

## Exploring the Serial Mediation: A Conceptual Model of Entrepreneurial Education, Opportunity Recognition, Motivation, and Health Entrepreneurial Intentions

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Conceptual Model, Entrepreneurial Education, Health Entrepreneurial Intentions, Motivation, Opportunity Recognition, Serial Mediation

### ABSTRACT:

Healthcare is crucial for public well-being, and its progress is propelled mainly by entrepreneurship, which encourages innovation. This research employs the Ability–motivation–opportunity (AMO) model to examine the effects of Entrepreneurship Education (EE) on Health Entrepreneurial Intention (HEI). According to this study's conceptual model, EE may improve Entrepreneurial Opportunity Recognition (OR), heighten Entrepreneurial Motivation (EM), and ultimately affect HEI. The suggested framework encourages forthcoming studies in higher education institutions to evaluate and refine their theoretical assertions, including clarifying essential constructs and performing experimental validations.

### 1. Introduction

Healthcare enhances health outcomes, prevents diseases and illnesses, and promotes overall health and well-being. Serving as a central pillar, it encompasses medical services, such as diagnosis and treatment, and supportive care, including palliative care, rehabilitation, recovery, and social care (Lim et al., 2024). The origins of healthcare can be traced back to ancient Greece, where the Byzantine Empire established the first public hospitals in the 4th century (Riva & Cesana, 2013). Modern healthcare began to develop in the 19th century. This was when new leaders in healthcare, like Florence Nightingale, started making changes. 1860 Florence Nightingale opened the world's first nursing school (Karimi & Alavi, 2015). Moving ahead to the 21st century, healthcare has become very diverse. It now includes both local and global public and private services. These services provide various health and care options, working together in person and online. They use the newest technology, innovations, and social methods, like citizen science and telehealth (Ciasullo et al., 2022; Lim, 2016; Mishra & Pandey, 2023; Sahoo et al., 2023; Yap et al., 2023)

The growth and spread of healthcare would not have reached where it is today without entrepreneurship. Entrepreneurship is a key driver of new ideas and progress (Maritz et al., 2020). Healthcare entrepreneurship is a key driver for enhancing outcomes, fostering economic growth, and promoting societal well-being (Asoh et al., 2005; Shepherd & Patzelt, 2017). Historically, healthcare start-ups faced challenges due to structural, regulatory, organizational, and behavioral barriers. However, many entrepreneurs are now seizing opportunities to improve quality, reduce costs, and enhance access (Phillips & Garman, 2006). Healthcare entrepreneurship encompasses the phenomena, processes, practices, and outcomes involved in healthcare service delivery, digital health, the development of new medical devices, and drug innovation ventures (Shepherd & Patzelt, 2017). Healthcare entrepreneurship is gaining increasing attention, but research in this area remains fragmented and lacks a clear definition across disciplines (Glover et al., 2024).

Intentionality and forethought are widely recognized as fundamental characteristics of human nature (Bandura, 2001). Intention represents the direction of future actions, influencing individuals' decisions and guiding and sustaining their behavior. Research across various domains, such as health-related activities, voting, leisure pursuits, and job searching, consistently shows that intention is a strong predictor of behavior (Armitage & Conner, 2001).

The first step in the often lengthy process of venture creation is forming the intention to pursue an entrepreneurial career (Gartner et al., 1994). Entrepreneurial intention (EI) is defined as a deliberate state of mind that precedes action, focusing attention on achieving a goal, such as launching a new business (Bird, 1988; Krueger & Carsrud, 1993). Understanding the EI of Health Sciences students can help shape and implement effective university policies that foster entrepreneurship, addressing the needs and aspirations of students as well as the demands of the job market (Romero-Galisteo et al., 2022).

Entrepreneurship was initially viewed as an innate ability or skill passed down through generations (Rauch & Hulsink, 2015). However, recent research suggests that anyone can pursue entrepreneurship through education and training, regardless of their background or lineage (Pruett, 2012). The success of entrepreneurship education ultimately depends on how well it helps new participants achieve their goals and develop traits that foster EI (Paliwal et al., 2022a).

However, the mechanism by which entrepreneurship education (EE) translates into EI is not yet fully understood (Nabi et al., 2017). This is because the relationship between EE and EI is recognized as being more intricate than a simple cause-and-effect dynamic (Otache et al., 2022). Therefore, experts suggest adopting an integrated approach to analyze the relationship between EE and EI thoroughly (Otache et al., 2021).

