

# **Entrepreneurial Mindset: An Integrated Definition, A Review of Current Insights, and Directions for Future Research**

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## **Abstract:**

Despite an increasing interest in understanding the mindset of entrepreneurs, little consensus exists on what an entrepreneurial mindset (EM) is, how it is developed, or its precise outcomes. Given the fragmented nature of the multi-disciplinary study of EM, we review prior work in an effort to enhance scholarly progress. To this end, we identify and review 61 publications on the topic and offer an empirically derived, integrated definition of EM. Further, we examine factors related to EM and offer specific directions for future study. Additionally, we offer broad directions for advancing the trajectory of EM research and conclude with an abbreviated review of pedagogical insights. In all, by offering a definition, reviewing the literature, and highlighting specific and broad directions for future research, we attempt to consolidate and advance what is known about an individual's EM.

## **Keywords:**

entrepreneurial mindset; review; definition; antecedents; outcomes; moderators; pedagogy; future research directions

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Despite an increasing interest in understanding the mindset of entrepreneurs, little consensus exists on what an entrepreneurial mindset (EM) is, how it is developed, or its precise outcomes. Given the fragmented nature of the multi-disciplinary study of EM, we review prior work in an effort to enhance scholarly progress. To this end, we identify and review 61 publications on the topic and offer an empirically derived, integrated definition of EM. Further, we examine factors related to EM and offer specific directions for future study. Additionally, we offer broad directions for advancing the trajectory of EM research and conclude with an abbreviated review of pedagogical insights. In all, by offering a definition, reviewing the literature, and highlighting specific and broad directions for future research, we attempt to consolidate and advance what is known about an individual's EM.

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## **Introduction**

The attempt to understand what makes an entrepreneur successful has gained tremendous momentum in recent decades as noted by an increasing number of academic studies conducted, more popular-press books published, and a consulting industry thriving on offering advice to current and aspiring entrepreneurs. Despite this increased interest, recent *Forbes* articles note that no “magic recipe” exists for entrepreneurial success; however, by investing in themselves, entrepreneurs can develop the “mindset” needed for success (Elkaim, 2020; Lesonsky, 2019). Research recognizes that an entrepreneurial mindset differs from a managerial mindset, and the shift from a managerial to an entrepreneurial mindset can create a sustained competitive advantage (Wright, Hoskisson, Busenitz, & Dial, 2000). In fact, scholars note that a better understanding an individual's entrepreneurial mindset (EM) will advance the study of entrepreneurship and related disciplines (Kirzner, 1997; McGrath & MacMillan, 2000). However, despite the stated potential, and even though research on the topic is increasing, EM studies have been conducted across an array of disciplines, which has hindered inter-disciplinary knowledge exchange and restricted the broader advancement of what is collectively known.

Although most researchers agree that value can be created by individuals with an EM, attempts at defining, understanding, and measuring this mindset remain fragmented. For instance, an approach used by earlier studies generally focuses on understanding the specific traits associated with an EM, citing that entrepreneurs are, for example, creative (Cromie, 2000), persistent (Baum & Locke, 2004), and autonomous (Utsch, Rauch, Rothfuss, & Frese, 1999). More recent studies, though, acknowledge that an EM consists of a “constellation of motives, skills, and thought processes” that contribute to entrepreneurial success (Davis, Hall, & Mayer, 2015: 22). Many definitions align with this constellation perspective, citing an array of characteristics associated with an EM (e.g., Ireland, Hitt, & Sirmon, 2003; Kuratko, Fisher, & Audretsch, 2020; Lundmark, Krzeminska, & Shepherd, 2019). Although scholars have acknowledged the multiple facets of an EM, a commonly accepted definition remains elusive. Given this, studies of EM have suffered from the lack of a consistent definition, which unsurprisingly, has contributed to the fragmentation of literature dispersed across an array of disciplines. In short, without a common definition, and without taking stock of insights gained from the multiple disciplines in which EM is studied, advancing this body of knowledge remains a challenge and ultimately restricts the quality of recommendations available to practitioners.

Therefore, in this study, we conduct a systematic review of work published on the topic of EM in order to consolidate multi-disciplinary findings and advance scholarly progress. Using a multi-step, literature-review process, we identify and review 61 publications. We begin by offering an integrated definition of EM, which results from an inductive content analysis of identified definitions. Then, we conduct an inclusive, multi-disciplinary review of the factors associated with an EM. Further, we offer both specific and broad research directions to advance scholarly progress, and we provide an abbreviated review of pedagogical insights.

This review contributes to the literature in several ways. First, given that current insights have led to a diverse array of EM definitions (Kuratko et al., 2020), we offer an integrated definition based on an inductive qualitative analysis. Second, we conduct a systematic review of extant literature to better understand the factors associated with an individual's EM. By doing so, we attempt to consolidate the fragmented literature by offering an integrated framework of EM and key factors. Third, to support the continued development of EM scholarship, we note promising directions for future research, which include specific research questions as well as broad recommendations for furthering the field of study. Fourth, we conduct an abridged review of EM pedagogical research to provide insight on current knowledge and potential for advances.

## **Method**

To conduct a review of the EM literature, we began by performing a comprehensive search for literature following the systematic approach outlined by Stephan (2018), which is based on the work of Tranfield, Denyer, and Smart (2003) and recommended by Rauch (2019). Our search process consisted of six steps and is outlined in Figure 1. In the first step, we used the Web of Science to conduct a broad, cross-disciplinary search for published articles and books in English with specific terms (specifically: *entrepreneur\** and *mindset* or *mind-set*) in the abstract, title, or keywords. This search, which was not journal restricted, identified 475 published works.

Second, we conducted a journal-specific search using an expanded search string. In this search, we used a more encompassing string of terms<sup>1</sup> and searched leading management and entrepreneurship journals. The journals identified by Short, Ketchen, McKenny, Allison, and Ireland (2017) was used and supplemented with top-ranked (Q1) journals from the Small

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<sup>1</sup> The search string for the second step included the following terms: (entrepreneurial or entrepreneur's) and (belief, cognition, intuition, mentality, mind-set, mindset, outlook, perspective, philosophy, posture, psyche, thinking, thought, or viewpoint).

Business/Entrepreneurship/Family Business category of SCImago. This led to a search within 27 journals<sup>2</sup> and resulted in 88 articles, which created a total initial sample of 563 publications.

Third, we removed duplicates from the list of 563 total publications, and then two authors coded each publication independently to determine its relevance to EM. Where disagreement was noted, a third author made a judgement. When in doubt, we opted to be more inclusive rather than too restrictive. This step resulted in 295 remaining publications.

Fourth, we read the 295 publications to determine, with more precision, which were relevant to this review of EM. Following Andreini, Bettinelli, Pedeliento, and Apa (2020), we excluded proceedings, case studies for teaching purposes, and work not in English. Further, the remaining publications were required to have a specific focus on EM. That is, the contribution was required to examine EM specifically or offer a clear definition of EM. Contributions were also required to view EM at the individual level. This resulted in 57 remaining publications.

Fifth, following Aguinis and Glavas (2012), we reviewed the authors of the remaining publications. For authors with more than one publication in the list, the author's publication history was reviewed to determine if they had a publication on EM that was not yet identified. This resulted in identifying no new articles. Further, we surveyed a literature review<sup>3</sup> published

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<sup>2</sup> Specific journals searched include: *Academy of Management Journal*, *Academy of Management Review*, *Administrative Science Quarterly*, *Entrepreneurship and Regional Development*, *Entrepreneurship and Sustainability Issues*, *Entrepreneurship Theory and Practice*, *Family Business Review*, *Foundations and Trends in Entrepreneurship*, *International Entrepreneurship and Management Journal*, *International Journal of Entrepreneurial Behaviour and Research*, *International Small Business Journal*, *Journal of Applied Psychology*, *Journal of Business Venturing*, *Journal of Family Business Strategy*, *Journal of International Entrepreneurship*, *Journal of Management*, *Journal of Management Studies*, *Journal of Organizational Behavior*, *Journal of Small Business Management*, *Management Science*, *Organization Science*, *Organization Studies*, *Organizational Behavior and Human Decision Processes*, *Personnel Psychology*, *Small Business Economics*, *Strategic Entrepreneurship Journal*, and *Strategic Management Journal*.

<sup>3</sup> The review by Naumann (2017) offers a “synthetic [sic] literature review” of EM. Our review differs from the work by Naumann (2017) in that (1) we offer a holistic model that includes antecedents and outcomes associated with EM; (2) we use a systematic, empirical approach to inductively derive a definition of EM using NVivo software; (3) for our initial, broad search of articles, we rely on a different database, which is Web of Science; and (4) our antecedents and outcomes are comprehensive, including factors at various levels of analysis.

on the topic and identified two additional articles that met our criteria, so they were included.

Sixth, we conducted a manual search for “in-press” articles (i.e., articles that were accepted for publication and posted on the journal’s website but not yet printed in an issue). For this step, we followed the work of Kubicek and Machek (2020) by searching top journals<sup>4</sup> and using the same keywords as in Step 1. This search resulted in identifying four articles; however, two articles did not meet our criteria. Thus, a total of two additional articles were included.

