

# A Competence Development Approach for Entrepreneurial Mindset in Entrepreneurship Education

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## Abstract

In recent years Entrepreneurship Education (EE) has become prevalent throughout Higher Education (HE), with a proliferation of programming for learners from Undergraduate to Post-experience studies. Despite the rapid scaling of provision, the majority of extant EE offerings demonstrate little conceptual evolution and development from early programs. Many approaches fall short of enabling the cognitive and behavioral change so critical to supporting entrepreneurial action. In this article we consider the concept of *entrepreneurial mindset* (EM) as a framing for EE programming, conceptualizing it as an approach to support the development of multidimensional cognitive and emotional competences and behavioral outcomes to enable entrepreneurial value creating activity across a range of contexts. We focus specifically on how educators can actively support the development of an EM through EE programming and start a conversation on the practicalities of operationalizing the EM concept within HE teaching and learning activity.

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## Keywords

entrepreneurial mindset, entrepreneurship education, entrepreneurial cognition, entrepreneurial emotion, competence development

## Introduction

Over the past three decades Entrepreneurship Education (henceforth EE) has seen significant interest and development, becoming an integral part of educational programming across disciplines within Higher Education (HE), from Undergraduate to Post-Experience courses. Aligned to this, research on EE has also flourished, providing a mechanism through which to critically engage in debates on not only the content of EE, but also how the learning and teaching of EE can (and should) take place (Neck & Corbett, 2018). As this scholarly debate has developed, conversations have slowly evolved from EE focused solely on creating new ventures towards EE as a mechanism to promote and support wider value creating activity (Hylton et al., 2020; Larsen, 2022) as well as the development of the life skills “necessary to live productive lives even if one does not start a business” (Neck & Corbett, 2018, p. 10).

In this vein, many now speak of the concept of *entrepreneurial mindset* (henceforth EM) to underpin - and to augment - current approaches to EE. An EM has for some time been recognized as important for individuals to operate in the 21st century economy (McGrath & MacMillan, 2000; Ireland et al., 2003) and has gained significant traction within HE and other academic institutions (Schoonmaker et al., 2020), albeit often in a superficial form (Heuer & Kolvereid, 2014). Yet the recent Covid-19 pandemic has proved a stark reminder of the turbulence and unpredictability of the economic environment. It has brought into sharp focus the need for an EM to support individuals in developing their resilience and ability to cope with feelings of discomfort, vulnerability and uncertainty (Berglund et al., 2020) whilst also engaging in value creating activity. Despite the burgeoning dialogue on EM, there remains a lack of definitional and conceptual clarity on what an EM entails (Hylton et al., 2020; Nabi et al., 2017), notwithstanding attempts to seek consensual understanding among EE educators (Neck & Corbett, 2018). The first step in resolving this definitional ambiguity is to recognize that an EM is, at its core, a ‘state of mind’ and thus an inherently cognitive phenomenon (Ireland et al., 2003; Nabi et al., 2017). If we start with this premise, it then follows that EE built on EM should link thinking (i.e. cognition) with other entrepreneurial skills and competences (Morris et al., 2013) that support the taking of entrepreneurial action (McMullen & Shephard, 2006; Kuratko et al., 2021b).

This begs a key question: how can we conceptualize EM so that we can teach it effectively? Ill-defined conceptual boundaries and limited clarity on the elements comprising EM and its link to entrepreneurial behavior have prevented a robust understanding of what is of relevance for inclusion within EE programming. Equally, they have restricted due consideration of what these elements will mean for different learners

and therefore how educators ultimately communicate the value of an EM (and EE more generally). Most critically, perhaps, we have been prevented from robustly considering how an EM can be purposefully developed - and supported - through EE teaching and learning activity within HE.

In this conceptual article we address these issues by adopting a competence development lens (Morris et al., 2013) to conceptualize EM in EE at the intersection of entrepreneurial cognition and entrepreneurial emotion as underpinning entrepreneurial behavior (Morris et al., 2001). We build on this framing by drawing on empirical evidence from entrepreneurship, competence development psychology and EE literature, defining EM as “*a set of learnable cognitive and emotional competences conducive to developing and enacting behaviors to support value creation activity*”. Linked to our conceptual framing, we propose and discuss an actionable approach to teaching EM. We specifically consider how educators can actively facilitate the development of EM (cognitive and emotional competences) to support lasting behavioral change and value creation activity. More broadly, we seek to start a critical and scholarly conversation on the practicalities of operationalizing the EM concept within HE teaching and learning activity, building on a shared understanding of EM as active cognitive-based competence development to support behavioral change.

