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A conceptual model of entrepreneurial leadership: how entrepreneurial leaders enable entrepreneurial opportunity

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Abstract
Entrepreneurial leadership (EL) to date has not been differentiated from other contingency theories of leadership. We offer a conceptual model of EL to explain the motivational dynamics that enable collaborative action between leader and follower to recognize and pursue entrepreneurial opportunity. Drawing on self-determination theory (Deci & Ryan, 2002a; Ryan & Deci, 2017), we propose EL is demonstrated when the leader, enabled by emotional and social competence and an entrepreneurial mindset, develops a relationship with followers that satisfies three inherent human needs in followers (i.e., autonomy, relatedness, and competence), thereby intrinsically motivating followers to act entrepreneurially. With our conceptual model of EL, we seek to establish new frontiers for scholars to advance research on EL. Further, we believe our model can serve as a guide to support the development of EL in oneself and others.

Keywords Entrepreneurial leadership · Leadership · Self-determination theory · Emotional and social competence · Entrepreneurial mindset · Motivation · Entrepreneurial opportunity

Introduction

Buoyed by cross-disciplinary work in fields such as organizational science, neuroscience, psychology, and social psychology, we have learned much about what brings out the best in people in terms of human performance (Hutchinson, 2018; Lord et al., 2017; Ryan & Deci, 2017). This increased understanding has started to reshape the field of leadership (Bormann & Rowold, 2018; Bryman et al., 2011; Lord et al., 2017), including "dramatic increases in sophistication" from earlier research (Lord et

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al., 2017, p. 434). Scholars argue that this reshaping warrants a conceptual reimagining of the entrepreneurial leadership (EL) construct (Leitch & Harrison, 2018a). Appeals for reimagining suggest the treatment of EL depends on and fails to distinguish from traditional styles of leadership (Aparisi-Torrijo & Ribes-Giner, 2022; Leitch & Harrison, 2018b).

Neither scholars nor practitioners of EL have settled on a definition or converged on an approach to advance EL in a unified or integrated way, leaving others to call for clarity and a definitive model (Harrison et al., 2019). Scholarly treatment of EL to date has not differentiated EL from other contingency theories of leadership and leadership styles, such as transformational leadership, charismatic leadership, authentic leadership, leader-member exchange, and the like. We believe e*ntrepreneurial* leaders have a different purpose from more traditional leaders and produce different outcomes.

Therefore, our primary contributions in this conceptual paper are to (1) offer a relational perspective of EL that prior efforts to define EL have failed to provide, and (2) propose *how* an entrepreneurial leader enables collaborative action that leads followers to recognize and pursue entrepreneurial opportunities with the leader. Building on prior scholarship stating that entrepreneurial leaders envision such outcomes (Gupta et al., 2004; Renko et al., 2015), we examine *how* entrepreneurial leaders build collaborative action to pursue entrepreneurial opportunities collectively with followers.

To achieve these two contributions, we first review how prior scholars have defined EL. We highlight the need to differentiate EL from general leadership and open new frontiers for EL research. We then present a conceptual model to explain how motivational dynamics enable collaborative behavior between leader and follower. The model conveys the importance of a leader's emotional and social competence, and how the psychophysiology of human emotion, cognition, and hormonal functions impacts the capability of a leader to foster trusting, supportive relationships with followers. We describe key facets of self-determination theory (SDT) and the role that need fulfillment plays in generating follower motivation to act entrepreneurially. As we undertake the above, we suggest propositions for future empirical investigation of EL and later recommend how to test these propositions to advance EL research. Finally, we propose how practitioners can use our model for EL development.

The construct of Entrepreneurial Leadership (EL)

Leadership research and entrepreneurship research are distinct fields of inquiry. Discussions on integrating the two fields (Pollack et al., 2020; Reid et al., 2018) have led to ongoing debates as to whether EL is simply leadership in an entrepreneurial context or an entrepreneur demonstrating a leadership style (Leitch & Harrison, 2018a, 2018b). Pollack et al. (2020) examine how literature in recent decades has defined leadership and entrepreneurship, and they conclude "the boundary conditions embedded within each definition preclude each term from being fully assimilated by the other" (p. 928). Conversely, other scholars claim that EL is still in its infancy. For example, Harrison et al. (2015) lament that despite numerous definitions, EL lacks

theory, construct clarity, and the means to gauge its characteristics and behaviors. We believe this infancy offers an opportunity to shape further this important construct. Such conceptual development is essential if one hopes to address *how* entrepreneurial leaders enable and support followers in pursuing entrepreneurial opportunity.