In all, the total number of publications included in the review was 61. Of these, 32 were categorized as research publications (including both empirical and conceptual work), and 29 were identified as pedagogically focused. Only the research-focused publications were used for the primary review of the literature (including assessing definitions). In a later section, we provide an abbreviated review of pedagogical work to complement research-focused insights.

### **Definition**

Given the multi-level value of entrepreneurial activities, notable effort has been exerted to understand what fosters such activities (Davis et al., 2016). To this end, numerous studies define EM. Scholars from various disciplines have examined aspects of EM, offering insight into an array of attributes, qualities, and operations, which have resulted in uncertainty about what an EM is and how it operates (Kuratko et al., 2020). Due to the lack of a widely accepted definition of EM, we begin this review by identifying and analyzing current EM definitions.

To do so, during the coding process, we identified published works that offer a unique definition of EM. Studies that use previously identified definitions of EM were not included in

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<sup>4</sup> Journals searched include: *Academy of Management Journal*, *Academy of Management Perspectives*, *Academy of Management Review*, *Administrative Science Quarterly*, *Entrepreneurship Theory and Practice*, *Family Business Review*, *International Small Business Journal*, *Journal of Business Venturing*, *Journal of Family Business Strategy*, *Journal of Small Business Management*, *Leadership Quarterly*, *Organization Science*, *Small Business Economics*, and *Strategic Management Journal*.

this assessment to avoid redundancy. Of the 32 research publications identified in our search, 17 provide a novel definition of EM. Further, to ensure the robustness of our search for definitions, we also included definitions of EM offered in widely adopted textbooks<sup>5</sup>. To conduct this search, we followed the work of Carbaugh (2020) who identifies the primary publishers in the college textbook industry. These publishers include (listed alphabetically): Cengage, John Wiley & Sons, Macmillan, McGraw-Hill, and Pearson. For each publisher, we located and reviewed the entrepreneurship textbook with the greatest number of editions, and in each book, we noted the definition of EM offered. Of the five publishers, each had an entrepreneurship textbook with multiple editions<sup>6</sup>; however, two textbooks did not offer a specific definition of EM. Further, in one instance, the definition of EM used was based on the definition by Ireland, Hitt, and Sirmon (2003), which was a previously identified study. Thus, the textbook search resulted in the inclusion of two additional definitions. See Table 1 for a list of the EM definitions identified.

Next, to offer an integrated definition of EM, we followed the precedent of published work with similar definition-related objectives. To this end, we qualitatively analyzed the EM definitions applying an inductive content analysis approach (e.g., Dahlsrud, 2008; Fennell, 2001; Moldavska & Welo, 2017) that consisted of a three-step procedure using NVivo 12 Pro software. The first step included determining the elemental units (primary codes) of each definition (e.g., Gioia & Sims, 1986), which largely consisted of single words or phrases that noted a distinct component of EM. In the second step, the identified units were categorized into emergent clusters (secondary codes) with the goal of maximizing differences among clusters while

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<sup>5</sup> We are appreciative to an anonymous reviewer for the recommendation to include this step.

<sup>6</sup> The following five textbooks were reviewed: (1) Kuratko, D. *Entrepreneurship: Theory, Process, Practice* (11<sup>th</sup> ed.). Cengage. (2) Kaplan, J. M., & McGourty, J. *Patterns of Entrepreneurship Management* (6<sup>th</sup> ed). John Wiley & Sons. (3) Burns, P. *Entrepreneurship and Small Business: Start-Up, Growth and Maturity* (4<sup>th</sup> ed.). Macmillan. (4) Hisrich, R. D., Peters, M. P., & Shepherd, D. A. *Entrepreneurship* (11<sup>th</sup> ed). McGraw-Hill. (5) Barringer, B. R., & Ireland, R. D. *Entrepreneurship: Successfully Launching New Ventures* (6<sup>th</sup> ed.). Pearson.

minimizing differences within clusters (e.g., Neale, Butterfield, Goodstein, & Tripp, 2020). The third step consisted of classifying the clusters into higher-order themes, which was an iterative process to ensure the emergent themes fit the data (e.g., Miles & Huberman, 1994).

The content analysis resulted in six higher-order themes: cognitive perspective, value creation, ability to recognize and act on opportunities, being adaptable and resilient, decision-making with limited information, and uncertain and complex contexts. These themes represent the broad commonalities that exist among definitions of EM. (The data structure, which includes the higher-order themes, or aggregate dimensions, is summarized in Table 2.) Based on the higher-order commonalities identified, we offer the following, integrated definition of EM:

*Entrepreneurial mindset is defined as a cognitive perspective that enables an individual to create value by recognizing and acting on opportunities, making decisions with limited information, and remaining adaptable and resilient in conditions that are often uncertain and complex.*

**[Insert Figure 1 and Tables 1 & 2 about Here]**

## **Review Findings and Future Directions**

To organize the key findings from the literature reviewed on EM, we use an inclusive, multi-level framework. The findings are first reported as they relate to multiple levels of antecedents and outcomes associated with EM. Additionally, we note key moderators observed from the review. The decision to use this framework was based on several factors. First, the framework is robust enough to allow for the integration of insights from across disciplines, which is important given that the work on EM is multi-disciplinary. Second, following Aguinis and Glavas (2012), this framework provides a common language that future studies can adopt regardless of the perspective taken and/or tested. Third, this type of framework is a generally well-accepted format for review articles (Paul & Criado, 2020) and has been used in recent reviews of small business and entrepreneurship topics (e.g., Bettinelli, Sciascia, Randerson, & Fayolle, 2017; Bruneel &



De Cock, 2016; Fitz-Koch, Nordqvist, Carter, & Hunter, 2018). The organizing framework is outlined in Figure 2, and we proceed by reviewing the findings related to common factors, and for each broad group of factors, we offer specific research directions to advance scholarly work.

**[Insert Figure 2 about Here]**

### *Antecedents*

An individual's EM results from a myriad of factors that affect the entrepreneur. Studies note that while some of these factors occur at the individual level, other influences are a result of firm and environmental factors. As such, we follow the work of Stephan (2018) and present findings on the most commonly studied antecedents at each level while also noting particularly interesting findings, research designs, and/or examples when relevant.

#### *Individual level*

Given that the focus of this review is on an individual's EM, not surprisingly, numerous factors that influence an EM are found to exist at the individual level. Of the individual-level antecedents, some of the most examined relate to cognitive factors. Specifically, metacognition (e.g., Haynie et al. 2010) and self-efficacy (Zhang & Chun, 2018) are both foundational to the development of an EM. Metacognition is the control an individual has over their own learning as well as their ability to consider alternative cognitive strategies in uncertain environments (Flavell, 1979; 1987). In other words, metacognition can be considered 'thinking about thinking' or 'knowing what to think about.' Haynie et al. (2010) describe metacognition as an individual's higher-order cognitive awareness, cognitive control, and knowledge of their decision-making structures. Further, they theorize that an individual's metacognition influences the cognitive heuristics employed, partially explaining differences among entrepreneurial individuals and even intra-individual differences given the nature of this type of cognition (Haynie et al., 2010). With

a limited metacognitive ability, an individual is constrained from gaining a higher-level understanding of how they are thinking, which includes evaluating their EM.

Self-efficacy—long considered to be a key cognitive component associated with entrepreneurship (Chen, Greene, & Crick, 1998)—is imperative to developing an EM. According to Zhang and Chun (2018), self-efficacy gives entrepreneurs a sense of confidence that they can use to acquire and utilize the necessary resources to make their new venture a success. Self-efficacy is derived from numerous sources, including a familiarity with—or knowledge about—specific industries, the ability to view situations as ‘clean slates’ with no prior expectation of success, and the ability to be persistent when faced with challenges. As a cognitive influence, individuals with self-efficacy are more likely to exhibit an EM.

In addition to cognitive factors, the entrepreneur’s life experiences, as well as the way they learn from those experiences, are associated with an EM. Outsios and Kittler (2018), for example, underscore the importance of an individual’s educational, socio-cultural, travel, and parenthood experiences. This totality of experience broadens the entrepreneur’s perspective, thereby changing the way they recognize and create opportunities. Along these lines, there is evidence that an EM is influenced, too, by prior entrepreneurial experiences and the degree to which the entrepreneur learns from their prior experiences. According to Aarstad et al. (2016), novice entrepreneurs (i.e., those with limited entrepreneurial experience) exhibit different EMs than do portfolio entrepreneurs (i.e., those with greater entrepreneurial experience), suggesting that with more entrepreneurial experience, an individual is more likely to develop an EM. Furthermore, the experience an individual gains from having deep knowledge in a specific area also affects one’s EM. Indeed, an investigation by Nelson, Santana, and Wood (2016) notes that entrepreneurs native to the geographic area in which they operate tend to have different mindsets

than those who are non-native to the area. Additionally, they note that the existence of an EM is partially the result of the entrepreneur's social identity, which is formed over time, and because of the socio-cultural context in which they are embedded. This seems to reinforce the benefits of entrepreneurial and other forms of experience: with native individuals typically possessing greater experience and knowledge due to living and working in a geographic area over a longer time span while non-native individuals are less likely to possess the same level of knowledge.

