social sciences (Mohajan, 2020). Second, this approach ensures the rights to privacy and confidentiality of the respondents' responses and is also practicable for researchers to save resources and time (Ramona, 2011). Third, this investigation ensures a wide range of choices for the study units with a Likert scale, which assists them in responding to the questions sensibly (Braunsberger & Gates, 2009). Fourth, it offers reliability and validity in an expressive way (Wessells & Bretherton, 2000). Finally, the domain researchers like Marques et al. (2013), Puni et al. (2018), Hassan et al. (2021), Anwar et al. (2022), Chen et al. (2023), and Li and Kang (2024) who adopted the quantitative modes of enquiry to assess entrepreneurial trends, motivations and intentions in the different sectors as well as regions. Congruently, keeping in mind, we favoured conducting quantitative research due to its demonstration of valuable understandings into authenticity with slight bias (Savela, 2018). However, in the same domain as the present study, other alternative methods, such as qualitative and mixed methods approaches, can be applied to conduct the studies. We selected the university students of Egypt as they are ambitious and committed to initiating their enterprises or business start-ups with more innovative ideas (Jones & Jones, 2014). The role of universities has always remained enormous in nurturing and producing leaders and successful entrepreneurs (Maheshwari, 2022). The EE of the university adequately builds up students' careers in entrepreneurship. We mainly targeted the business, management, economics, and commerce students of Egypt's public and private universities. These business-related university students are always found with great EM and are ready to organize, control, and change ideas independently and quickly (Johnson, 1990). They pursue EE, which provides potential educational, social, and economic benefits. According to Shane et al. (2003), individuals with high motivation are more inclined to become entrepreneurs and have a significant role in choosing the best career paths (Collins et al., 2004). In Egypt, university business students are more inclined to perform entrepreneurial behaviour with great responsibility and eagerness (Hattab, 2023; Farid, 2024). Therefore, we decided to get responses from Egyptian university students.

3.2. Data collection processes and sample size

We visited the different private and public sector universities throughout Egypt to gather responses from the students. We also sent some surveys to the students through email and postal services. We preferred a random sampling strategy to reach the respondents, and it is unbiased due to the offer of maximum equal chances of participation for every respondent. This technique is valuable as long as it generalizes results (Rehman et al., 2022). We requested the deans, directors, and chairman/ chairpersons of departments to allow us to enter classrooms to fill out the surveys from students

with the support of teaching faculty members. Before attaining responses from respondents, we attached a cover letter along with a questionnaire to highlight the study's aim and make them aware of the scope, discretion, and content of the survey. Besides, we also guaranteed them their voluntary participation in the survey. We also took care of their ethical protocols and systematically ensured the confidentiality of their achieved data. Lastly, we also revealed to them that they could withdraw or leave the survey at any stage without mentioning any reason for withdrawal. In total, we dispatched 600 questionnaires, emailed them, distributed them, and got back 340 valid cases, which yielded a response rate of 56%. In the last, 340 usable cases were utilized for analysis. This sample size (340) is justified based on its representativeness and statistical adequacy. We carefully selected these samples to reflect the diversity of the target population, where we considered core demographic and contextual constructs, i.e., age, gender, academic discipline, and educational background. This initiative certifies that the results are generalizable to the student population. Besides, we applied a power analysis to indicate that a sample of this size delivers sufficient statistical power to detect expressive effects or associations with a high degree of confidence (typically 95%) and a power level of 0.80.

3.3. Common method variance

The observation of common method variance (CMV) is necessary to authenticate the analysis as the data of the variables (dependent and independent) from the same type of respondents were gathered. The presence of CMV may vanish and affect the study's results. In this regard, the researchers applied a single-common-method factor strategy using marker variables (Podsakoff et al., 2003). We borrowed three items, such as "Once I've come to a conclusion, I'm not likely to change my mind", "I don't change my mind easily", and "My views are very consistent over time" from Oreg (2003). We computed these items and added a marker variable in the model. We compared the line model with the model containing the marker variable and found both models' values to be significant. In this way, we ensured that there was an issue with CMV.

3.4. Measures

We adopted all the constructs and their items from the domain literature. More specifically, we adopted four items from Linan (2008) and Geri (2013) to measure EC. We measured ECs on four items adapted from Man et al. (2008). Likewise, we adopted eight items from the study of Covin and Slevin (1989), which cover different domains, i.e., risk-taking, innovativeness, and pro-activeness, to assess EO. We adopted five items from Adekiya and Ibrahim (2016) and Walter and Block (2016) to measure the EE factor. Finally, we evaluated MTE based on five items from Solesvik (2013) (see detailed items in Table 1). We gauged all the items using a five-point Likert scale from "Totally agree" = "1" to "Totally disagree" = "5".