This paper makes two main contributions. First, it extends existing conceptual understandings of EM (Kuratko, Fisher, & Audretsch, 2021) by substantiating its cognitive, emotional and behavioral dimensions with evidence from entrepreneurship and competence development studies with a view to distill an indicative set of learnable entrepreneurial competences suitable for EE. In doing so, we also make a novel contribution to entrepreneurship education research by identifying key competences and considering what these mean for educators in terms of developing and delivering EM EE.

This article is structured as follows. First, we review theoretical foundations of EM, considering foundational principles as well as more recent developments. Next, we distill empirical evidence from academic entrepreneurship and competence development studies in conjunction with evidence-informed policy frameworks to substantiate the cognitive, emotional and behavioral dimensions of EM. We then continue with a discussion on how these competences can be implemented in EE teaching and learning contexts and consider the implications for EE educators looking to foster and support an EM. The paper concludes briefly with some limitations and areas for further work.

## **Review of the Entrepreneurial Mindset Literature**

### *Theoretical and Definitional Foundations of Entrepreneurial Mindset*

As noted earlier, conversations within EE have for some time encompassed the notion of EM. Indeed, we would argue that, thanks to the seminal book from McGrath and MacMillan (2000), it has become something of a ‘word du jour’ adopted widely across the entrepreneurship and small business disciplines. A recent review of EM studies has

identified a sharp increase in publication activity, particularly around individual-level antecedents of EM including metacognition, self-efficacy, experience, self-exploration, and disposition (Daspit et al., 2021). The EM concept and language have also taken hold within HE (Schoonmaker et al., 2020), with institutions seeking to encourage an EM for learners not only within specific classes but across entire curricula (Hylton et al., 2020)<sup>1</sup>. Nearly 50 percent of the extant empirical studies on EM are classed as pedagogical (Daspit et al., 2021), with work covering nearly all broad international contexts to varying degrees.

Despite this proliferation of research, the conceptual and theoretical foundations of EM remain notably underdeveloped (Larsen, 2022; Naumann, 2017; Pidduck et al., 2021). At its inception, the concept of EM was based on the foundational principle of sensing and acting on opportunities during conditions of uncertainty (McGrath & MacMillan, 2000). In line with the received wisdom at the time, this principle highlighted the role of a number of ‘traits’ or ‘characteristics’ in determining the presence of an EM, with scholars looking to common trait concepts such as the “big 5”<sup>2</sup> (Antonicic et al., 2015) to determine which individuals or groups were more likely to have an EM and thus to behave more entrepreneurially. The conversation has since evolved, particularly given that personality traits and characteristics yield limited explanatory power when explaining entrepreneurial activity (Gartner, 1988; Ramoglou et al., 2020). Most importantly, a trait-based approach to EM is fundamentally at odds with EE. If traits are assumed to be inborn, then they are unlikely to be developed through teaching and learning activity.

In response to this tension, more recent studies on EM have shifted towards how entrepreneurs think and feel, rather than ‘who they are’ based on traits and characteristics (Casulli, 2022). These studies have largely expanded the foundational principles of the EM concept to include interrelated metacognitive<sup>3</sup> (Noble, 2015; Haynie et al., 2010), cognitive<sup>4</sup> (Naumann, 2017), emotional (Cardon et al., 2012) and behavioral elements (Shepherd et al., 2010). All individuals think (i.e. cognize) and feel, so the specific relevance of this cognitive-emotional construct in entrepreneurship is in its link to personal agency and action for value creation (Kuratko et al., 2021a, 2021b; Lundmark et al., 2019).

Value creation, as the essence of entrepreneurship, is not a charted path. Rather, it is a process laden with uncertainty, particularly in today’s fast changing world. In this context, the most effective entrepreneurial individuals have been found to be those who adopt an effectual logic (Saravathy, 2001; 2008). That is, they start with the means they have and rely on the journey to generate new means as well as potential ends (Saravathy, 2001; 2008). This is in contrast with those who start with a final end in mind, often not taking action until they have fully detailed the end-goal. The effectual approach to value creation thus places less emphasis on entrepreneurial skills such as business planning, instead focusing on the mindset and resulting behaviors that an individual should possess in order to successfully navigate an inherently uncertain journey. For example, an effectual logic requires individuals to have flexible and adaptable thinking in order to best leverage new means. It also requires creativity, in

order to imagine new ends that can be created with those new means (Fisher, 2012), and resilient thinking and behavior in the face of the setbacks that inevitably take place in uncertain endeavors (d'Andria et al., 2018).