Opportunities and experiences—especially early in life—affect the mindset of an entrepreneur. In fact, at some point, most individuals engage in self-exploration wherein they reflect on their past experiences, evaluate their values and goals, and examine their identity. Engaging in self-exploration of this form may cause an individual to experience identity conflict, which Zhang and Chun (2018) find is directly related to building an EM. The effects of self-exploration relate to an EM and may be altered by positive and/or negative “triggering events” such as having a new business idea, reaching a personal milestone, being laid off from a job, and/or major (inter)national events like a pandemic (Barringer & Ireland, 2008). Nonetheless, engaging in self-exploration and reflection support the development of an individual's EM.

Finally, in addition to cognitive factors, experiences, and self-exploration, a final group of studies at the individual level examines dispositional factors. Such factors, which are recurring behavioral or affective tendencies, influence an individual's EM. Ikonen and Nikunen (2019), for instance, argue that non-depressiveness, learning to be happy, and gratefulness are individual-level characteristics that shape an EM. As they describe, non-depressiveness is the general avoidance of depression<sup>7</sup> and can be achieved through self-reassurance and setting motivational goals; learning to be happy refers to achieving happiness in all facets of one's life (not just

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<sup>7</sup> We acknowledge that some forms of depression are not likely remedied from self-reassurance and goal setting.

enterprising); and gratefulness is the ability to appreciate experiences and what can be learned from those experiences (Ikonen & Nikunen, 2019). Together, these attributes help the entrepreneur develop and potentially refine their EM. Therefore, in all, an array of cognitive factors, experiences, self-explorations, and dispositions are related to an individual's EM.

#### *Venture level*

While not as numerous as studies that examine individual-level influences, only two studies were identified that investigate venture-level influences on an EM. A primary focus of these studies relates to the culture and leadership of the venture. In the first study, Ireland and colleagues (2003) theorize that the entrepreneurial culture and entrepreneurial leadership in a venture have a recursive relationship with the leader's EM.

This idea is later described in terms of feedback loops, or 'entrepreneurial spirals,' as referred to by Shepherd, Patzelt, and Haynie (2010). The entrepreneurial spiral occurs via a bottom-up process through which the venture's entrepreneurial culture influences the leader's EM. Additionally, a top-down process exists wherein the leader's EM results in a more entrepreneurial culture. Although these cyclical effects are noted to generally have positive, reinforcing effects, the top-down and bottom-up spirals can also be restrictive. Even though only a marginal number of studies examine the relationship between firm-level characteristics and an EM, those that do note the importance of venture culture and leadership and how these factors recursively influence an individual's EM.

#### *Environmental level*

Although studies in entrepreneurship (and related fields) acknowledge the prominent effect of the environment on the individual, a limited number of studies in this review specifically examine the direct influence of the environment on an EM. Of those that do, the influence is

noted as a salient effect. In fact, the environment is such an integral factor, that many definitions of EM reference the complexity, dynamism, and/or uncertainty of the environment in which the entrepreneur competes. (See Table 1.) An early definition from McGrath and MacMillan (2000), for example, notes that an EM exists when an entrepreneur successfully mobilizes in the face of uncertain environmental conditions. Further, Naumann (2017) emphasizes that the adaptable thinking associated with an EM occurs in a dynamic context.

Nonetheless, while the direct effect of the environment on an EM remains an area that has not received much research attention, Noble (2015) identifies informal institutions as a direct influence. Informal cultural norms, over time, become engrained in the mindset of the individual; in other words, the norms within a culture are noteworthy determinants of a mindset given that they pervade an individual's thinking (Noble, 2015). Although heterogeneity in such conditions is not specifically examined, the extent to which an EM develops is likely a direct result of the external conditions in which they exist.

#### *Antecedents: Future research directions*

Although several antecedents are identified as affecting an EM, our analysis highlights that antecedents at the individual level are, comparatively, the most developed within the literature. While existing research highlights the importance of metacognition, self-efficacy, experience, self-exploration, and disposition as antecedents of an EM, numerous avenues remain to be explored at the individual level. For instance, research has not yet answered the question of what role specific individual traits, like genetic factors, play in developing an EM. Although, some studies have noted that mental disorders, such as attention-deficit hyperactivity disorder (ADHD), affect how individuals engage in entrepreneurship (e.g., Wiklund, Patzelt, & Dimov, 2016). Exploring this further, Moore, McIntyre, and Lanivich (2021) find that although no

significant difference exists in entrepreneurial metacognition between entrepreneurs with and without ADHD, entrepreneurs with ADHD demonstrate more intuitive cognitive styles, have more entrepreneurial alertness, and possess more refined coping heuristics than those without ADHD. Given the relationships with cognitive style, alertness, and heuristics, researchers are encouraged to further examine how mental health and genetic differences affect one's EM.

***RQ1: What effect do mental disorders and genetic traits have on an individual's EM?***

Relatedly, opportunities exist for examining links between personality and EM. Shane and Nicolaou (2015) find that individuals with creative personalities tend to engage in entrepreneurial behaviors and that creative personalities are, in part, a function of genetics. Further, Antonic et al. (2015) find a positive relationship between facets of the Big Five personality characteristics and entrepreneurship while Miller (2015) suggests that downsides may exist with some entrepreneurial personality traits. In fact, Klotz and Neubaum (2016) argue that entrepreneurship research can benefit by exploring effects from the 'dark side' of personality (e.g., narcissism and psychopathy). Taking this further, what is the effect of an individual's impulsivity? As noted by Lerner, Hunt, and Dimov (2018), dominant theories of entrepreneurial action are largely based on the assumption of reasoned intentionality in the decision-making process; thus, what is the relationship between impulsivity and an EM? Do personality traits affect EM, and if so, how, and when? Trait activation theory may be a useful perspective for better understanding when such traits are most influential on EM (see work by Liguori, McLarty, & Muldoon, 2013). Nonetheless, researchers are encouraged to consider the positive and negative effects of personality traits on EM, noting how and when such effects manifest.

***RQ2: Do personality traits affect EM, and if so, which traits, how, and when are the most salient effects observed?***

Interestingly, while this review finds that most studies on antecedents are conducted at the individual level, no studies are identified that primarily examine a direct group-level effect on an EM. Given the paucity of research at this level, abundant opportunities exist. For example, the family of the entrepreneur is likely influential in determining whether a new venture is founded. The characteristics of the family system (and family embeddedness) are noted to affect the extent to which opportunities are recognized, resources are mobilized, and launch decisions are made (Aldrich & Cliff, 2003). Extending the family embeddedness perspective, household-level factors (e.g., size, income) also affect start-up decisions (Pittino et al., 2020). These are just some examples of where further investigation is needed; more nuanced models of peer groups, venture teams, investor groups, and others are worthy additions to understanding an EM.

***RQ3: What family-related factors affect an individual's EM and to what extent?***

Understanding the influence of venture-level characteristics, while either directly (e.g., Ireland et al., 2003; Shepherd et al., 2010) or indirectly related to an EM (e.g., Haynie et al., 2010; Nelson et al. 2016), has received some attention, this remains an area that is not abundantly studied. We know that characteristics of the firm can have (positive and negative) spiral-like effects on an EM, yet opportunities remain to understand the relationship between the venture and the EM of the leader. For instance, Lin and Wang (2019) find that entrepreneurs who experience a large business failure are slower to “re-venture,” and the speed with which an entrepreneur begins a new venture after a failure is affected by the magnitude of the loss (re-venture takes longer) as well as family support (re-venture takes less time).

***RQ4: What effect does prior venture failure have on an individual's EM?***

Finally, environmental norms and culture pervade the mindset of the individual (Noble, 2015). While findings provide evidence that cultural characteristics are important, many avenues

remain open for future research. Given that many of the reviewed studies are conducted outside of the United States, researchers may further explore the effects of Western cultures and norms on an EM, offering more comparative insights into whether an EM is differently or similarly affected (e.g., developed, shaped, or maintained). Relatedly, opportunities exist for research examining the relationship between formal institutions and an EM. Prior research shows that the institutional environment plays an important role in many components of the entrepreneurial process (e.g., Shepherd, Williams, & Patzelt, 2015) and can be a powerful force for shaping entrepreneurial cognitions (Lim et al., 2010). In fact, Lim and colleagues (2010) find compelling evidence that a country's institutional environment, as embodied by its legal and financial systems, affects entrepreneurial scripts related to new venture development. Given this, future research on the influence of formal institutions—in addition to continued investigations of informal institutions—is likely to offer valued insight related to the effects on an EM.

***RQ5: Do formal institutions affect an individual's EM and, if so, to what extent?***

***Outcomes***

In our review, various outcomes of an EM were identified. Given the array of outcomes, we organize key outcomes using a multi-level categorization similar to that used to categorize findings related to observed antecedents. From our review of articles, we organize findings based on EM outcomes at the individual and venture levels. Interestingly, no study in our review primarily investigates the direct relationship between EM and outcomes at other levels.