Table 1. Survey questionnaire

Construct	*Definition*	*Item*	*Adapted from*
EC	EC is the ability to start and sustain a business, combining practical business knowledge, persuasive communication, responsibility, and a passion for entrepreneurship.	ec1: Starting a business and keeping it viable would be easy for me.	Linan (2008), Geri (2013)
		ec2: I know all about the practical details needed to start a business.	
		ec3: I am convincing, and I set up good communication with people.	
		ec4: I love being at entrepreneurship work and taking responsibility.	
ECs	ECs are essential skills an entrepreneur has to identify market needs, build trust, negotiate effectively, and self-improve for business success.	ecs1: I identify goods or services that customers want.	Man et al. (2008)
		ecs2: I develop long-term trusting relationships with others.	
		ecs3: I negotiate with others.	
		ecs4: I recognize and work on my own shortcomings.	
EO	EO is an enterprise's strategy emphasizing innovation, risk-taking, and proactivity. It means introducing new products, taking risks, pursuing opportunities, and pioneering technology and product changes.	eo1: Launched new product line.	Covin and Slevin (1989)
		eo2: Radical changes in product line.	
		eo3: High-risk appetite.	
		eo4: Goal-oriented.	
		eo5: Aggressive exploitation of opportunities.	
		eo6: Imitativeness in action.	
		eo7: Initiative-oriented.	
		eo8: New product and technology introducer.	
EE	EE fosters an entrepreneurial mindset and imparts knowledge, skills, and attitudes to succeed in entrepreneurship. It cultivates initiative, societal awareness, interest, and practical skills for business start-ups and management.	ee1: My entrepreneurial education helped me develop my sense of initiative – a sort of entrepreneurial attitude.	Walter and Block (2016), Adekiya and Ibrahim (2016)
		ee2: My entrepreneurial education helped me to better understand the role of entrepreneurs in society.	
		ee3: My entrepreneurial education made me interested in becoming an entrepreneur.	
		ee4: My entrepreneurial education gave me skills and know-how that enable me to run a business.	
		ee5: My entrepreneurial education has equipped me with the necessary abilities and expertise to start my own business.	
MTE	MTE is the driving force or desire that leads individuals to view starting their business as an attractive career choice, typically driven by aspirations for independence, the realization of innovative ideas, financial improvement, and the pursuit of success.	mte1: Most people consider investing in their own SMEs and their management a desirable career choice.	Solesvik (2013)
		mte2: Most people start their own business because they want to be free and independent.	
		mte3: Most people start their own business because they have good ideas and want to realize them	
		mte4: Most people start their own business to be better off financially.	
		mte5: Most people start their own business because they want to be successful.	

Source: Adopted from literature.

4. RESULTS

4.1. Demography

We assessed *gender*, *age*, *level of education,* and *main domain* as the demographic variables. With regard to the *gender* of respondents, a majority of males (n = 227 or 66.76%) than females (n = 113 or 33.24%). We found most respondents between (n = 210/61.76%) 18–24 years. 118 (34.71%) were between 25–34 years of *age,* and only 3.54% (n = 12) were 35 and above years. Likewise, most students were under graduation (n = 196/57.65%) against post-graduation (n = 144/42.35%). The final demographic indicator (*main domain*) shows that most students were enrolled in business (n = 121/35.59%). We found 28.82% (n = 98), 22.35% (n = 76), and 13.24% (n = 45) of management, economics, and commerce, respectively (Table 2).

Table 2. Demographic variables

Indicator	*Characteristics*	*Samples*	*%*
Gender	Male	227	66.76
	Female	113	33.24
	Total	**340**	**100.0**
Age	18–24	210	61.76
	25–34	118	34.71
	35 and above years	12	3.54
	Total	**340**	**100.0**
Level of education	Undergraduate	196	57.65
	Post-graduate	144	42.35
	Total	**340**	**100.0**
Main domain	Business	121	35.59
	Management	98	28.82
	Economics	76	22.35
	Commerce	45	13.24
	Total	**340**	**100.0**

Source: Authors' own questionnaire.