As the nature of these competences includes cognitive, emotional and behavioral aspects, it aligns closely to the triadic model of EM proposed by Kuratko, Fisher, & Audretsch (2021). In this model, an EM is conceptualized as interlinked cognitive, behavioral and emotional elements, where thinking and feeling processes are direct antecedents to (entrepreneurial) action (Krueger & Carsrud, 1993) for value creation. We will now build on and extend this triadic model, specifically considering how EM is linked to *skills* and *competences* (Davis et al., 2016; Casulli, 2022) which can be actively developed through personal *learning* (Lynch & Corbett, 2021). In this vein, for the purposes of this article we consider EM to be “*a set of learnable cognitive and emotional competences conducive to developing and enacting behaviors to support value creation activity*”.

### *Entrepreneurial Mindset as Competence Development*

As with EM, work on entrepreneurial competences has flourished in recent years. Whilst different approaches exist to individual-level competence (for an overview, please see (Le Deist & Winterton, 2005), within entrepreneurship scholars have adopted a holistic approach to competence which encompasses “the knowledge, skills, attitudes, values, and behaviors that people need to successfully perform a particular activity or task” (Morris et al., 2013, p. 353). The framing of competence development has become particularly prevalent within EE, as educators have called into question “old school” EE (Neck & Corbett, 2018, p.31) which pushes ‘about entrepreneurship’ or ‘how to’ approaches.

Traditionally, the ‘about entrepreneurship’ approach focuses on learning about entrepreneurship theory (e.g. Schumpeterian, Kirznerian) and concepts (e.g. effectuation, bricolage) and promotes knowledge acquisition. On the other hand, ‘how to’ approaches usually promote skill development, often taking the form of specific business modelling (e.g. Osterwalder & Pigneur, 2010) and new venture planning (e.g. Aulet, 2013) skills. Whilst knowledge is of course an important part of one’s learning and development, it is not in itself sufficient to develop individual competence (Larsen, 2022; McEvoy et al., 2005). The same is true with skills, particularly when they have been ‘artificially’ fostered within controlled environments such as HE classrooms and incubators. In these settings, learners are often insulated from many of the harsh realities and uncertainties of the economic environment (Casulli, 2022) and thus theoretical knowledge and applied skills take on greater perceived contextual relevance in order to meet assessment requirements and standardized start-up milestones. As a result, these traditional EE approaches are recognized to fall short of encouraging the development of the cognitive components of competence, specifically the *attitudes* and *values* that in turn shape behavioral adaptation. Yet attitudes and values are crucial to the effectiveness of EE. Not only are attitudes and subjective norms (i.e. socially derived values) considered to be core drivers of

entrepreneurial behavior (Ajzen, 1991), they are also critical in allowing for contextual variations of how the entrepreneurial self is constituted (Berglund et al., 2020) amongst different learners and over periods of time.

In response, a number of entrepreneurship educators have emphasized the value of aligning EE teaching and learning activity to entrepreneurial competence development through dedicated classroom interventions (e.g. Burnette et al., 2020; Larsen, 2022), mirroring education developments in other fields such as leadership (McEvoy et al., 2005) and public administration (Getha-Taylor et al., 2013). Proponents of the competence development model have emphasized its effectiveness in preparing learners for unforeseeable challenges in rapidly changing environments where individuals are constantly required to adapt and learn (Getha-Taylor et al., 2013; Rodriguez et al., 2002). Such changing conditions are arguably inherent within entrepreneurial activity, now more than ever given the challenges of the current economic context as the world reconfigures post-Covid-19. Put differently, a competence model of EE shifts the focus from specific knowledge or skills to *learning how to learn*, thus allowing learners to meet both current and future individual development needs (Getha-Taylor et al., 2013).