Work in EL began with Lippett's (1987) inaugural article, "Entrepreneurial leadership: A Performing Art," followed shortly thereafter by Harrison and Leitch (1994) joining entrepreneurship and leadership together as one in "Entrepreneurship and Leadership: The Implications for Education and Development." More recently, comprehensive reviews of EL have appeared in special journal issues including the *Journal of Leadership & Organizational Studies* in 2007, the *Journal of Small Business Management* in 2015, and the *International Small Business Journal* in 2017, as well as reviews by individual scholars (Bagheri & Pihie, 2011; Kuratko, 2007; Leitch & Harrison, 2018a, 2018b; Leitch & Volery, 2017). Further, a systematic review of EL literature (Harrison et al., 2019) contributed to prior work by Harrison and Leitch (2018), whose *Research Handbook on Entrepreneurship and Leadership* addressed EL. These and other foundational works set a baseline for the current understanding of EL.

Defining EL

Scholars have offered varying definitions of EL (e.g., Harrison et al., 2015; Leitch & Volery, 2017; Renko et al., 2015). The two EL definitions most cited come from Gupta et al. (2004) and Renko et al. (2015). Gupta et al. (2004) define EL as "leadership that creates visionary scenarios that are used to assemble and mobilize a 'supporting cast' of participants who become committed by the vision to the discovery and exploitation of strategic value creation… Thus, entrepreneurial leaders envision and enact a proactive transformation of the firm's transaction set" (p. 242). Renko et al. (2015) define EL as "*influencing and directing the performance of group members toward the achievement of organizational goals that involve recognizing and exploiting entrepreneurial opportunities*. With its explicit focus on leadership influence toward entrepreneurial goals, this definition is aligned with, yet different from previous definitions of entrepreneurial leadership" (p. 55).

More recent definitions state an entrepreneurial leader is one who has a "vision for the future of the firm based on continuous recognition of new entrepreneurial opportunities, and [pursues] this vision through creative, innovative and sometimes risky tactics" (Carsud et al., 2018, p. 206). Others claim entrepreneurial leaders frame innovation, develop the internal architecture, coordinate managerial levels, integrate design thinking, manage the grief of project failure, and demand ethical standards (Kuratko & Hoskinson, 2019).

Leitch and Harrison (2018b) summarize the challenges related to defining EL and note the following concerns: lack of theory-informed construct development, lack of construct agreement, lack of construct measurement, and lack of practical application. In addition, we note that very few existing definitions, including all previously cited, adequately explore the *integration* of leadership and entrepreneurship domains. For instance, one finds definitions that view EL as an entrepreneurial mindset (e.g., Gupta et al., 2004) wherein the focus is on the "E" in EL. This perspective also exists in the

popular press, where one author recently defined entrepreneurial leaders as ones who "are able to launch something new, turn around a failing enterprise, and anticipate and make change before they have to" (Peterson, 2020, pp. xvii-xviii). Other definitions emphasize the "L" in EL (e.g., Vecchio, 2003). It was not until around 2009 when a more deliberate effort to merge the two fields began (Röschke, 2018).

Recent treatments of general leadership view *leadership as a relationship* between leader and follower (Uhl-Bien, 2006; Uhl-Bien & Ospina, 2012), rather than the traditional view of "leader-as-hero" or "great person" (Kelan & Wratil, 2018; le Gentil, 2021). Leadership is more than hierarchies and roles and should be viewed as the dynamic interactions and the relationships between individuals within organizations (Uhl-Bien, 2006). A relational perspective on leadership notes that leadership emerges from the nature of the relationship between leader and follower; it is not based on an individual trait or attribute of the leader alone (Uhl-Bien, 2006).