***Individual level***

Although individual-level characteristics are noted to *influence* the development of an EM, an EM also *affects* individual-level characteristics. Like the findings related to EM antecedents, numerous outcomes relate to the individual level. To structure the review of these findings, we



categorize individual-level outcomes into the principal categories observed, which include outcomes related to individual identity renewal, ability to balance conflicting goals, escalation of commitment, and the decision to launch a new venture.

When individuals engage in the entrepreneurial process, their skills, mindset, and identity often evolve (Morris & Morris, 2012; Sarasvathy, 2008). An EM enables an individual to remain adaptable and resilient in the face of dynamic conditions and setbacks, and as a result of continued adaptation, an individual's identity may evolve. The development of a refined self-identity is akin to recreating, or refining, the narrative about one's self. A study of Chinese immigrants to Canada, conducted by Zhang and Chun (2018), underscores the effect of an EM on the ability of immigrants to construct a new entrepreneurial identity after relocating geographically. The scholars found that entrepreneurial narratives tend to encompass one of four views about an individual's entrepreneurial journey: entrepreneurship as a way to improve one's self, a way to gain autonomy, a path to improve family solidarity, and/or a way to serve the community. Their sample of immigrants is particularly well-suited to offer insight into the effect of an EM on creating a new, or refining a current, identity. Such an effect, though, is not exclusive to individuals who immigrate; rather, as noted by Zhang and Chun (2018), individuals who experience misaligned values, norms, goals, or other factors can leverage their EM to create greater alignment through a renewed identity.

Some inconsistencies that an individual encounters can be resolved. However, not all inconsistencies can be fully reconciled and so they must, instead, be managed. An EM allows individuals to reconcile conflicting logics more easily. As an example, social entrepreneurs must simultaneously balance social logics, which are associated with prioritizing social value creation, with commercial logics, which prioritize generating revenue and related business-focused

concerns. Along this line, Zur and Naumann (2018) find that the ability to balance competing social and commercial goals is most closely related to the following EM attributes: cognitive adaptability, cognitive tuning, prior knowledge, and empathy. The conceptualization of EM used in their study varies slightly from the integrated definition offered herein although the core components are similar. Zur and Naumann (2018), however, introduce empathy as a component of EM, which is worthy of further study. Nonetheless, by possessing an EM, entrepreneurs are often better able to navigate and balance conflicting goals.

While an EM appears to yield an array of beneficial effects, not all outcomes are positive. Potentially negative effects are also observed. McMullen and Kier (2016) note that for an entrepreneur to successfully create value from an opportunity, the entrepreneur must be persistent. Interestingly though, they find that this persistence leads to an escalation of commitment, which minimizes contingency planning and limits the ability to ‘correct course’ if the decision is sub-optimal. In short, while the ability to leverage one’s intuition, make decisions with limited information, and remain optimistic about future results may yield positive outcomes when pursuing some goals, an EM can also yield an escalation of commitment, restricting the individual’s ability to adapt even if desired.

Although an EM yields both positive and negative outcomes, an EM is often linked to an individual’s pursuit of entrepreneurship. Several studies examine the effect of an individual’s EM on various stages of the entrepreneurial process, culminating with the individual’s decision to launch a new venture. For illustration, Zur (2015) theorizes that where most individuals see societal problems, social entrepreneurs use their EM to see opportunities, enhancing their ability to ultimately deliver a market-based solution. Similarly, in their study of social entrepreneurs, Ghalwash and colleagues (2017) find that social entrepreneurs possess an EM that is utilized to

address societal needs by launching a social enterprise. More recently, Outsios and Kittler (2018) empirically link EM with the individual's decision to launch a new venture, while also recognizing the importance of resources and context. Overall, studies suggest that the mindset of an entrepreneur has a direct effect on the individual's decision to launch a new venture.

### *Venture level*

In addition to affecting individual-level outcomes, the studies we reviewed point to an entrepreneur's EM having beneficial effects on the venture once launched. In fact, the effects of EM on these outcomes are relatively numerous. Therefore, we categorize the key findings from the literature by highlighting the effects of an EM on venture-level startup decisions, strategy, resource management, culture/leadership, and competitive advantage.

As noted, an individual with a refined EM is able to recognize and act on opportunities, which may result in the decision to launch a new venture (e.g., Ghalwash et al., 2017; Outsios & Kittler, 2018). Once the launch decision is made, an EM also affects a host of subsequent startup-related decisions such as choosing a location for the venture. As an example, Nelson and colleagues (2016) find that the type of EM adopted by the entrepreneur alters how the entrepreneur interprets and responds to location and operational choices. Specifically, entrepreneurs whose mindsets are oriented toward collective benefits and local preservation tend to locate more proximal to the city center and operate in ways consistent with local traditions. Alternatively, entrepreneurs with mindsets oriented toward more individualistic benefits tend to locate in the geographic periphery and operate in ways designed to stimulate change.

EM is also associated with the venture's strategy and the extent to which the strategy can be refined when needed. An EM assists entrepreneurs in changing their decision-making processes such that they have more flexibility to allocate resources to different strategies. In the

study by Lombardi et al. (2020), entrepreneurs were able to shift between marketing strategies, moving from traditional to social-network marketing. Additionally, they found that an EM is important for the successful expansion of the business's operations into new markets. With regards to other strategic aspects of management, the variation of EMs is shown to result in differences in the processes used by the entrepreneur to acquire and manage external resources, the extent of control over the operational aspects of the venture, the involvement of outside stakeholders in the venture, and the response to power imbalances among business partners (Aarstad et al., 2016).

Moreover, in addition to influencing strategic decisions of the venture, Ireland and colleagues (2003) argue that an EM impacts the management of venture resources. Notably, an EM helps the entrepreneur structure, bundle, and leverage financial, human, and social resources to successfully pursue their strategy. How the entrepreneur configures the resource portfolio affects their ability to apply creativity for the development of innovative products, processes, and services. Additionally, an EM is related to perceived entrepreneurial competitiveness, which Oberholzer and colleagues (2014) define as the ability of entrepreneurs to (re)organize their firms more competitively when conditions change. In short, an EM supports the effective orchestration of resources and enables flexibility when resources require (re)orchestration.

At the venture-level, entrepreneurial culture and entrepreneurial leadership are, at least in part, the outgrowth of an EM (Ireland et al., 2003; Shepherd et al., 2010). In the bottom-up model of entrepreneurial spirals, Shepherd and colleagues (2010) describe how an EM impacts the venture's culture and examine how culture affects the leadership style that emerges in a new venture. An EM is posited to be reflected in beliefs and actions, which are influential for other members in the venture. If enough members adopt the beliefs and engage in the actions, then a

change in culture can result. Similarly, a decline in an EM may result in a ‘downward’ spiral, yielding negative effects on the venture’s culture and leadership over time.

Finally, an EM is related to venture performance. In fact, in terms of venture performance, Ireland and colleagues (2003) argue that an EM is a foundation for competitive advantage and wealth creation; however, these outcomes are more distal in nature, and an EM works through intervening processes to affect venture performance. More specifically, they theorize that an EM affects resource management, which, in turn, affects creativity and innovation, thereby affecting competitive advantage. Other studies of EM build on this process model to better understand an EM’s effect on venture performance (e.g., Lombardi et al., 2020). Empirically, the relationship between EM and venture performance is validated by at least one study. Asenge and colleagues (2018) use a survey-based measure of performance to find that different facets of an EM—mainly innovativeness, creativity, alertness, and risk-taking—are positively associated with venture performance. Unfortunately, the details offered regarding the survey are minimal and the EM conceptualization restricts offering broader assertions, so understanding the precise effect and the type of performance is limited. Nonetheless, general agreement exists that an entrepreneur’s EM affects venture performance.

#### *Outcomes: Future research directions*

A wide range of outcomes are associated with an EM. Overall, studies collectively highlight the effects of an entrepreneur’s EM on individual and venture-level outcomes, while effects on outcomes at other levels are largely absent. Still, valuable insights are gained from research on EM and related outcomes, though numerous opportunities remain for future exploration.

First, we note that multiple studies in this review examine the effect of an entrepreneur’s EM on their decision to launch a new venture (e.g., Ghalwash et al., 2017; Outsios & Kittler,

2018). This effect is salient given that an EM enables an individual to create value by recognizing and acting on opportunities. While studies enhance our understanding of the role that an EM plays in the decision to launch a new venture, further insight remains to be gained regarding other components of the entrepreneurial process. Namely, one element of the entrepreneurial process that has received little attention is the entrepreneurial exit, or the entrepreneur's decision to leave the venture they helped to create (DeTienne, 2010). Following DeTienne (2010), who argues for future research to consider the factors that influence an entrepreneur's decision to exit their firm—and specifically for research related to understanding how, when, and why entrepreneurs make the decision to exit their ventures—the influence of an EM deserves appropriate consideration. Given that entrepreneurs with a refined EM are well-suited to identify, act on, and create value from opportunities, does this mindset support 'serial entrepreneurship'? In other words, are entrepreneurs with an enhanced EM more likely to launch a firm and then exit once a new, potentially more valuable, opportunity is identified?