## **Empirical Evidence Base Supporting the Conceptualization of Entrepreneurial Mindset as Competence Development**

As noted earlier, in this paper we seek to address how educators can actively support the development of EM teaching and learning activity to instigate and support competence development and linked behavioral change conducive to value creation activity. To do so we distill evidence from both empirical academic studies and evidence-informed policy frameworks to support a conceptualization of EM as competence development aligned to Kuratko et al.'s (2021a) triadic model of EM. This model is an appropriate and useful orienting framework as it acknowledges the fundamental interlinkages between emotion, cognition and behavior. Indeed, recent findings from neuroscience show the close interplay between emotion and cognition (Damasio, 2000; Adolphs & Damasio, 2001) in the entrepreneurial process (for a review, please see Delgado García et al., 2015). Similarly, neuroscience has provided significant evidence that human action is a manifestation of cognitive-affective mechanisms (Damasio, 2021).

Before presenting our conceptualization of EM and considering the supporting evidence, it is useful to define the terms 'cognition' and 'emotion'. Cognition is a central tenet of entrepreneurial activity, with all entrepreneurial action (no matter how big or small) underpinned by reasoning (i.e. cognition) (Krueger & Carsrud, 1993; Shepherd & Patzelt, 2018). Perhaps the most cited definition of entrepreneurial cognition is from (Mitchell et al. 2002, p. 97), who define it as "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth." Whilst this definition usefully situates cognition within the context of new venture creation, it is now, we contend, too narrow to accommodate cognition as a competence conducive to other forms of

entrepreneurial value creating activity outside a start-up context. To remedy this, we can instead draw on cognition (Braisby, Gellatly & Refstyed, 2012) and social cognition (Fiske & Taylor, 1991) psychology to consider the cognitive dimension of EM as the set of an individual's mental functions, mental processes (e.g. thought, judgment), mental states (Estes, 1975) and mental models (Fiske & Taylor, 1991) that underpin action conducive to value creation. Whilst we adopt the term 'emotion' within this paper, we recognize that the terms 'emotion' and 'affect' are often used interchangeably in the literature (Cardon et al., 2012) in order to refer to different types of feelings experienced by individuals, including dispositional affect, specific emotions and mood.

With a framing of EM as a set of cognitive, emotional and behavioral competences, we can now consider in detail the dimensions of each of these competences (comprising knowledge, skills, attitudes and values linked to behaviors) (Morris et al., 2013) as they relate to EE teaching and learning activity.

### *Cognitive Competence in Entrepreneurial Mindset*

A range of competences have been identified which align to the cognitive dimension of EM. Perhaps the most comprehensive inventory of cognitive competences to master as part of an EM for value creation is the European EntreComp Framework (Bacigalupo et al., 2016). This evidence-informed framework highlights the importance for learners to develop creativity, vision and opportunity spotting competences that underpin the start of value creation processes. It also highlights the cognitive competences necessary to effectively start and navigate the process: initiative and action orientation, perseverance, self-efficacy, reasoning and coping under uncertainty (Bacigalupo et al., 2016). Whilst studies testing the outcomes of EntreComp application are limited, emerging evidence indicates a strong relationship between the cognitive competences outlined and entrepreneurial start-up behavior (Joensuu-Salo et al., 2022).

As previously noted, entrepreneurial action is central to the very concept of entrepreneurship (McMullen & Shepherd, 2006), whereby individuals take, sustain and coordinate action over the course of the entrepreneurial journey (McMullen & Dimov, 2013). At a cognitive level, this manifests as *action-orientation*, whereby individuals gather information and feedback from the environment, evaluate this and determine actions and plans (Dimov, 2010). To do so, entrepreneurs often use heuristic-based *judgment* which allows them to quickly *make decisions* (e.g. Baron, 1998; Busenitz & Barney, 1997; Hmieleski & Baron, 2009) based on 'rules of thumb', in turn enabling fast and responsive action. There is, however, a trade-off between speed and efficacy. Reliance on heuristics may facilitate faster judgements, but may also make individuals more prone to biases in their decision-making (Simon et al., 2000) thus resulting in unanticipated negative outcomes (Hmieleski & Baron, 2009).

To offset this, the empirical literature identifies the importance of *cognitive flexibility*, or "the awareness that in any situation there are options and alternatives available, a willingness to be flexible and adapt to the situation and confidence in being

flexible” (Martin & Rubin, 1995, p. 624; see also Haynie et al., 2010). Often linked to the concept of *open-mindedness* (e.g. Casulli, 2022, based on Reeve, 2014), cognitive flexibility is of particular importance when looking to engage in creative behavior (Nijstad et al., 2010) such as exploring problems, experimenting or trying to ‘connect the dots’ (Ireland et al., 2003). It supports individuals in looking beyond their personal values and frames of reference and overcoming functional fixedness (Dajani & Uddin, 2015) in order to explore a diverse range of possibilities and options for innovation and value creation.