4.2. Measurement model

We applied the analysis of moment structures (AMOS) version 26 IBM, to evaluate the data. We undertake factor loading to note the correlation coefficients among the constructs, where most items appeared with loading values greater than 0.70 or a range between 0.755 (ee4) to 0.882 (mte1). Nevertheless, the items such as eo3 and eo6 were excluded due to not qualifying their loading weights or having less than the required scores (Hair et al., 2019). Similarly, the values of composite reliability (CR) were noticed as a lower limit of 0.859 (ECs) to 0.931 (MTE) or higher than the suggested values (0.70) (Table 3) (Hair et al., 2019). Further, we calculated average variance extracted values (AVE) to assess the factors' distinctiveness. As a consequence, AVE for all constructs has fallen within the range from 0.633 (EE) to 0.735 (EC), which is greater than > 0.50 as excellent (Hair et al., 2019). Finally, we assessed internal consistency among the items through Cronbach's alpha reliability. We recorded the range of Cronbach's alpha from 0.789 (MTE) to 0.878 (ECs). In this way, all factors have appeared with acceptable reliability (Table 3).

Table 3. Measurement model

Factor	*Item*	*Loadings*	*CR*	*AVE*	*α*
EC	ec1	0.881	0.917	0.735	0.855
	ec2	0.879			
	ec3	0.862			
	ec4	0.806			
ECs	ecs1	0.862	0.895	0.680	0.878
	ecs3	0.832			
	ecs2	0.821			
	ecs4	0.782			
EO	eo1	0.862	0.926	0.675	0.839
	eo2	0.832			
	eo4	0.828			
	eo5	0.819			
	eo8	0.801			
	eo7	0.784			
EE	ee1	0.832	0.896	0.633	0.866
	ee3	0.818			
	ee2	0.798			
	ee5	0.772			
	ee4	0.755			
MTE	mte1	0.882	0.931	0.731	0.789
	mte2	0.872			
	mte3	0.855			
	mte4	0.848			
	mte5	0.817			

Source: Authors' calculation.
Note: CR = square of the summation of the factor loadings. AVE = summation of the squares of the factor loadings. α = Cronbach's alpha.

Before examining the structural model's causal paths, a well-fitting measurement model is also essential (Sharma et al., 2005). Good-fitting models can be re-specified if they are quite constant with the data. To determine a model's capacity to replicate the data, we checked the model's fitness. As presented in Table 4 and the caption of Figure 2, the values of the Chi-square/df appeared as 2.999, which ensured the preliminary fitness of the model with the data. In the same way, we found additional

model fit indicators such as *AGFI, NFI, CFI, GFI,* and *RMSEA* appear within the ranges and are supported by scholars like Sharma et al. (2005).

Table 4. Model fitness

Indicators	*Attained value [Required level]*
Chi-square/df	2.999 [< 5.0]
CFI	0.918 [> 0.90]
GFI	0.922 [> 0.90]
AGFI	0.938 [> 0.85]
NFI	0.911 [> 0.90]
RMSEA	0.069 [< 0.08]

Source: Authors' calculation.
Note: CMIN = χ2/chi-square/df; df = degrees of freedom; GFI = goodness-of-fit index; AGFI = adjusted goodness-of-fit index; NFI = normed fit index; CFI = comparative fit index; RMSEA = root mean square error of approximation.

4.3. Structural model

To evaluate the hypotheses of the study, we applied structural equation modeling (SEM) path analysis, as presented in Table 5 and Figure 2. *H1* is accepted with a positive impact of EC on MTE (*H1* = β = 0.256; CR = 8.258; p < 0.01). The effect of ECs on MTE is positive and significant (*H2* = β = 0.238; CR = 7.933; p < 0.01) (*H2* accepted). Our analysis also accepted the association between EO and MTE by underlining the positive and significant paths results (*H3* = β = 0.242; CR = 7.562; p < 0.01). On the other hand, we found a negative effect of EE on MTE, which rejected *H4* (*H4* = β = -0.030; CR = 0.147; p > 0.01) (Table 5 and Figure 2).

Table 5. Structural equation modeling estimations (direct paths)

H No.	*Effects*			*Estimate*	*SE*	*CR*	*p*	*Decision*
H1	EC	→	MTE	0.256	0.031	8.258	0.000	Accepted
H2	ECs	→	MTE	0.238	0.030	7.933	0.000	Accepted
H3	EO	→	MTE	0.242	0.032	7.562	0.001	Accepted
H4	EE	→	MTE	-0.030	0.882	0.147	0.883	Rejected

Source: Authors' calculation.
Note: SE — standard error; CR — critical ratio; p < 0.01.