***RQ6: Does an EM affect an entrepreneur's decision to exit their venture?***

The results of this review, interestingly, find that no study primarily focuses on group-related outcomes from an individual's EM. While studies focused on multitudinous group-level outcomes are certainly needed, one area of promise relates to exploring the effects on stakeholder groups. More specifically, additional investigation is merited to understand the effects an entrepreneur's EM has on various groups of stakeholders (e.g., employees, suppliers, financiers, new venture team members, family members both internal and external to the venture, customers, etc.) and whether the entrepreneur's EM affects the approach used to manage the respective group. Stakeholders hold access to an assortment of resources and capabilities, which most entrepreneurs need to launch and manage their ventures. The existing research does not

provide solid guidance with respect to such relationships. When seeking financial capital, for example, the perceived innovativeness of a crowdfunding campaign is indicative of how well-received it is by investors (Chan & Parhankangas, 2017); thus, do entrepreneurs with a refined EM tend to experience greater success from certain groups of investors (e.g., those who engage in crowdfunding)? The effects on this type of group, among others, are ripe for study.

***RQ7: What effect does an EM have on group-level outcomes, do the effects vary depending on the group, and how do such effects manifest?***

Extant literature shows that an entrepreneur's EM is related to the strategic decisions of the venture (e.g., Lombardi et al., 2020). While this is known, potential for future research exists in exploring the extent to which (and how) a venture's orientation is affected by the entrepreneur's EM. Entrepreneurial orientation is a venture-level characteristic describing a venture's 'entrepreneurialness' (Covin & Slevin, 1989), while strategic orientation is a venture-level characteristic referring to the way in which a venture adapts to its environment, uses its resources, and competes in its industry (Miles & Snow, 1978). Along these lines, recent work finds that cognitive attributes advance our understanding of the entrepreneurial orientation of new ventures (Bernoster, Mukerjee, & Thurik, 2020). Therefore, using cognition-based attributes, like EM, to better understand venture-level orientations may yield novel insights.

***RQ8: Does an entrepreneur's EM affect the strategic and/or entrepreneurial orientation of the venture, and if so, how?***

Additionally, related to venture performance, future studies are needed to explore the competitive and performance-oriented outcomes associated with an EM. While venture performance is a distal outcome, few studies examine the influence of an EM on competitive advantage, (non)financial outcomes, or subjective measures of performance. This represents a basic, yet necessary, opportunity to quantify an EM's effect on venture performance. Ireland and

colleagues (2003) theorize that an EM is merely one of the foundational aspects of wealth creation; however, there remains a paucity of research that validates this relationship. Future researchers are encouraged to focus on understanding the effect of an EM on venture outcomes, to what extent the effect exists, and how the effect drives the various types of outcomes pursued.

***RQ9: To what extent (and how) does EM drive various types of venture outcomes?***

### ***Moderators***

In this review, we highlight key antecedents and outcomes of an EM. In doing so, we note the general nature of such relationships; however, these effects are limited by boundary conditions. Some of the most salient moderating effects observed include those related to sociocultural influences, triggering events, the degree of environmental dynamism, and regulatory focus.

As noted, environmental norms and culture directly affect the entrepreneur's EM (e.g., Noble, 2015). Other studies, however, suggest that such factors affect an individual's EM when coupled with individual-level characteristics. As an example, Nelson and colleagues (2016) find that the sociocultural fabric of the community, in conjunction with individual characteristics, affect the development of an EM. The sociocultural fabric of a community, as they note, is the combination of its historical, economic, and social evolution with its geographic centrality. In their investigation of entrepreneurs in Brazil, they find that the sociocultural fabric of the community, in addition to closely intertwined individual-level characteristics, determines whether the entrepreneur develops a more preservationist or exploitative EM, which underscores the importance of sociocultural effects as a boundary condition.

In addition to sociocultural effects, specific events or experiences affect the development of an EM. Zhang and Chun (2018) specifically reference "triggering events" in their study of individual identity and EM, which focuses on how immigrants renew their identity and EM



following notable family and work-related triggers. We suggest that when such events occur, and the requisite antecedents align, the effect of these antecedents on an EM will be altered. Further, it is likely that effects on EM outcomes are also affected given such jolts.

Furthermore, the definition of EM acknowledges that recognizing and acting on opportunities often occurs in conditions that are uncertain and complex. Expanding this insight, McMullen and Kier (2016) suggest that an individual's EM is affected by the extent to which the individual is promotion (versus prevention) focused, and further, they suggest that the extent to which an EM creates an escalation of commitment depends on the external conditions faced. An individual's regulatory focus involves approach-motivated goals (promotion focus) and avoidance-oriented goals (prevention focus) (Higgins, 1997). Thus, both the individual's regulatory focus and the degree to which the environment is dynamic (also supported by Zur, 2015) are found to alter effects on an individual's EM and related outcomes.

#### *Moderators: Future research directions*

Although we highlight some of the key moderators noted in the literature, opportunities for further investigating such effects remain. Extant studies in entrepreneurship and beyond offer ample examples of moderating effects worth exploring in the context of EMs. However, one particularly interesting insight is offered by Outsios and Kittler (2018) who allude to a more nuanced effect among moderators. Specifically, they reference the potential interactive effects among the mindset, resources, and context. Along this line, we look forward to more nuanced studies that theorize and empirically test three-way interactions to advance our understanding of how multiple effects, in combination with one another, simultaneously alter EM outcomes.

***RQ10: What effect do multiple, simultaneous moderators have on EM and outcomes?***

#### **Future Research to Advance Entrepreneurial Mindset Scholarship**

As scholarship from multiple disciplines works toward better understanding the “magic recipe” for entrepreneurial success, we have taken stock of research focused on one component of that recipe: an EM. In doing so, we reviewed literature from various disciplines; offered an inductively derived definition; reported key findings related to the antecedents, outcomes, and moderators; and presented specific research questions. In addition to offering research questions intended to advance specific areas of study related to EM, we now turn to offering suggestions regarding broader advancements that are needed to advance the trajectory of EM research. Specifically, we note the progress made and the potential for future research with respect to process-focused, methodological, configurational, and multi-disciplinary opportunities.

#### *Process-Focused Opportunities*

In this review, we highlight factors representative of commonalities observed from the studies reviewed, and more specifically, key factors related to antecedents, outcomes, and moderators. Interestingly, though, we do not give details on mediation-related factors given a lack of consistency observed within the extant literature.

Although few EM studies report on the intervening factors related to the development or outcomes of EM, some exceptions exist. One notable exception is the work of Ireland et al. (2003) that theorizes the distal effect of EM on competitive advantage, and even more distally, on wealth creation. The model that the researchers offer articulates how an EM is related to entrepreneurial culture and leadership in a venture, and more relevant, how EM effects the ability to manage resources (directly and indirectly), which leads to innovation, competitive advantage, and ultimately, wealth creation. This process-based model highlights a number of intervening variables that are likely to exist between EM and final outcomes.

Along this line, numerous opportunities exist for studies to investigate the nature of the

relationships among the factors noted in Figure 2 (and beyond). With respect to outcomes specifically, we categorize competitive advantage and financial performance alongside strategy and resource management while recognizing that interrelationships exist among these factors. Similarly, opportunities remain to more precisely ‘unpack’ the relationships among antecedents and understand how those factors affect EM. Nonetheless, while we offer an intentionally simplistic framework with broad categories, we recognize the process-oriented relationships embedded within the framework and look forward to studies that further demystify the links.

### *Methodological Opportunities*

Among the studies reviewed, several methodologies are used to examine an EM, which we cluster into three categories. The first category utilizes qualitative methods. This group contains the most publications and includes a variety of approaches. The most widely used method is an inductive approach with data collected from interviews, focus groups (e.g., Outsios & Kittler, 2018), and even phenomenological approaches (e.g., Zur & Naumann, 2018). Qualitative analyses were also conducted using multiple (e.g., Aarstad et al., 2016), single (e.g., Lombardi et al., 2020), and retrospective (e.g., McMullen & Kier, 2016) case studies.

A second category of studies uses a quantitative approach. Only two quantitative studies are identified, and both use a survey-based methodology. Of these approaches, one study utilized SEM (Oberholzer et al., 2014) while the other used Pearson correlations and regression analysis (Asenge et al., 2018). Neither of the studies used the same survey instrument to assess EM. Specifically, one utilized a survey instrument to examine the individual components of EM with separate items for each dimension (Asenge et al. 2018) while the other relied on a self-developed, five-item scale (Oberholzer et al., 2014).

Third, several studies focus exclusively on theory development (e.g., Haynie et al., 2010;

Ireland et al., 2003; Shepherd et al., 2010; Zur, 2015). These studies either generate theoretical insights, develop models, and/or form typologies to be empirically examined in the future. Several studies offer conceptual contributions, which are needed to advance EM-related insights.

To date, the primary approach to examining EM is qualitative. This is, perhaps, unsurprising given both the personal nature of a mindset as well as the nascent nature of the field. While EM has been mentioned in the entrepreneurship literature for decades, until recently, academic research on the topic has remained sparse. In nascent fields, inductive research creates a foundation through theory building and construct development so that deductive approaches can be used to test and refine theory (Locke, 2007). Given the predominance of qualitative studies to date, we look forward to this approach continuing as additional theory development and ‘infrastructure’ work are certainly warranted to concretize the foundation of EM scholarship.