EE refers to the processes or activities designed to help individuals acquire and enhance knowledge, skills, values, and understanding that extend beyond a specific area of expertise and empower them to identify, analyze, and resolve various issues (Garavan et al., 1995). So EE will create the ability to form business activities as ability pertains to possessing the knowledge and skills necessary for performing a task (Morrison et al., 2003). Moreover, entrepreneurial activities in any economy can only occur when entrepreneurs are present to identify, evaluate, and seize opportunities (Shane et al., 2003). Erdélyi (2010) argued that entrepreneurship involves the process of opportunity recognition (OR), which heavily relies on the entrepreneur's cognitive skills for identifying business opportunities and making related decisions. Furthermore, an individual's intention to start a new business and maintain it depends on EM (Kuratko & Hodgetts, 2007). It converts intentions into tangible actions (Fayolle et al., 2014). Motivation encompasses both internal and external factors that drive and stimulate the initiation of action (Locke & Latham, 2004).

Therefore, using the Ability–Motivation–Opportunity (AMO) model, this study introduces a conceptual framework (See Figure 1) to illustrate the serial mediation process linking EE to health entrepreneurial intention (HEI) through the mediating factors of entrepreneurial opportunity recognition (OR) and entrepreneurial motivation (EM).

Blumberg and Pringle (Blumberg & Pringle, 1982) initially introduced the foundational principles of the AMO framework, which were later refined by Appelbaum (2000). The model suggests that individual performance is influenced by three key factors: ability, motivation, and opportunity (Waldman & Spangler); Appelbaum (2000) further concluded that when individuals possess the necessary skills and are provided with opportunities, their motivation and performance will likely improve.

This study makes several significant contributions to the literature on EE and HEI. First, it is among the first to apply the AMO theory to simultaneously conceptualize the relationships between EE, OR, EM, and HEI within a single framework. Second, while prior research acknowledges the positive link between EE and EI (Anwar, Thoudam, et al., 2022; Wibowo et al., 2023, 2024) The mechanisms driving this relationship remain poorly understood. Employing an integrated approach, this study bridges that gap by proposing the serial mediating roles of OR and EM in the EE-HEI relationship. It argues that EE may influence OR, subsequently enhancing EM, ultimately significantly impacting HEI. Lastly, the study provides practical insights for policymakers and health universities, offering strategic recommendations for optimizing EE to cultivate HEI among medical students.

## **2. Literature Review and Supporting Theories**

### **2.1 Ability–Motivation–Opportunity (AMO) Theory**

The foundational principles of the AMO framework were initially introduced by Blumberg and Pringle (Blumberg & Pringle, 1982). Blumberg and Pringle argued that an individual's willingness to exert discretionary effort in performing a specific behaviour or activity is influenced by three key

factors: (1) the required knowledge, skills, and expertise; (2) the motivation to follow a particular path; and (3) the opportunity to take part or engage. The AMO model was later further developed by Appelbaum and colleagues in 2000. In essence, the AMO framework represents ability (A), motivation (M), and opportunity (O) (Kawai & Sibunruang, 2023). The ability dimension pertains to a person's psychological and cognitive capacities required to perform a task (Wang et al., 2019). It includes what is commonly referred to as human capital, defined as the internal capacity arising from individual endowments or investments (Corley et al., 2019). Motivation refers to the psychological traits that drive an individual to complete a task (Wang et al., 2019).

This study adopts an integrated approach to examine the sequential mediating roles of OR and EM in the relationship between EE and HEI. It posits that EE affects OR, which boosts EM, ultimately substantially influencing HEI.

## **2.2 EE and HEI**

Every individual has the potential to be an entrepreneur, yet many remain unaware of this innate capability. Unlocking and nurturing this potential is essential, and EE effectively achieves this goal (Hasan et al., 2017). EE has become a standard part of higher education institutions' curriculum, incorporating theoretical content and practical entrepreneurial activities (Listyaningsih et al., 2024). EE is believed to increase awareness of entrepreneurship as a viable alternative to traditional employment (Slavtchev et al., 2012). The primary goal is to mitigate the perceived risks of entrepreneurship while offering guidance on transitioning a business from its inception to a stable and growth-oriented phase (Izedonmi & Okafor, 2010). EE fosters students' EI, nurtures an entrepreneurial mindset, and builds essential skills and abilities (Draycott & Rae, 2011). This contributes to enhancing an individual's entrepreneurial competitiveness (Byun et al., 2018). Engaging in intensive EE programs is strongly linked to a higher probability of individuals choosing to pursue entrepreneurial ventures (Heuer & Kolvereid, 2014; Ruiz-Palomino & Martínez-Cañas, 2021). Numerous studies have shown that EE significantly enhances EI (Ferreira et al., 2017; Izedonmi & Okafor, 2010; Listyaningsih et al., 2024; Otache et al., 2022; Sánchez, 2013; Zhang & Chen, 2024). Based on the earlier discussion, the proposed idea is as follows:

***Proposition 1: EE has a significant favorable influence on HEI.***

## **2.3 OR and HEI**

A business venture begins with an individual's willingness to transform an idea into a business opportunity (Hunter, 2013). At this stage, recognizing business opportunities serves as the input element of the business venture process. It involves the process through which an individual identifies the potential to start a new business activity (Shane, 2003). Sarasvathy et al. (2010) defined opportunity as the ideas and beliefs that facilitate the creation of products and services that are not yet available in the market. Opportunity refers to the enhancement of existing entrepreneurial resources (Shane, 2012). Shane (2000) and Gemmell et al. (2012) emphasized that knowledge of opportunity recognition is essential for entrepreneurs to undertake creative actions (Raza et al., 2018). Individuals who effectively identify a business opportunity are more likely to exhibit a stronger EI (Hassan et al., 2020). Lim et al. (2023) found that students at private universities in Malaysia who demonstrated strong abilities in identifying opportunities showed a higher inclination towards entrepreneurship. Doanh et al. (2021) conducted a study during COVID-19, confirming that recognizing opportunities plays a crucial role in promoting students' EI. Tian et al. (2022) discovered that business opportunity recognition, prior business experience, and entrepreneurial education have a positive and significant impact on EI (Bouarir et al., 2023). Several other studies have also identified a positive relationship between the recognition of opportunities and EI (Hassan et al., 2020; Ma & Huang, 2020; Raza et al., 2018). Building on the previous discussion, the suggested concept is as follows:

***Proposition 2: OR has a significant favorable influence on HEI.***

## **2.4 EM and HEI**

Challenges are inherent in entrepreneurship, and finding the motivation to start a new business is among them (Marques et al., 2013). Johnson (1990) motivation is the desire or tendency to organize, control, and master ideas or organizations efficiently and independently. Motivation, as a natural driving force, strengthens an individual's capacity to attain desired outcomes (Saoula et al., 2023). EM

is the drive or determination to organize, influence, and succeed independently and effectively in managing businesses, people, or ideas (Johnson, 1990). Carsrud & Brännback, (2011) highlight two main perspectives on EM: drive theory and incentive theory. Drive theory suggests that individuals are motivated to embark on new ventures due to internal needs, such as the desire for achievement or independence, to alleviate associated stress. On the other hand, incentive theory emphasizes external motivators, such as wealth, status, or flexibility, as key drivers of entrepreneurial actions. Entrepreneurs often draw motivation from these internal and external factors (Fayolle et al., 2014). By incorporating drive theories into entrepreneurship, it can be inferred that an individual's intrinsic motivation drives them to start a business venture (Alam et al., 2019; Fayolle et al., 2014). The intention is defined as a collection of impulses that guide action, making personal motivations a critical factor influencing EI (Anwar, Alalyani et al., 2022). EM significantly contributes to students' psychological well-being, with higher levels of EM leading to greater engagement and determination to pursue entrepreneurship (Saoula et al., 2023). Numerous studies have demonstrated a positive relationship between EM and EI (Alzahrani & Bhunia, 2024; Hassan et al., 2020; Otache et al., 2022; Saoula et al., 2023). Expanding on the prior discussion, the proposed concept is as follows:

***Proposition 3: EM has a significant favorable influence on HEI.***

### **2.5 Mediating Role of OR**

EE combines structured coursework, skill development, and practical experiences, all designed to equip individuals with the essential knowledge and competencies needed for entrepreneurship (Sang & Lin, 2019). Previous entrepreneurial training, experience, or skills contribute to building a cognitive framework that facilitates the identification of potential opportunities (Gimeno et al., 1997). The ability to effectively recognize opportunities, driven by heightened entrepreneurial awareness, is the initial stage and a crucial catalyst in the entrepreneurial process (Baron, 2006). EE programs can help entrepreneurs develop a heightened awareness of the market and detect shifts in the technological landscape, enabling them to learn how to identify and seize new business opportunities (Lee et al., 2016). EE programs focused on entrepreneurial cognition and experiential learning can help participants develop an entrepreneurial perspective, enabling them to recognize business opportunities more effectively (Bae et al., 2014). Several studies have identified a significant positive relationship between EE and OR (Dar et al., 2024; Hou et al., 2022; Wei et al., 2019). Moreover, other studies have also found a positive connection between OR and EI (Hassan et al., 2020; Ma & Huang, 2020; Raza et al., 2018). Building upon the previous conversation, the suggested idea is as follows:

***Proposition 4: OR will mediate the relationship between EE and HEIs.***

### **2.5 Mediating Role of EM**

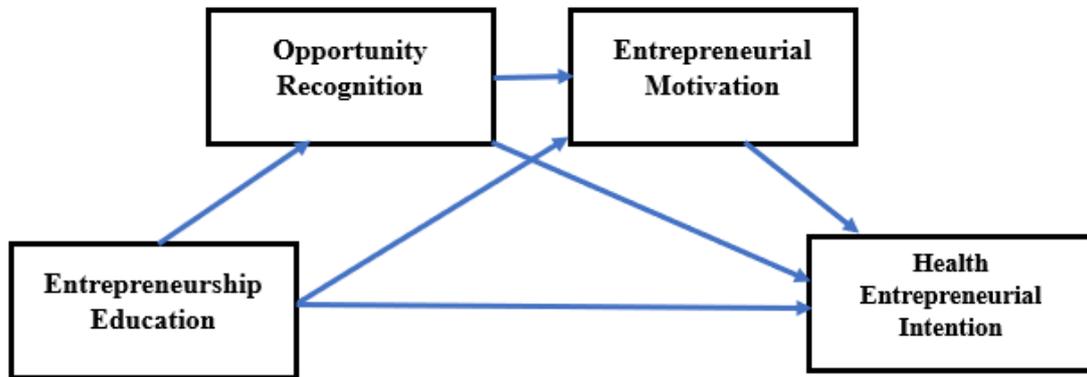
EE focused on intense learning can enhance skills, consequently promoting psychological traits like motivation (Paliwal et al., 2022). Students involved in EE tend to exhibit strong EM and are more inclined to launch their business ventures (Solevik, 2013), as gaining entrepreneurial knowledge and skills helps foster an entrepreneurial mindset and prompts proactive entrepreneurial behaviour (Farhangmehr et al., 2016). A key objective of EE is to cultivate the motivational drive that inspires individuals to launch their ventures (Tajpour et al., 2021). Numerous studies have revealed that EE significantly enhances EM (Alzahrani & Bhunia, 2024; Dana et al., 2021; Paliwal et al., 2022; Wu & Mao, 2020). Moreover, studies have shown that EM significantly influences EI (Alzahrani & Bhunia, 2024; Hassan et al., 2020; Otache et al., 2022; Saoula et al., 2023). Expanding on the earlier discussion, the proposed concept is as follows:

***Proposition 5: EM will mediate the relationship between EE and HEIs.***

### **2.6 Serial Mediation through OR and EM**

Previous research has examined the mediating role of OR in the relationship between EE and EI (Wei et al., 2019) and the mediating role of EM in the relationship between EE and EI (Anwar et al., 2023) separately. Moreover, research has revealed that opportunity recognition has a significant favorable influence on motivation (Raza et al., 2018). It is reasonable to suggest that OR and EM could serve as sequential mediators in the relationship between EE and HEI. This study argues that EE may enhance OR, and individuals with higher levels of OR are likely to demonstrate increased EM, directly impacting their HEI. Building on the earlier discussion, the proposed concept is as follows:

***Proposition 6: OR and EM will serially mediate the relationship between EE and HEI.***



**Figure 1: Conceptual Framework**

### 3. Discussion and Conclusion

This study introduces a conceptual framework for the serial mediation process linking EE to HEI through OR and EM mediating factors. This study makes several key contributions to the literature on EE and HEI. Firstly, it is among the first to propose the AMO theory to conceptualize the relationships between EE, OR, EM, and HEI within a unified framework. Secondly, while previous research has acknowledged the positive connection between EE and EI (Anwar, Thoudam, et al., 2022; Wibowo et al., 2023, 2024), the mechanisms underlying this relationship have been insufficiently explored. By taking an integrated approach, this study proposed a conceptual framework for the serial mediating roles of OR and EM in the EE-HEI relationship. Policymakers and educators should integrate frameworks like the one in this study to improve EE. Governments can promote policies emphasizing OR and EM within EE programs, while educators should incorporate these factors to enhance students' entrepreneurial understanding. Educational institutions should also research the mechanisms connecting EE to HEI, ensuring students gain motivation and practical skills to recognize and pursue entrepreneurial opportunities. This approach can strengthen the effectiveness of EE in fostering health entrepreneurs. Future empirical research on HEI could begin by utilizing the conceptual framework outlined in this article. A potential avenue for further investigation would be to develop operational definitions for the constructs within the framework and experimentally test the propositions, aiming to either validate or challenge the theoretical assumptions presented in this study (Bhunia & Shome, 2023).

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