What is consistent in current and past treatment of EL is that most definitions persist with a "leader-as-hero" or "great person" perspective, giving little attention to the follower or the nature of the relationship between leader and follower. Harrison et al. (2019) report that out of 82 articles they examined in their extensive review of EL, only two assumed a relational approach to leadership in conceptualizing EL. Leitch and Volery (2017, p. 150) observed, "…pioneer scholars in EL focused on personality attributes to distinguish who an entrepreneur or a leader was and who was not (Harrison & Leitch, 1994). According to this 'great person' perspective, the success of an entrepreneurial leader depends on specific traits and personal characteristics." As an example, consider the measure of EL style (Renko et al., 2015), one of the most widely used scales to measure EL. The scale provides eight attributes or actions and characteristics:

1. "The leader of this company often comes up with radically improved ideas for the products we are selling."
2. The leader of this company often comes up with ideas of completely new products that we could sell."
3. "The leader of this company takes risks."
4. "The leader of this company has creative solutions to problems."
5. "The leader of this company demonstrates passion for his/her work."
6. "The leader of this company has a vision for the future of our business."
7. "The leader of this company challenges and pushes us to act in a more innovative way."
8. "The leader of this company wants us to challenge the current ways we do business."

Notice that seven out of the eight statements address what *the leader* does. The leader carries all responsibility and is the "hero" because they take risks, come up with ideas, and offer creative solutions. It is partially due to this perspective that Leitch and Harrison fret that the field continues making "the same assumptions and getting stuck in the same intellectual cul-de-sacs" of frustration and stagnation (2018b, p.16).

Another concern about scholarly treatment of EL is that EL definitions do not tell *how* an entrepreneurial leader fosters entrepreneurial behavior by followers. Notice

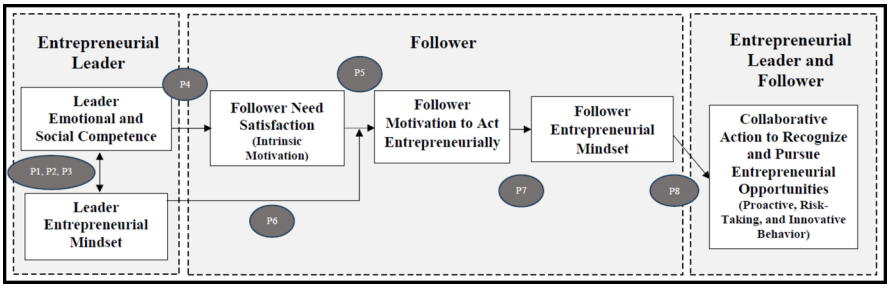

Fig. 1 Conceptual model of entrepreneurial leadership

that the last two items in the scale above do not address *how* the entrepreneurial leader "challenges and pushes others to act in innovative ways," or *how* the leader enables others "to challenge the current ways business is done" (Renko et al., 2015). To date, we have not found a treatment of EL that addresses how a leader enables the desired outcome of entrepreneurial behavior by others (e.g., followers). Renko et al. (2015) state that entrepreneurial leaders "enhance follower beliefs in their own entrepreneurial skills and abilities and ignite passion for innovation and creativity" (p. 58), but these authors do not articulate how or why an entrepreneurial leader is able to motivate followers in this way. This is not surprising, given that recent findings and theories from other fields, for example psychology (Deci & Ryan, 2002a; Ryan & Deci, 2017) and neuroscience (e.g., Boyatzis et al., 2012, 2014; Waldman et al., 2011), are only beginning to enhance theorizing on human motivation in relation to general leadership.

Our conceptual model advances the follower role, since the key outcome of EL is collaborative action to recognize and pursue entrepreneurial opportunity. We propose that an entrepreneurial leader has an outward focus on the follower, the leader-follower relationship, *and* on the outcomes for which leader and follower share responsibility. In addition to the means entrepreneurial leaders use to influence followers, a definition and model of EL should convey how that influence enables follower *entrepreneurial* behavior as a key outcome.

Conceptual model of EL

Figure 1 presents our conceptual model of EL. This model explains the mechanisms by which an entrepreneurial leader supports followers who collaboratively work with the leader to recognize and pursue entrepreneurial opportunity. We define an entrepreneurial leader as one who demonstrates emotional and social competence and an entrepreneurial mindset to cultivate follower satisfaction of inherent needs—autonomy, competence, and relatedness—that produce follower intrinsic motivation to act entrepreneurially. Follower motivation to act entrepreneurially is moderated by the leader's entrepreneurial mindset. As followers are motivated to act entrepreneurially, they too develop an entrepreneurial mindset, learn (Lynch & Corbett, 2023), and take collaborative action with the entrepreneurial leader to recognize and pursue entrepreneurial opportunities.