In addition to qualitative work, more quantitative studies are necessary to test and refine EM measures. Although a few EM measures exist, one of the more rigorously developed is the Entrepreneurial Mindset Profile, which assesses a constellation of characteristics (Davis et al., 2016). We look forward to future work that uses and refines this measure and others to advance toward a more widely-accepted EM assessment that is reliable and utilized across contexts.

### *Configurational Opportunities*

Across several studies, a theme emerged that highlights the possibility of various types of EMs existing. One of the most basic delineations between mindsets is made by Wright and colleagues (2001) who compare managerial and entrepreneurial mindsets, which is expanded upon by Boist and MacMillan (2004), demonstrating that an EM is, indeed, distinct from a managerial (i.e., more strategically-focused) mindset. In fact, Noble (2015: 416) writes about mindsets in general terms and describes how an EM is a “special case of a mindset.” Even though an EM is a

“special type of mindset,” is it likely that more than one type of EM exists?

Drawing on liminality theory, Prashantham and Floyd (2019) suggest entrepreneurs have mindsets that are defined as “reflective” (i.e., leading to reasoned responses to threats and opportunities) or “reflexive” (i.e., leading to reactive responses to threats and opportunities). Additionally, using a sample of students, Mathisen and Arnulf (2013) find two distinct types of EMs: “elaborating” (i.e., deliberative and planning) and “implementing” (i.e., acting and evaluating). While these types of EMs may not be substantially dissimilar from the “managerial” and “entrepreneurial” mindsets noted in prior work (Boist & MacMillan, 2004; Wright et al., 2001), Subramanian and Shankar (2020) find empirical evidence that entrepreneurial leaders hold at least three distinct mindsets: people-oriented, purpose-oriented, and learning-oriented. Nonetheless, these studies, along with others, raise questions about how many types of an EM potentially exist. Further, if various types of EMs do exist, across what dimensions can they be classified? More so, what are the configurations of each type of EM? Extant literature has begun to investigate these questions; however, much remains to be understood.

### *Multi-Disciplinary Opportunities*

Our review intentionally examines a broad scope of studies without imposing a discipline-specific restriction. The study of EM is not exclusive to the field of entrepreneurship, and accordingly, has been examined from various disciplinary perspectives. Given the broad nature of our review, we find that EM is conceptualized and defined in a variety of ways and, not surprisingly, examined in a variety of contexts. In fact, among the studies included in this review, only one includes entrepreneurs from the United States<sup>8</sup> (Zur & Naumann, 2018).

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<sup>8</sup> Among the articles reviewed, samples include participants from the following countries: Brazil, Egypt, Finland, Germany, Hong Kong, Italy, Nigeria, Norway, Poland, South Africa, India, the United Kingdom, and Chinese immigrants starting ventures in Canada. The sampled ventures include manufacturing and service, social,

Because EM has been examined in an array of disciplines and contexts, this offers a unique opportunity to gain rich, multi-disciplinary insights. In other words, unlike other constructs that may be discipline-specific, the development of EM scholarship has the potential to be accelerated by the worthy insights garnered from cross-disciplinary collaborations. For instance, a contingent of studies recognizes the potential of employing tools from cognitive neuroscience to better understand the mindset (Baron & Ward, 2004). To this end, numerous possibilities exist in (potentially dramatically) advancing what we know about an EM, what stimuli affect the mindset, and how it changes over time. Further, psychology insights will be beneficial for better understanding how personality and related factors affect and/or enhance an EM; insights from this perspective also have the potential to illuminate the “dark side” of an EM.

While much of the research on an EM focuses on the positive aspect of the mindset, prior research has posited that too much of a seemingly beneficial attribute may be harmful in certain circumstances (e.g., Baron, Tang, & Hmieleski, 2011; Hmieleski & Baron, 2008; McLarty & Holt, 2019). Future research might consider how an EM results in potentially deleterious effects that hinder the achievement of desired outcomes, granting insight into how best to manage an EM for maximum value creation. These, of course, are only a few examples of numerous multi-disciplinary opportunities that remain to be realized as we advance our understanding of an EM.

### **Pedagogical Insights**

Of the 61 total publications identified as relevant in this review, 29 are classified as pedagogical. Given the relative amount of pedagogical work focused on EM, we include a descriptive review—although abbreviated—of these studies to complement the research-based findings.

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environmental, and traditional for-profit ventures from a wide array of industries. Regarding sample size, studies using qualitative approaches were, as expected, generally smaller with none exceeding 40 participants. Alternatively, studies using quantitative approaches had larger samples with some exceeding 200 participants.

Along this line, descriptive insights, methodologies, and future research opportunities are noted.

### *Descriptive characteristics of the literature*

Most pedagogical studies focused on an EM are conducted in European countries. Of those in the European context, the Nordic countries represent the majority of studies (e.g., Laalo & Heinonen, 2016; Lindberg, Bohman, & Hulten, 2017; Slettli, 2019). The United States accounts for the most studies beyond Europe (e.g., Balachandra, 2019). Other contexts, like Africa and the Middle East, are represented in the pedagogical EM literature but to a lesser degree (e.g., Thansai-Bose, 2020). Nonetheless, EM pedagogy seems to have international interest.

Almost all pedagogical studies are conducted in the context of higher education. With a handful of exceptions, undergraduates or undergraduate curriculum occupy the central focus of pedagogy literature focused on EM<sup>9</sup>. Post-graduate (graduate-level) education is the second-most-common level of education (e.g., Secundo et al., 2019; Thansai-Boce, 2020), and only a few studies examine EM in younger (Zupan, Cankar, & Cankar, 2018) or adult learners (Slettli, 2019). This indicates at least some interest in EM across multiple education levels.

In addition to research on EM being noted as multi-disciplinary, we find that pedagogical studies of EM are conducted in an array of disciplines. For example, teaching EM is noted to be important in fields like science and engineering (e.g., Martin-Lara, 2019; Secundo et al., 2016). In these fields, scholars highlight the need for creativity in science-oriented careers regardless if students are interested in launching a venture. Additionally, instructors have incorporated EM into the arts curriculum to better equip their graduates (Kuznetsova-Bogdanovits, Ranczakowska-Ljutjuk, Kiitsak-Prikk, 2018).

Overall, the majority of pedagogical studies are empirical and include some aspect of

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<sup>9</sup> About one-third of studies in the pedagogy-focused review do not include a formal definition of EM.

qualitative methodology, which ranges from case studies (Sletti, 2019) to ethnographies (Zupan et al., 2018), with some studies being purely conceptual (e.g., Morris, 2017). Others are descriptive or prescriptive. For example, Kuxhaus and Troy (2018) offer a detailed narrative describing how to integrate open-ended projects with EM enhancements to a course, while De Hoyos-Ruperto and colleagues (2017) describe a more holistic approach for integrating EM.

Further, EM is explored almost exclusively as a dependent variable with predictors generally relating to course design and specific instructional tools. Related to course design, studies examine the role of design-thinking, finding that courses with design-thinking components enhance students' EMs (e.g., Zupan et al., 2018). Others describe workshops (De Hoyos-Ruperto et al., 2017), labs (Secundo et al., 2019), and modules (Balachandra, 2019) that increase EM. A second category examines specific tools that affect EM. For example, simulations (Thanasi-Boce, 2020), specialized projects (Kuxhaus and Troy, 2018), and online discussion prompts (Bosman et al, 2019) are found to improve a learner's EM.

Only a few pedagogical studies examine the outcomes of EM. For example, EM is noted as being positively related to expanding perceptions of entrepreneurs and entrepreneurial activity (Laalo and Heinonen, 2016) and to transformative social endeavors (Sletti, 2019). Further, Lewis (2011) theorizes that EM and entrepreneurial intelligence interactively determine an individual's entrepreneurial capability. An EM without entrepreneurial intelligence or, conversely, entrepreneurial intelligence without EM, impairs an individual's entrepreneurial capability.

### ***Pedagogical techniques***

The primary pedagogical technique for developing an EM is an integrated-learning approach. In integrated techniques, instructors synergistically use passive and active learning, and such variation in techniques was observed. For instance, some of the most noted learning approaches



include, but are not limited to, lectures, learning logs, projects, case studies, brainstorming, prototyping and testing, personal reflections, self-directed assignments, interviews, and ideation exercises. The only study that offers an alternative to the integrated-learning model is Morris (2017) who asserts that lectures should be the fundamental instructional element, yet some degree of active learning is noted as beneficial. This contrasts with most studies that describe either a balanced passive/active learning approach or a more active learning approach.