A final cognitive competence, linked to the competences above as well as to perceived *self-efficacy* (Chen et al., 1998) is *growth mindset*. Often associated with the work of Carol Dweck, growth mindset is a set of values and attitudes that considers all attributes and skills to be shaped by effort and practice, rather than inherent within an individual (Dweck & Leggett, 1988). This prioritizes skill development (and ultimately mastery), seeking learning from both successes and setbacks over a sustained period of time. Studies have found that students who receive growth mindset educational interventions report greater entrepreneurial self-efficacy than control groups (Burnette et al., 2020).

### *Emotional Competence in Entrepreneurial Mindset*

Research from neuroscience has shown that emotion and cognition continually interact with each other (Damasio, 2000; Adolphs & Damasio, 2001). Entrepreneurship scholars have drawn on evidence from such fields as neuroscience to infer that this is also the case in the entrepreneurial process (Delgado García et al., 2015). As yet, the emotion and affect literature largely fails to consider emotion from the perspective of competences or competence development, despite interest in the role emotion plays in shaping cognition and behaviors. However, scholars have for some time found evidence that the entrepreneurial journey is an emotional one, with individuals experiencing significant ‘ups’ and ‘downs’ (please see Delgado García et al., 2015). Emotions have also been found to play a critical role at the very start of the entrepreneurial process. Significantly, the *Global Entrepreneurship Monitor (2022)* reports that 50 percent of individuals with an entrepreneurial idea would not take action to start a business because of fear of failure (GEM, 2022). Empirical evidence on fear of failure has further highlighted that fear itself does not necessarily stop entrepreneurial action, but rather it is how individuals interpret the feeling of fear that matters. A ‘state of arousal’ can be interpreted as horrific fear by one individual, yet as excitement and a push for action by another (Cacciotti et al., 2016).

Strong positive emotions have also been found to play a role in entrepreneurial activity. Specifically, they are associated with idea generation or the development of a new entrepreneurial endeavor (Delgado García et al., 2015). Positive emotions in entrepreneurship include, inter alia, *passion* (Cardon et al., 2009) and *empathy* (Korte et al., 2018). Passion is an intense and positive emotional response (Cardon et al., 2009) associated with excitement (e.g. for the entrepreneurial endeavor) (Foo et al., 2006),



which manifests in visible body language. This has been shown to be contagious not only between founders and employees within entrepreneurial ventures (Breugst et al., 2012), but also amongst other stakeholder such as investors (Mitteneus et al., 2012). In a similar vein, empathy is often aligned to positive emotion and has been found to be an important yet underrated part of entrepreneurial leadership (Holt & Marques, 2012). Not only can empathy help develop trust-based relationships between individuals, it also plays an important role in developing psychologically safe environments (Edmondson, 1999) which support communication and collaboration.

This empirical evidence stresses the importance of developing competences around *emotional management and regulation* (Shepherd, 2004). This way, the negative interpretation of emotions may not prevent behaviors to support entrepreneurial action whilst, by the same token, the interpretation of emotions as overly positive may be prevented from potentially clouding rational judgment and decision making (Delgado Garcia et al., 2015).

### *Behavioral Outcomes of Entrepreneurial Mindset*

The ultimate intended outcome of developing cognitive and emotional dimensions of EM in EE is to encourage and shape entrepreneurial behavior (McMullen & Shepherd, 2006). Given the recent application of the EM concept beyond business venturing in favor of wider career trajectories, it is perhaps unsurprising that the behaviors linked to EM in this context are conceptually underdeveloped. Indeed, whilst many national and supranational organizations (e.g. the World Economic Forum, the Kauffman Foundation, European Commission etc.) speak of entrepreneurial behaviors in the context of mindset, there is often conflation between knowledge, skills, attitudes and behaviors. For example, the (European Commission 2012, p. 3) states that “the ability to think critically, take initiative, problem solve and work collaboratively will prepare individuals for today’s varied and unpredictable career paths”, classing these as the core entrepreneurial competences for the 21st century. It is, however, unclear which of these are cognitive competences, which are emotional competences and which are in fact observable behaviors. These boundaries are further confused by conversations within the EE literature on the development of ‘life skills’ (Costello et al., 2012), with little consideration of how individuals use these to undertake action in the form of discernible behaviors.