Figure 1 depicts one large box and three boxes within the large box. The three boxes represent the mechanisms required of the leader, the follower, and the two coming together for leader-follower entrepreneurial collaborative behavior. The dashed lines for each of the three boxes represent the interconnected nature of all mechanisms involved. The larger box encompassing the three represents the entrepreneurial context that supports and enables the entrepreneurial leader and follower in all facets of EL.

Cognitive, emotional, and hormonal influences

An entrepreneurial leader is more likely to have a relational approach to leading when emotional, cognitive, and hormonal functions are activated and can support an outward focus on others (Boyatzis et al., 2014; Jack et al., 2013). In contrast, when an entrepreneurial leader has "internal noise" (e.g., fear, acute stress, defensiveness, need to control, self-deception, dehumanizing behavior), the leader is impaired emotionally, cognitively, and/or hormonally in demonstrating emotional and social competence and therefore also in maintaining an outward focus on others (Boyatzis et al., 2024; Jack et al., 2013).

The underpinnings of outward-oriented versus inward-oriented EL, and having an entrepreneurial leader mindset, are deeper than leader style preferences or personality. They relate to three psychophysiological states important to the ability and the desire to connect with others and act innovatively and proactively. They are characterized by (1) a cognitive orientation that centers on neurological activation (i.e., default mode versus task positive mode), (2) emotional arousal which can be positive or negative, and (3) hormonal arousal (i.e., parasympathetic versus sympathetic nervous system) (Boyatzis, 2024; Boyatzis et al., 2012, 2014, 2015; Boyatzis & Jack, 2018). We now explore each of these in depth.

Cognitive

When people acknowledge others as human beings rather than as objects, obstacles, vehicles, or a means to an end, it is in part because a network in the brain has been activated, called the default mode network (DMN), or what some scholars more accurately call the *empathetic network* (Boyatzis et al., 2019). In contrast, when people dehumanize others, the empathetic network is suppressed while the task positive network (TPN), or more accurately the *analytical network*,[1] is activated (Jack et al., 2012). One set of scholars described these new findings by stating:

[1] Boyatzis et al. (2019, p. 211) state that one leading scholar in this field, Anthony Jack, has concerns "… about using the historic names for these networks, because they are misleading. For example, the *default mode network* was originally used to suggest we use this network more at rest than when we are engaged in any kind of task. This network is far more active than at rest when people intentionally use empathy to understand others. The label *task positive network* is also misleading…This network is actually suppressed when people intentionally engage in empathic tasks." We refer to these networks as the empathetic and analytical networks. It is important to note these are networks in the human brain that influence thought and behavior. They are not cognitive mindsets or ways of thinking.

> "The identification of the social brain proved that the first network, the [analytical network], does not 'corner the market' on human reasoning. Rather, it shows that humans have two different capacities for reasoning, or ways of understanding: one that is geared toward social and emotional understanding and can be broadly characterized as empathic reasoning; and a second that is needed for focused attention and nonsocial problem solving and can be broadly characterized as analytic reasoning (Jack et al., 2012)." (Boyatzis & Jack, 2018, pp. 14–15).

Jack et al. (2013) support the above by finding that "human and humanizing conditions were associated with relatively high activity in the DMN [empathetic network] and relatively low activity in the TPN [analytical network]" (p. 313; brackets added).

As human beings, we oscillate between these two networks and can learn to do so efficiently, but overemphasis on the analytical network can impact negatively leader effectiveness and how leaders seek to influence others (Boyatzis et al., 2019; Boyatzis & Jack, 2018). A study using functional magnetic resonance imaging (fMRI) scans asked participants to recall resonant leaders who made a positive emotional connection. Results showed that recalling resonant leaders activated the empathetic network in the brain. Recalling memories of dissonant leaders who showed little interest in followers and created an overall negative emotional climate activated the analytical network in the brain (Boyatzis et al., 2012).

Until recently (Boyatzis et al., 2012; Waldman et al., 2011), the neurological findings described above have been absent in leadership research; based on our review, such findings have never been addressed in relation to EL. Later in this paper, our discussion of cognitive flexibility as key to an entrepreneurial mindset includes the importance of leaders and followers moving between empathetic and analytical cognitive functions, rather than being held by one or the other.