### ***Future research opportunities***

Based on the abbreviated review of EM pedagogy, we offer two suggestions for future research. First, underscoring the prior recommendation from EM research, with respect to pedagogical studies, future research is encouraged to adopt a more consistent measure of EM. Nearly all pedagogical studies rely on either a qualitative methodology—in which EM is defined using varied conceptualizations—or a survey-based methodology, which also lacks measurement consistency. For example, Robinson and colleagues (2016) use students' reflections in learning logs to establish whether the course design resulted in EM while Thanasi-Boce (2020) use students' reflections on open-ended questions related to a constellation of attributes associated with EM. In studies that use surveys, the measures include the Entrepreneurial Mindset Questionnaire (De Hoyos-Ruperto et al., 2017) while Lindberg and colleagues (2017) use a series of scales related to opportunity identification, creativity, and risk management. Not relying on valid or commonly used measures inhibits efforts to extrapolate insights. Thus, we look forward to the more consistent use of valid and reliable measures of EM.

Second, many studies examine discreet interventions such as a specific tool, unit, module, or course that exposes the student to mechanisms intended to enhance EM, albeit for a relatively short time. Future pedagogical research is encouraged to focus on ways to develop the student's

EM over a longer time frame. Research suggests that an EM develops over time as individuals are continuously exposed to stimuli and encounter new experiences (Haynie et al., 2010; Kuratko et al., 2020; Naumann, 2017). Further, studies show that short-term interventions do not support sustained development of, or changes to, an EM. Universities are in a unique position to integrate EM into a series of courses over several semesters or years. For example, De Hoyos-Ruperto and colleagues (2017) show how a series of EM workshops can be incorporated over several semesters to consistently reinforce the development of students' EMs. This is a particularly promising avenue for future study that may lead to structural pedagogical redesigns.

### **Conclusion**

Given the increased interest in understanding an EM, we take stock—at an important time during the evolution of EM scholarship—to consider what is known. Based on a systematic, multi-step review, we offer an inductively derived definition of an individual's EM, review what is known about related factors, offer specific directions for future research, and present broad directions for studies to advance the trajectory of EM research. In addition, we highlight the current state of EM pedagogical knowledge and offer initial directions for future pedagogical studies. Overall, much remains to be understood about the various factors that influence an EM and the effects of an EM on various outcomes. Nevertheless, given the current state of knowledge and the vast opportunities for future advances, we look forward to the promising insights that will be gained from future studies in entrepreneurship and from a multitude of other disciplines.

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**Table 1. Entrepreneurial Mindset Definitions.<sup>10</sup>**

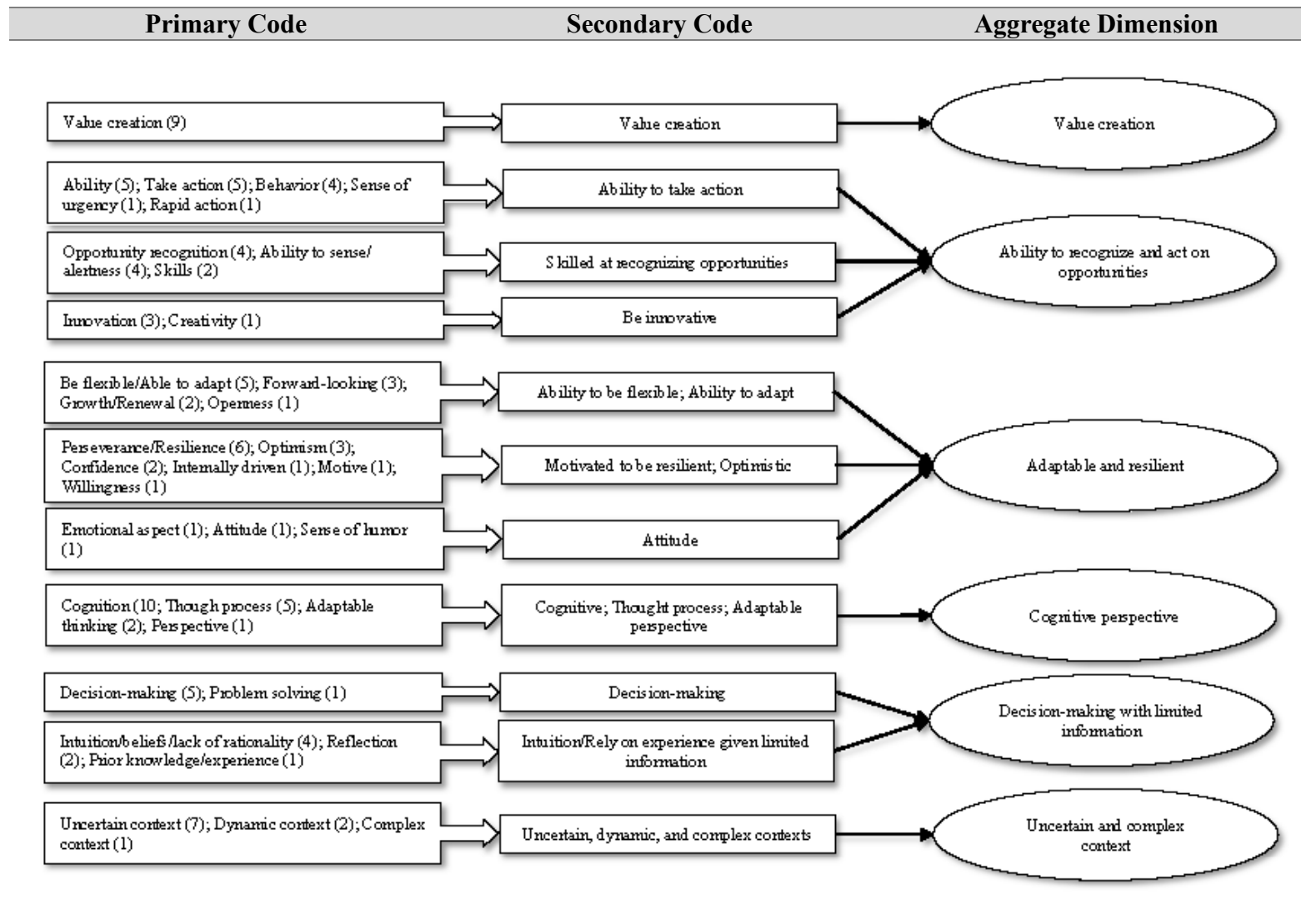
Author(s)	Entrepreneurial Mindset Definition
McGrath & MacMillan (2000: 15)	"...ability to sense, act, and mobilize under uncertain conditions"
Wright et al. (2001: 113)	"An entrepreneurial mindset refers to the more extensive use of rules of thumb and individual beliefs in the decisions involved in strategic innovation...For those with an entrepreneurial mindset, specific problems often get turned into opportunities...Such mindsets enable entrepreneurs to function in the midst of much uncertainty..."
Ireland et al. (2003: 968)	"...an entrepreneurial mindset [is] a growth-oriented perspective through which individuals promote flexibility, creativity, continuous innovation, and renewal."
Boisot & MacMillan (2004: 513, 519)	"...the navigating strategy using the path through plausible worlds...that seeks to extract real world value by enacting plausibilities..." that "...operates under conditions of novelty and uncertainty, where prior probability distributions, being non-existent, can offer little guidance..."
Yusof (2009: 66)	The entrepreneurial mindset consists of "...qualities such as internal locus of control, tolerance for ambiguity, willingness to hire people smarter than oneself, a consistent drive to create, build or change things, passion for an opportunity, a sense of urgency, perseverance, resilience, optimism and sense of humor about oneself."
Shepherd et al. (2010: 62)	"We define an individual's entrepreneurial mindset as the ability and willingness of individuals to rapidly sense, act, and mobilize in response to a judgmental decision under uncertainty about a possible opportunity for gain."
Noble (2015: 416)	"...the entrepreneurial mindset is a metacognitive state of thinking, and hence a reflective state of mind, whereby the entrepreneurial person frequently looks to add novelty to the economic system..." shaping "...the detail of how an entrepreneur responds to uncertainty, given the situation, and is not disjoint from it."
Davis et al. (2016: 22)	"...the constellation of motives, skills, and thought processes that distinguish entrepreneurs from nonentrepreneurs and that contribute to entrepreneurial success"
Mohapeloa (2017: 645)	"Developing an entrepreneurial mindset means influencing not only ways of thinking, skills and knowledge, but also a reflection through attitudes and an observable set of behavioural patterns."

<sup>10</sup> The definitions are organized chronologically.