This fuzziness in conceptualization is thus an issue when designing EE approaches based on competence development across each of the dimensions of EM. In order to implement and assess the effectiveness of cognitive and emotional components of EM on behavioral outcomes, one has to be able to clearly observe whether or not the intended behaviors manifest now or in the future. Turning to the entrepreneurship literature (e.g. Kuratko, Fisher, & Audretsch, 2021a; Kuratko, Hornsby, & McKelvie, 2021b), we can distill behavioral components of EM that have potential for wider application and which should therefore be included in the intended outcome(s) of emotional and cognitive competence development.

Notably, many point to the behaviors of *implementing novel solutions* to problems through *acting and mobilizing* in response to a judgmental decision under uncertainty about possibilities for value creation (based on Shepherd et al., 2010). Others stress the importance of persistence (Holland & Shepherd, 2013; Morris & Liguori, 2016) in order to *sustain* value creating behavior, often aligned to *interacting with others* in order to gain new ideas and resources (Sarasvathy, 2001). We can thus argue that the cognitive and emotional competences of EM shape behavioral outcomes in the form of *initiating and sustaining personal and collaborative action in order to explore, experiment, adapt and innovate under conditions of uncertainty and ambiguity*.

When it comes to EE, and as implied throughout the previous sections, behavior is not a taught competence per se. Rather, we would expect to see a behavioral shift as a result of working on the underpinning cognitive and emotional competences. Critically, this calls into question the issue of timing within EE activities and interventions. Whilst some would advocate that certain cognitive interventions can create immediate behavioral shifts, the only study known to us thus far that has attempted mindset intervention perhaps unsurprisingly did not observe any immediate impact on behavior (Burnette et al., 2020). Rather than seeing this as a limitation in the value of cognitive and emotional competence intervention, and in the absence of empirical insight on the timings of EE interventions, we would argue that it is unrealistic to expect behavioral change within the time-frame of days or even weeks. Indeed, evidence from clinical settings such as trauma (e.g. Bryant, 2006) and wider studies on growth-mindset interventions (e.g. Yeager et al., 2016) would suggest that it could take months – perhaps even years – to see shifts in behavior stemming from EM interventions.

## Discussion and Implications for Entrepreneurship Education Educators

Having distilled the empirical evidence to conceptualize and substantiate the cognitive, emotional and behavioral dimensions of EM, we now consider the implications for EE and EE educators of conceptualizing EM as competence development.

In terms of competence development generally, there is consensus that learners move through a multi-stage process (e.g. Broadwell, 1969; Dalton & Thompson, 1986; McEvoy et al., 2005), starting with becoming aware of one's own current stance in relation to the competence to be developed (*conscious incompetence stage*). This is then followed by applied and reflective practice which is sustained over time (*conscious competence*) in order to arrive at a high level of mastery in the competence so that it becomes unconsciously embedded in the individual (*unconscious competence*) (Ambrose et al., 2010; Getha-Taylor et al., 2013). This process is of particular relevance when we consider how educators can support the operationalization of EM as competence development in EE. Critically, it places a strong focus on reflection and self-awareness as the generative mechanisms that enable progression through the competence development stages (McEvoy et al., 2005) over a period of time.

### *Fostering Entrepreneurial Mindset Cognitive Competence in Entrepreneurship Education*

Whilst critical thinking, reasoning and decision making are common learning outcomes within EE activity (Kakouris & Liargovas, 2021), when considering EM EE from a competence development perspective we need to consider how actively and directly cognitive activities are explained, explored and developed. We suggest that EE educators encourage identification of learners' own attitudes and values, aligned to their perceived skills and abilities, ideally through focused personal reflection and meta-cognition (Haynie et al., 2010). Learners should be set tasks that promote focused consideration of their own thought processes and awareness of the factors underpinning such thoughts. For example, in the development of a growth mindset, it is important that students reflect on whether they believe in the power of effort or in inborn talent. Digging even deeper, one may guide students in probing which contextual values (educational, professional, cultural, etc.) underpin their thought processes towards or away from a growth mindset. Similar guidance on reflective practice may be used in order to address the beliefs and values underpinning reasoning, judgment and decision making. Such learning activities align to a range of EE classes, both general introductions to the subject as well as more niche 'deep dives' into, for example, the venture planning process or raising entrepreneurial finance.