Emotional

Boyatzis et al. (2015, p. 5) suggest that benefits like those resulting from empathetic network activation are associated with feeling positive emotion. Positive emotion enables innovativeness, proactiveness, receptivity to new ideas, and emotional self-awareness (Fredrickson, 2001). They cite research linking positive emotions to enhanced optimism about the future; greater perceptual openness and openness to behavior change; behavior that is more altruistic, helpful, cooperative, and conciliatory; and improved decision-making. Positive emotions activate the empathetic network of the brain, leading to greater openness, receptivity, and prosocial behavior (Boyatzis et al., 2015, 2019). Fredrickson (2001) supported these findings. Her work showed that positive emotions broaden attention and action and build physical, intellectual, and social resources that enhance performance and relationships. Hence, we propose that positive emotion is essential to EL, although this relationship has received little attention.

Cognitive and emotional functions interact with each other and impact flexibility, innovativeness, and other factors that affect entrepreneurial behavior. Silard and Lee (2023, p. 21) observe, "There is strong empirical and theoretical consensus that the

expanded cognitive span generated by positive emotion enables individuals to view a larger amount of more diverse information and access a richer set of related memories. Additionally, once the more expansive range of information is gathered, individuals experiencing positive emotions process it with more flexibility and complex thinking, which allows a broader selection of elements to coalesce into a new idea, facilitating creativity."

Hormonal

Similar effects result from hormonal states. Boyatzis et al. (2015, p. 5) observe that "arousal of the parasympathetic nervous system is largely responsible for the health benefits commonly associated with positive emotions including general wellbeing." The parasympathetic nervous system enables the desire for social connection and is often referred to as a renewal hormonal system in the body (Boyatzis et al., 2019). In contrast, when the sympathetic nervous system (a stress response hormonal system) is activated, a leader becomes self-protecting, defensive, and closed. The parasympathetic nervous system is often correlated with the empathetic network, and the sympathetic nervous system is often correlated with the analytical network (Boyatzis, 2024; Boyatzis et al., 2019, p. 83). Importantly, the cognitive and hormonal functions are incited by positive and negative emotion, emphasizing the interconnected nature of emotional, cognitive, and hormonal functions.

Entrepreneurial leader emotional and social competence (ESC)

Goleman (1995, 1998) and Boyatzis (2008) describe emotional and social competence (ESC) as behaviors that manifest a leader's awareness of their own and others' emotions and effective use of that awareness to manage self and others. As Van Oosten et al. (2019) point out, empirical studies over the past 20 years indicate ESC positively influences important individual and organizational outcomes such as job performance, general leadership performance, job satisfaction, work attitudes, and leadership effectiveness.

Self-awareness, a central part of ESC, is not a new topic to leadership or organizational studies (Chon & Sitkin, 2021; Taylor, 2010) but has remained absent from discussion of EL. As noted earlier, recent neuroscience research shows that empathetic network activation is linked to introspection and consideration of others (Boyatzis & Jack, 2018; Jack et al., 2012), which are fundamental aspects of leader self-awareness (Taylor, 2010).

Self-aware entrepreneurial leaders are clear about their values, purpose, strengths, weaknesses, personality traits, aspirations, and vision. They are attuned to how others experience their leadership. This internal clarity facilitated by self-awareness provides a reservoir of self-insight when working with others (Dunning, 2005). It enables entrepreneurial leaders to focus outward on others, to be empathetic rather than feel trapped by defensiveness, lack of purpose, need for control, or other "internal noise." Boyatzis et al. (2015) make a compelling case that leader vision activates the three psychophysiological functions (empathetic cognition, positive emotion, parasympathetic nervous system arousal), facilitating an outward-focused desire to connect

with others, positive disposition, and increased ability to be creative and innovative. In short, emotional (feeling positive emotion), hormonal (parasympathetic nervous system arousal), and cognitive (empathetic network activation) functions positively influence entrepreneurial leader self-awareness and ability to maintain a relational focus toward others while internally directed by self-awareness.

The opposite functions (feeling negative emotion, sympathetic nervous system arousal, and analytical network activation) can influence a leader to be inward-focused, defensive, resistant, convergent, and desiring to control. These opposite functions inhibit or impair a leader from being self-aware and demonstrating prosocial behavior, or from remaining open to others, new ideas, or new directions (Boyatzis, 2024; Boyatzis et al., 2015).