**Table 1 (Continued). Entrepreneurial Mindset Definitions.<sup>10</sup>**

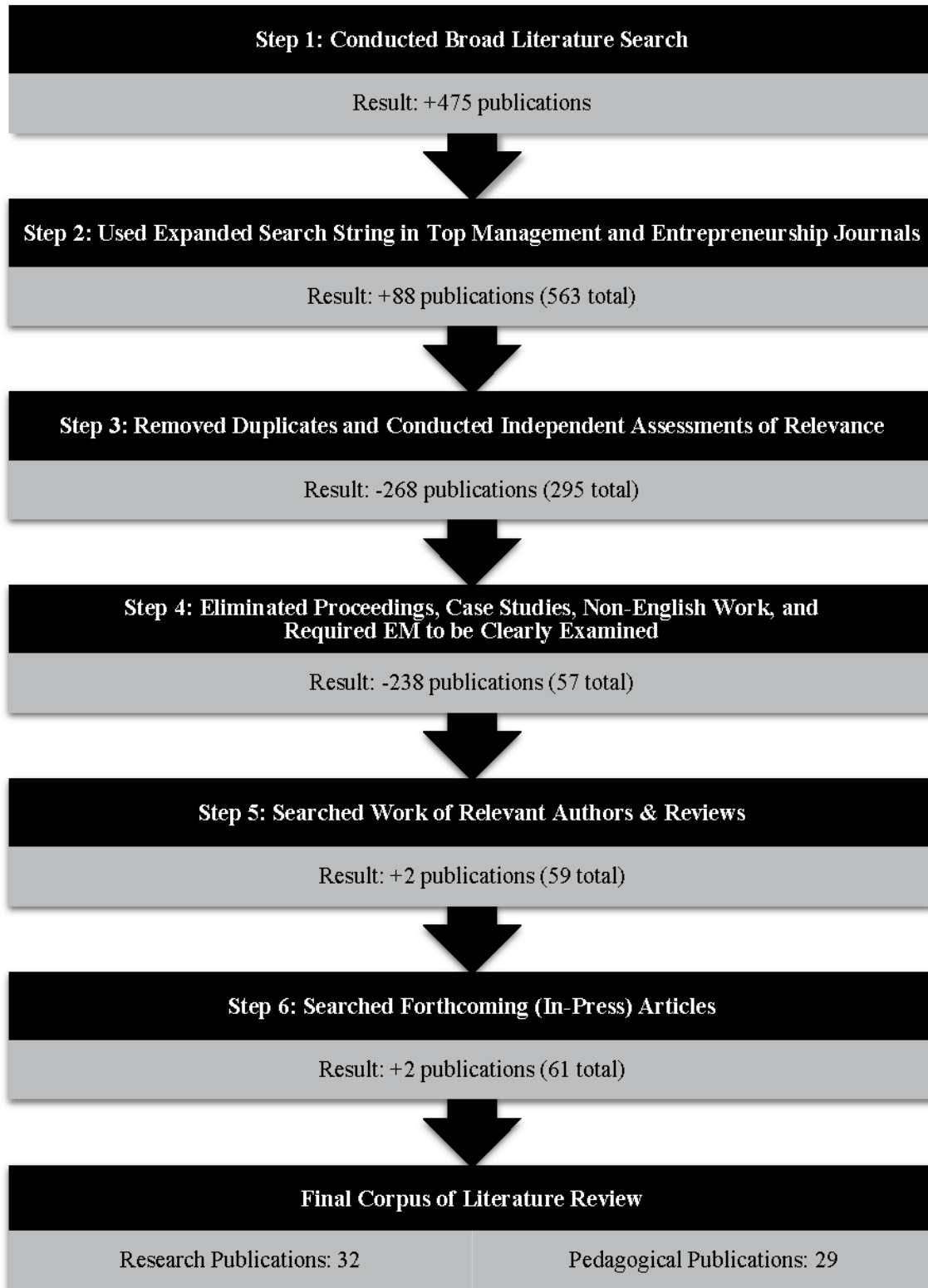
Author(s)	Entrepreneurial Mindset Definition
Naumann (2017: 159)	The entrepreneurial mindset "...is seen as a way of adaptable thinking and decision-making in complex, uncertain and dynamic environments."
Asenge et al (2018:141)	"Entrepreneurs/individuals with an entrepreneurial mindset see needs, problems and challenges as opportunities and develop innovative ways to deal with the challenges, and exploit and merge opportunities."
Zhang et al. (2018: 959)	"Entrepreneurial mindset relates to how entrepreneurs think of success, failure, and difficulty in the entrepreneurship process."
Ikonen & Nikunen (2019: 835)	"...assuming [an entrepreneurial] spirit and incorporating it into one's own thoughts and actions..."
Lundmark et al. (2019: 148)	"The mindset at the individual level is characterized by confidence, optimism, and a heuristic, not always rational, approach to decision-making..."
Lombardi et al. (2020: Table IV)	The entrepreneurial mindset is composed of recognizing entrepreneurial opportunities, possessing entrepreneurial alertness, reacting quickly, foreseeing new opportunities, and recognizing wrong decision-making processes.
Kaplan & McGourty (2020: 4)	"People with an entrepreneurial mind-set execute; that is, they move forward instead of analyzing new ideas to death."
Kuratko (2020: 30-31)	The foundation of an entrepreneurial mindset can be defined as "...a person's ability to be dynamic, flexible, and self-regulating in cognitions given dynamic and uncertain task environments."
Kuratko et al. (2020)	The entrepreneurial mindset is "...the true source of innovation and entrepreneurship that [is] an ability and perspective that resides within each one of us..." and consists of three, distinct components: cognitive, behavioral, and emotional aspects.
Wach et al. (2020: 5)	Entrepreneurs typically have a mindset that is "...self-confident, optimistic, forward-looking, and resilient..." and "...are particularly likely to appreciate the potential for future goal attainment that their cognitively challenging work currently entails..."

**Table 2. Data Structure of Entrepreneurial Mindset Definition Coding.**

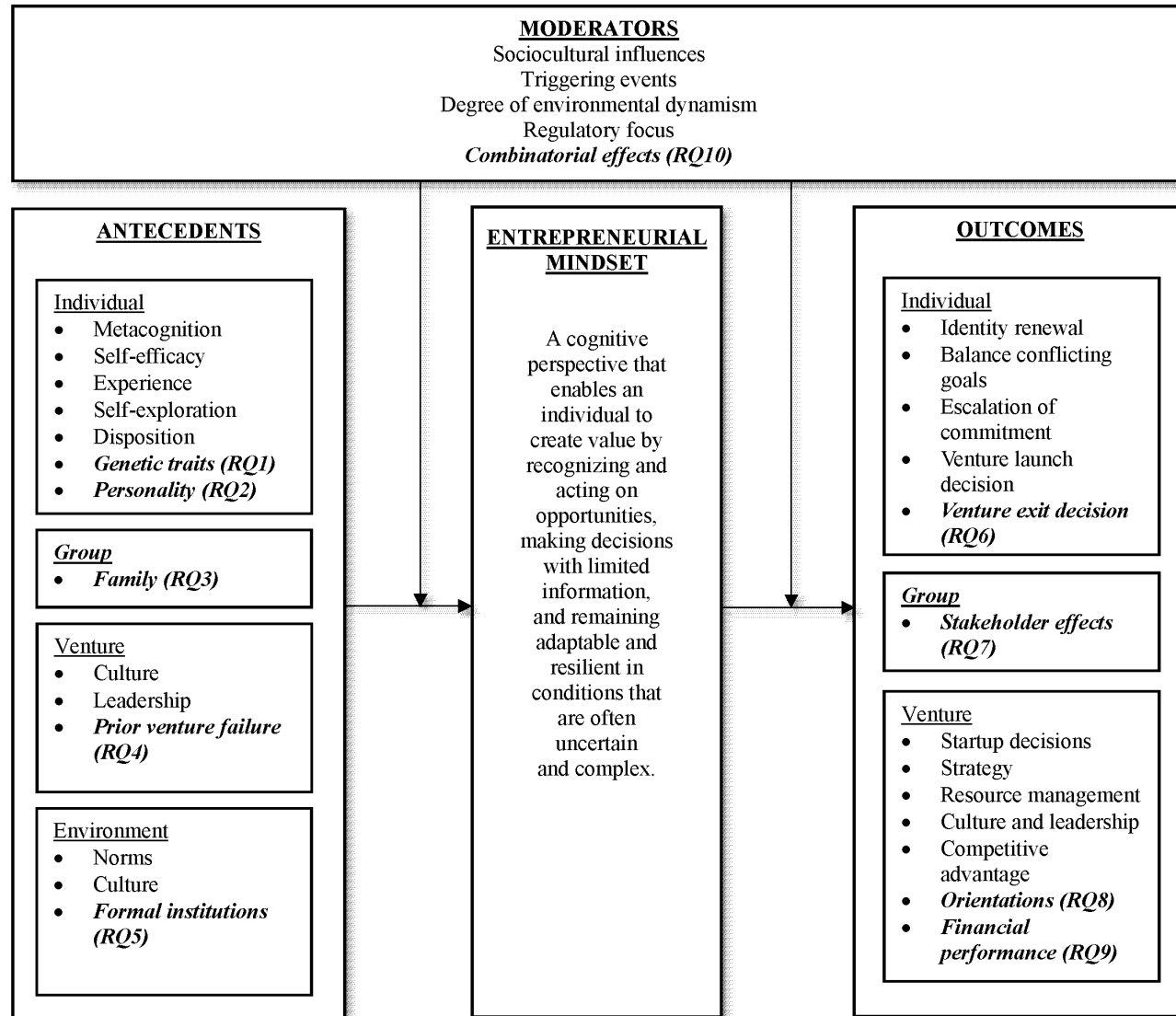


*Note: Numbers in parentheses indicate frequency.*

**Figure 1. Article Search Process.**



**Figure 2. Framework of Literature Review.**



Note: Bold, italicized text indicates future research questions (RQs).