We would also encourage educators to incorporate further activity to promote cognitive flexibility and open-mindedness in a way that builds and strengthens these competences beyond one-off or time-bound ideation exercises. We deliberately stop short of offering specific educational tools for EE cognitive competence development, as no one tool is superior to another. Rather, it is the use that is made of educational tools and approaches and the interplay of these with the situated learning experience that matters. For illustration purposes, one may use an experience-based business venturing approach that accomplishes skills development such as business ideation, modeling, pitching, selling but that still stops short of developing cognitive competence from a values and beliefs perspective because the tasks set for learners do not include reflections on thought processes throughout the business venturing experience. Yet, the same educational approach with the inclusion of a task that requires students to reflect on their cognitive (and emotional) responses to the experiences will allow the values and beliefs components of competence to be developed.

### *Fostering Entrepreneurial Mindset Emotional Competence in Entrepreneurship Education*

Looking at the development of EM emotional competence in EE raises a number of additional considerations. Educators should challenge the dominant narrative of entrepreneurship as stimulating, exciting and inherently positive (think visually stimulating and high-energy 'Demo Days'). Instead, educators will need to take a more balanced (or indeed critical) perspective on emotion in the entrepreneurial process,

paying attention to both positive and negative emotions in order to help learners develop robust emotional competence. In doing so, educators can consider building awareness and openness by encouraging discussion on a range of emotional responses to different situations, exploring how individuals respond in different ways and linking this back to some of the cognitive framings (e.g. attitudes, values) discussed earlier. There is also the need to consider how to engage learners in building emotion management skills, embedding this within curriculum design (Shepherd, 2004) rather than as tangential to core teaching and learning activity. For example, educators could focus on a specific negative emotional response (e.g., a personal fear involved in the entrepreneurial process, or value creating activity more widely), encourage discussion and reflection to consider where reframing or alternative interpretation may encourage other, perhaps less negative, emotional states and associated behavioral responses.

### *Entrepreneurial Mindset Behavioral Outcomes in Entrepreneurship Education*

Perhaps most importantly, we as EE educators need to further consider EM competence development as a developmental process requiring sustained effort over time. The timeline for behavioral change is likely to be contingent on the baseline behavior compared to the desired behavior and will also likely to depend on a number of other factors such as cognitive flexibility and personal engagement with the intervention. Thus, EE programs and educators seeking to address and support EM need to be clear about what is realistic in terms of aims and objectives within time-constrained classroom interventions. With many EE interventions lasting a number of weeks or months, we must consider which timelines best align to the behaviors we seek to develop. This will likely require the design of 'legacy' activity to support any nascent behavioral change that may be beginning to surface when a specific activity, module or program comes to an end. Such legacy activity could draw on longitudinal independent learning tools such as cognitive-behavioral journaling (Fritson, 2008) or peer-based learning communities.

So where should EE educators start when seeking to engage in EM-focused EE? First, there needs to be a greater conceptual awareness of the key cognitive and emotional competences of EM, differentiating between the knowledge, skills and attitudinal components of these competences (see [Table 1](#) below) to support learning and teaching design and implementation.

Practical implementation of EM competence development is likely to vary across HE institutions, given the scale and scope of their wider EE programming.

In HE institutions with limited EE programming (e.g. those offering a broad-brush introductory class at Undergraduate and/or Masters level), we would suggest that time and energy be spent introducing students to the concept of EM and its relevance and importance to contemporary professional pathways. Thus, challenging the notion that entrepreneurship "equals" new venture creation, whilst providing the foundation for

**Table 1.** How to Develop Entrepreneurial Mindset Competences in Entrepreneurship Education

EM Competences to be developed	Knowledge component development	Skills component development	Attitudes and values component development
Cognitive competence	Entrepreneurial cognition literature (e.g. <a href="#">Shepherd &amp; Patzelt, 2018</a> )	Practicing critical thinking, adaptive thinking, reasoning and decision making (e.g. <a href="#">Kakouris &amp; Liargovas, 2021</a> )	Identification of learners' own attitudes and values underpinning situated cognitive processes (e.g. <a href="#">Burnette et al., 2020</a> ) through metacognition ( <a href="#">Haynie et al., 2010</a> )
Emotional competence	Entrepreneurial emotion and affect literature (e.g. <a href="#">Delgado García et al., 2015</a> )	Discussion and analysis of emotional responses to different situations (e.g. <a href="#">Cardon et al., 2012</a> ; <a href="#">Shepherd, 2004</a> )	Uncover (often hidden) values and beliefs underpinning emotional responses to situations (e.g. hidden fears, <a href="#">Cacciotti et al., 2016</a> )

students to explore their own self-efficacy ([Bandura, 1986](#)). This can be accomplished in a single EM-focused interactive lecture or workshop and if needed can be part of any professional development module/course within any discipline. In such a context, educators could use sources cited in [Table 1](#), under “knowledge component development”, to raise awareness of the importance of Cognition and Emotion in any entrepreneurial endeavor.