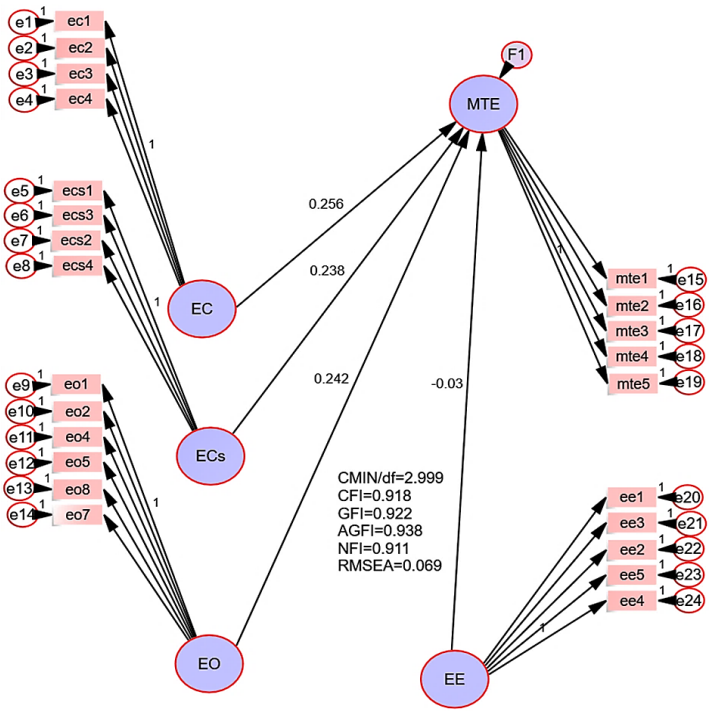
Moreover, regarding indirect paths, we found an indirect effect of EE in developing the relationship between EC and MTE (*H5* = β = 0.267; CR = 4.306; p < 0.01) (see Table 6 and caption of Figure 2) and accepted *H5.* Likewise, we found a positive mediating effect of EE between ECs and MTE (*H6* = β = 0.218; CR = 4.541; p < 0.01), which accepted *H6.* On the other hand, the analysis did not support *H7* (*H7* = β = -0.029; CR = 0.674; p > 0.01) (Table 6 and caption of Figure 2) — *H7* is rejected.

Table 6. Structural equation modeling estimations (indirect paths)

H No.	*Effects*					*Estimate*	*SE*	*CR*	*p*	*Decision*
H5	EC	→	EE	→	MTE	0.267	0.062	4.306	0.000	Accepted
H6	ECs	→	EE	→	MTE	0.218	0.048	4.541	0.002	Accepted
H7	EO	→	EE	→	MTE	-0.029	0.043	0.674	0.500	Rejected

Source: Authors' calculation.

Figure 2. Structural equation model



Source: Authors' estimation.

5. DISCUSSION

The study aimed to explore the entrepreneurial enablers in developing EM and education among university students in Egypt. With the support of literature, we developed a conceptual framework and hypotheses for investigation. By employing the SEM, the study found a positive influence of EC on MTE. These outcomes are concurred with several studies in the literature, i.e., Rametse et al. (2018), Li and Kang (2024) found a positive impact of EC on MTE in several contexts. These results show that students aspire to build their businesses and maintain them profitable, which may come naturally to me. They fully know all the operational elements required to launch a firm. They successfully establish good communication with others and are convincing. They enjoy working in the entrepreneurial field and accepting responsibilities.

With regard to the effect of ECs on MTE, the study found it positive. Likewise, these outcomes are in line with the various scholars who brought the same findings with positive results (Shiri et al., 2013; Rametse et al., 2018; Li and Kang, 2024). The associations show that Egyptian university students can recognize the products or services that consumers seek. They possess the capacity to build enduring, trustworthy relationships with others. They can negotiate with people and do so appropriately. They are capable of identifying and improving their weaknesses.

Similarly, the impact of EO is found to be positive and significant on MTE. In line with other studies, these results concurred with Marques et al. (2013), Eijdenberg (2016), Ibrahim and Mas'ud (2016), Kusa et al. (2021), and Anwar et al. (2022), who found the positive connections between EO and MTE. The findings suggest that EO enhances EM, improving subsistence entrepreneurs' wealth and productivity. They are likely to be innovative and proactive and are willing to take risks during entrepreneurial activities. They are ambitious to launch a new product line and bring radical changes. They have a high-risk appetite, goal orientations, and aggressive exploitation of opportunities. They are imitative in action and initiative in orientation. They want to introduce new products and technology in the business.