An entrepreneurial leader demonstrates a high level of social competence, particularly empathy, to understand and manage the needs of followers. Goleman et al. (2002) and Boyatzis (2009) define social competence as being in tune with others and using that awareness to influence them to greater achievement. Socially competent entrepreneurial leaders understand what motivates other people, listen attentively, consider how others feel, and demonstrate sensitivity to the moods of others (Goleman & Boyatzis, 2008, p. 78).

The three psychophysiological functions enable a leader to demonstrate ESC, focus outward on others, remain open to others' ideas and attentive to others' needs, *and*, when necessary, efficiently move from those relational activities to focus and problem solve. As Boyatzis (2024) observes, it is not that one state (empathetic cognition, positive emotion, parasympathetic nervous system arousal) is good and the other is bad (analytical cognition, negative emotion, sympathetic nervous system arousal). Both are essential to entrepreneurial thought and action, as shown by recent research illustrating that negative emotions can support entrepreneurial mindset and behavior development, if managed appropriately (Crosina et al., 2024). Empathetic cognition, parasympathetic nervous system arousal, and positive emotion work together to enable a leader to focus on and connect with a follower (Boyatzis, 2024). The opposite three conditions (analytical cognition, sympathetic nervous system arousal, and negative emotions) create an inward, preventive, defensive, convergent focus, which is good for problem-solving but not for relating to and inspiring others.

The challenge for an entrepreneurial leader is to balance cognitive, emotional, and hormonal elements while paying close attention to the relational connection between leader and follower. An entrepreneurial leader must efficiently and effectively move between competing psychophysiological domains, balancing followers, context, and the entrepreneurial need to solve a problem versus build connection or inspire a shared vision. Entrepreneurial leaders must focus closely on the climate they create because that climate can trigger emotional, cognitive, and hormonal functioning in others that enables or restricts entrepreneurial behavior. Thus, we propose the following:

Proposition 1a: There is a positive relationship with the efficient movement between empathetic versus analytical network activation and demonstrating entrepreneurial leader emotional and social competence.

Proposition 1b: There is a positive relationship with the efficient movement between positive and negative emotion and demonstrating entrepreneurial leader emotional and social competence.

Proposition 1c: There is a positive relationship with the efficient movement between parasympathetic and sympathetic nervous system arousal and demonstrating entrepreneurial leader emotional and social competence.

Entrepreneurial leaders and entrepreneurial mindset

Ireland et al. (2003) define an entrepreneurial mindset as "a growth-oriented perspective through which individuals promote flexibility, creativity, continuous innovation, and renewal. In other words, even under the cloak of uncertainty, the entrepreneurially minded can identify and pursue new opportunities because they have cognitive abilities that allow them to impart meaning to ambiguous and fragmented situations" (p. 968). This definition emphasizes cognitive aspects of the mindset and focuses on venture creation. We adopt a definition of entrepreneurial mindset that includes but is not limited to venture creation and goes beyond cognitive ability.

Subramaniam and Shankar (2020) expanded the definition of entrepreneurial mindset by noting three components that drive strategic entrepreneurship (pp. 18–21): (1) people-oriented mindset ("staying inclusive and open, and being positive and appreciative"); (2) purpose-oriented mindset ("staying focused on purpose/intention and being patient with the journey"); (3) learning-oriented mindset ("listening and picking signals from all around, and experimenting and risk-taking"). It is important to note they are referring to "mindsets." Our model takes into account actual cognitive networks in the brain, not mindsets, when we define an entrepreneurial way of thinking. For us, the people-oriented mindset and learning-oriented mindset are enabled by the entrepreneurial leader's ESC and therefore are related to the cognitive empathetic network. The purpose-oriented mindset is enabled by the cognitive analytical network.

Kuratko and colleagues (2021) argue there is a "schizophrenia in understanding what defines entrepreneurial mindset" (p. 1688) in that some argue for a perspective focused on the cognitive, others for a focus on the behavioral, and others for a focus on the emotional. An entrepreneurial mindset must account for thoughts, feelings, and actions, or risk "misrepresenting and inaccurately characterizing the entrepreneurial mindset" (p. 1688). Given the psychophysiological domains discussed earlier (emotional, cognitive, and hormonal) and our discussion of ESC, our model responds to Kuratko and colleagues (2021). All three psychophysiological domains are essential to the entrepreneurial mindset and significantly influence ESC behavior. Therefore, our discussion of the cognitive, hormonal, and emotional states extends this prior work on entrepreneurial mindset because we refer to three psychophysiological functions and their impact on EL rather than cognitive and emotional states in general.