For institutions offering a wider range of EE programming, we would argue for the need for EM focused classes which go beyond awareness of the importance of EM by also addressing competence development rooted in awareness of current attitudes and values. In our own teaching, we approach this through the use of “self-audits” on both personal and interpersonal competencies relevant to EM. Specifically, we use self-audits on Growth Mindset, Positive Explanatory Style, Deliberative Mindset and Outward Mindset (based on [Gottfredson, 2020](#)). Following the self-audits, we encourage reflection on how these attitudes and values play a role in the student’s responses to daily occurrences through the practice of journaling (please see [Casulli, 2022](#), for further guidance on these tools).

Educators could also create or simulate a variety of entrepreneurial situations which support engagement with, and reflection on, how students think, feel and make decisions across different scenarios. In our own teaching we have used thought experiments, cases and project situations to support engagement and reflection on EM cognitive and emotional competences. Where we can, we also make sure to link any

learning back to the students' own experiences to personalize their journey and to ensure deeper, lifelong learning.

The approaches illustrated above are intended to create self-awareness of where EM competences currently are. Further shifting attitudes and values in order to develop EM competences requires practice over a longer period of time - often well beyond the timescales of EE programs (Casulli, 2022). It is also not our intention to prescribe particular tools or resources – in our experience the value lies in effective facilitation of reflection on action and learning with regard to EM, rather than the specific learning resources themselves. That said, we recognize that future studies could usefully contribute to our discussion of EM by identifying pedagogically-supported approaches to EM course design and delivery.

## **Conclusion**

In this article we have considered the concept of EM as a framing for EE programming. We have conceptualized it as an approach to support the development of multidimensional cognitive and emotional competences underpinning behavioral outcomes which support value creation activity across a range of contexts. We have argued that the EM construct requires further conceptual discussion and refinement if we hope to be able to engage in EM-focused EE activity that is robust, relevant and meaningful for learners.

This paper makes two key contributions. First, we make a conceptual contribution, building on and elaborating Kuratko et al.'s (2021a) triadic framing of EM by substantiating its cognitive, emotional and behavioral dimensions with evidence from entrepreneurship and competence development studies. In doing so, we have distilled an indicative set of learnable entrepreneurial competences suitable for EE that require support for not only knowledge and skills development, but also consideration of values and beliefs (Morris et al., 2013). This allows us to make a second novel contribution to EE research by identifying key EM competences and considering what these mean for educators in terms of developing and delivering EE interventions aimed at fostering and supporting EM.

We recognize that this work is not without its limitations. We identify that lasting behavioral change as an intended outcome of cognitive and emotional competence development is complex and unlikely to be observable within the timeframe of traditional education or professional training settings. Further research is thus needed to better understand the implications of this for HE and EE, not only in terms of seeking consensus on what the core behavioral outcomes of EM are, but also investigating timing and structures currently dominating HE EE and considering alternative delivery structures that might better accommodate and support the development of said behaviors. We have also been unable to cover issues relating to wider demographic or generational changes in HE EE students (e.g. Millennials and GenZ) and the implications of these for EE programming in general and EM EE specifically.<sup>5</sup> Further work

is needed to tease out whether certain groups hold different values or core beliefs which may affect the way they perceive and engage with the EM construct.

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### Notes

1. Our thanks to an anonymous reviewer who astutely identified that this arguably stems from the continued (if not growing) need to ensure the sustained relevance of EE programming for students regardless of their intention to start a venture.
2. These are commonly considered to be conscientiousness, openness to experience, emotional stability, extraversion and agreeableness.
3. Metacognition refers to the act of thinking about one's own thinking to shape cognitive strategies.
4. Cognition refers to all functions of mental information processing, including acquiring knowledge and building understanding.
5. We wish to thank an anonymous reviewer for this observation.

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