The EE negatively affected MTE. These connections are in contradiction, like Mónico et al. (2021) and Hassan et al. (2021), who claimed the vital role of EE in the development of the motivation of individuals. These outcomes mirror how EE assisted students in cultivating a feeling of initiative or an entrepreneurial mindset. They received assistance from EE to comprehend the place of entrepreneurs in society. They developed an entrepreneurial inclination as a result of EE. They gained knowledge and skills from EE that helped them run a business. EE gave them the knowledge and skills they needed to launch their firm. Culturally, societal perceptions of entrepreneurship may differ, with potential stigma around failure or a preference for more stable career paths, which could dampen motivation despite exposure to EE. Structurally, challenges, i.e., bureaucratic hurdles, limited access to funding, and an underdeveloped entrepreneurial ecosystem, might generate a gap between the theoretical knowledge provided by EE and the practical feasibility of hunting entrepreneurship, leading to discouragement. Besides, the design and delivery of EE programs in Egypt may not align with the ambitions or prospects of students, possibly highlighting theoretical knowledge over practical, actionable skills.

Moreover, the study exerted a significant mediating role of EE in shaping the connection of EC and ECs with MTE, which is supported by several scholars (Wei et al., 2019; Shi et al., 2020; Otache et al., 2021; Duong, 2022) who confirmed the mediating role of EE between various factors. On the other hand, EE did not appear to be a significant mediator between EO and MTE. The mediating paths suggest that students view investing in their own SMEs and their management as a promising career path; EE helped them launch a business. They are educated on the practical information required to launch a business because they desire independence and freedom. They are persuaded to launch their own company because they have great ideas and want to put them into practice. They did not love working in entrepreneurship and taking responsibility to be better off financially. Through EE, they are not much inspired to launch their own company because they want to be prosperous. The EE did not assist them in providing goods or services to the customers as they wished, with desirable choices. EE did not help them develop long-term relationships based on trust, which motivated them to continue entrepreneurial activities. In their perceptions, EE is not a significant factor that enabled them to negotiate with others and recognize their weaknesses. Moreover, the EE did not bring innovativeness, risk-taking, and pro-activeness within them, which further enriched the motivations and attitudes towards entrepreneurship in Egypt.

6. CONCLUSION

In conclusion, the study's outcome shows the positive role of EC, ECs, and EO in developing MTE. On the other hand, EE did not play a substantial role in enhancing MTE among the students. These results indicate that EC, ECs, and EO are essential in developing the MTE among university students. The study also established the mediating significance of EE in reinforcing the connection of EC and ECs, except for EE with MTE.

The study results would contribute to developing EM among students by enhancing EC, ECs, EO, and EE to start their business and entrepreneurial activities. The individuals would benefit from identifying customers' needs and creating trust and long-term relationships. The study would assist in creating ECs among individuals to tackle the business challenges before venturing commencement. The study would develop the ability of individuals to face business risk and avail more business opportunities. The study enhances innovation capabilities and helps become a successful entrepreneur. The EE aspect would help students develop of entrepreneurial attitude. It supports understanding the role of the entrepreneur in society. The achievement and making a better initiative of the EE factor would provide skills to know how to run the business.

Practically, the study would support developing policies to develop EM among university students. The university authorities may help increase EE to overcome the unemployment and poverty trends as EE has a meaningful role in creating self-employment through initiating business start-ups, as it currently deficiency its reputation among

the students. Finally, the study contributes to developing the theories and connote in the literature of entrepreneurship, management, and business, particularly for developing context. Academic institutions in Egypt could consider revising their EE curricula to integrate more experiential learning opportunities, i.e., business simulations, internships with start-ups, or real-world project-based assignments. This would bridge the gap between theory and practice, assisting students in boosting the confidence and skills essential for entrepreneurial success. Institutions might also collaborate with local businesses, incubators, and venture capital networks to generate pathways for students to assess entrepreneurship in a supportive ecosystem. Moreover, EE programs should be adapted to reflect the specific challenges and opportunities in the Egyptian educational and economic context.

The study is conducted in a developing context since it has some limitations. The study needs to be supported with a related theory to underprop the study's conceptual model. The base of the study is on limited variables such as EC, ECs, EO, EE and MTE. Methodologically, this study is restricted to a quantitative assessment where a single source of data gathering (questionnaire) is applied to get the responses from respondents. The study only applied convenience sampling rather than random sampling; hence, it may create issues of generalization and representation of the whole population of university students. The results of the study are based on 340 samples only. Finally, the study only targeted the university students of Egypt.

The study did not apply any relevant theory, so in the future, theories like the theory of reasoned action (TRA), the theory of planned behaviour (TPB), and the entrepreneurial event model (EEM) should be applied to reinforce the conceptualization of studies. In the future, more longitudinal explorations should be conducted to validate the same results further. More samples may be collected to provide more generalization of results. Future researchers may apply other data collection modes, rather than survey questionnaires may be involved in future. Future studies may concentrate on other variables, such as attitudes, need for achievement, subjective norms, entrepreneurial feasibility, and desirability should be used to undertake more studies. Finally, university students of natural sciences may concentrate on future studies.

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