Entrepreneurial leader cognitive flexibility

We propose that an entrepreneurial leader with an entrepreneurial mindset demonstrates a high level of cognitive flexibility. From an entrepreneurial perspective,

cognitive flexibility has historically referred to an individual's capacity to oscillate between causation and effectuation logic in the pursuit of entrepreneurial endeavor (Greenberg et al., 2011). In this case, causation processes refer to opportunities where one assumes a pre-defined goal, takes action, and makes decisions that move toward the goal. Effectuation processes start with a given set of means, and the individual focuses on selecting from possible effects that can be created with the given set of means (Sarasvathy, 2001).

Cognitive flexibility as described above has been a staple in entrepreneurship research and teaching, and it has been linked to EL (Greenberg et al., 2011). These prior treatments served as metaphors describing cognitive phenomena that at the time were not explainable as clearly and accurately as they are today, given our enhanced understanding from neuroscience. They do not adequately consider our recent understanding of neural networks in the brain. We believe all three psychophysiological influences add insight to the three mindset perspectives addressed by Kuratko and colleagues (2021). We believe the cognitive perspective should include a view of cognitive flexibility that accounts for the anti-correlated, analytical, and empathetic cognitive networks.

In the literature, cognitive flexibility is considered "one component of executive functioning that refers to the ability to freely shift cognitive sets to perceive or respond to situations in different ways, such as by generating multiple ideas, switching between different classes of knowledge, and inhibiting habitual responses in favor of alternative responses when required by changing environmental circumstances" (Johnco et al., 2014, p. 1381).

Our contribution here is to expand beyond cognitive flexibility, regarding use of the analytical network on which many EL conceptualizations and studies rely (Johnco et al., 2014). With our model of EL, relationships matter. For this reason, cognitive flexibility for EL is not merely being flexible between analytical states but rather being flexible between the anti-correlated states of empathetic and analytical cognitive networks. We believe entrepreneurial leaders move quickly and efficiently between these antagonistic, cognitive, neural networks because an entrepreneurial leader must attend to the person and the problem (e.g., being open and receptive to others and new ideas versus focusing on problem solving and controlling one's environment). As our model proposes, entrepreneurial leader ESC will influence the leader's entrepreneurial mindset and vice versa, as the emotional and hormonal states that impact ESC play a significant role. Efficient movement between the analytical and empathetic cognitive networks enables an entrepreneurial mindset to move from problem solving and focusing attention to thinking of others, inspiring them and demonstrating empathy, and vice-versa.

Proposition 2: Entrepreneurial leader cognitive flexibility increases when a leader can efficiently move between empathetic and analytical cognitive networks.

Proposition 3: There is a positive, reciprocal relationship between entrepreneurial leader emotional and social competence and the leader's entrepreneurial mindset.

Self-determination theory (SDT)

We draw upon self-determination theory (SDT) for our conceptual model because SDT explains the genesis and core tenants of human motivation (Deci & Ryan, 2002a; Ryan & Deci, 2017). We propose that intrinsic motivation is fundamental to unleashing the highest level of follower desire and capability to recognize and pursue entrepreneurial activity. Ryan and Deci (2002, p. 3) note that SDT explains an individual's desire to exercise and develop their pursuits, challenge themselves to expand and learn, find new perspectives, and actively transform culture practices. SDT speaks to people actualizing their human potential. We believe this actualization is a catalyst for intrinsically motived entrepreneurial thought and behavior. We aim to explain how entrepreneurial leaders influence followers to unleash entrepreneurial potential.

SDT assumes that "From infancy on… people manifest intrinsic tendencies to take interest in, deeply learn about, and gain mastery with respect to both their inner and outer world" (Ryan & Deci, 2017, p. 4). There is within each person a desire to improve self and better one's environment. "SDT posits that inherent in such pursuits are satisfactions in feeling, competence, autonomy, and relatedness. These proximal satisfactions reflect, in the deepest sense, the essence of human thriving…Moreover, SDT research found that in social contexts where there is psychological support for these satisfactions, people's *curiosity*, *creativity*, *productivity*, *and compassion* are most robustly expressed" (Ryan & Deci, 2017, p.4, italics ours).

SDT contends that intrinsic motivation is contingent on the satisfaction of three human needs: autonomy, competence, and relatedness. These "basic needs are universal—that is, they represent innate requirements rather than acquired motives. As such, they are expected to be evident in all cultures and in all developmental periods" (Deci & Ryan, 2002b, p. 7).

Autonomy represents an individual's need to regulate self and stay aligned with one's own authentic interest and values. Autonomy carries a feeling of "voluntariness" wherein the individual feels free to act on their interests.

Competence speaks to one's effectiveness in developing and sharing one's own capacities and talents. With SDT, competence is not attained skill, but rather a sense of confidence with one's own action. For people to feel motivated intrinsically, they need to feel they are effective in demonstrating their skills, knowledge, and abilities. With SDT, competence can come by mastering a task or skill and from feeling one is making a meaningful contribution.

Relatedness is concerned with a person feeling socially connected and being included and cared for by others. Ryan and Deci (2017) explain that it is also about a sense of belonging and being significant among others.

SDT has added much to our understanding of intrinsic motivation (i.e., self-regulated, inner motivation) and extrinsic motivation (i.e., externally imposed reward or punishment). Taylor et al. (2019) note that "When intrinsically motivated, individuals find value and satisfaction in the activity itself, as opposed to some promised outcome… [On the other hand,] extrinsic motivation varies in the level to which the motivational source is related to the self. The most autonomous form of extrinsic motivation, integrated extrinsic motivation, occurs when an individual genuinely

identifies with the external regulations and incorporates them into one's sense of self" (p. 2). Under such conditions, integrated extrinsic motivation mimics many aspects of intrinsic motivation because the person has become "wholeheartedly engaged and purposive with respect to the target activities" (Deci et al., 2017, p. 22).

Intrinsic motivation and integrated extrinsic motivation are inextricably tied to follower curiosity, creativity, and productivity (Gagné & Deci, 2005; Ryan & Deci, 2017). Gagné and Deci report that when individuals are intrinsically motivated, behaviors and outcomes occur that we believe link positively to the leader-follower relationship of EL, including: maintained behavioral change, cognitive flexibility, effective creative performance, job satisfaction, positive work attitudes, increased organizational citizenship behaviors, and overall well-being (2005, p.337). As noted, intrinsic motivation is intimately related to performance on tasks requiring creativity and cognitive flexibility. As we will discuss later, these two outcomes are vital to recognizing and pursuing entrepreneurial opportunities.

SDT and entrepreneurship

Scholars have explored the relationship between individual motivation and entrepreneurship, entrepreneurial behavior, and entrepreneurial intention (Fini et al., 2012; Kamil & Nasurdin, 2015; Shepherd & Patzelt, 2017). On the other hand, research exploring the relationship between SDT and entrepreneurship and entrepreneurial behavior is still in the early stages. These initial findings have shown a significant connection between SDT and entrepreneurial behavior, motivation, and intention (Al-Jubari et al., 2019; Chen et al., 2020; Lu et al., 2023; Shir et al., 2019). For instance, psychological autonomy was found to mediate the relationship between active engagement in entrepreneurial behavior and well-being partially through its effect on psychological competence and relatedness (Shir et al., 2019). Further, Chen et al. (2020) found a relationship between entrepreneurial motivation (via the three SDT innate needs) and the entrepreneurial opportunity-seeking process. Most recently, need fulfillment was shown to be a predictor of entrepreneurial intention (Lu et al., 2023). These findings highlight that SDT can be a valuable theory for understanding the psychological underpinnings of entrepreneurial motivation and behavior.

SDT and leader ESC

With social competence, an entrepreneurial leader recognizes the importance of enabling follower autonomy. An entrepreneurial leader understands that followers need the opportunity to act as opposed to being acted upon by the leader. Satisfying the follower need for autonomy enables a follower to experiment with and practice new ideas, behaviors, and solutions. Shutting down follower autonomy not only restrains follower intrinsic motivation to act but also closes innovativeness, risk-taking, and proactiveness, which represent core capabilities of entrepreneurial orientation (Corbett et al., 2021; Covin & Slevin, 1991).

With social competence, an entrepreneurial leader recognizes the importance of enabling follower relatedness. An entrepreneurial leader understands that the degree

of relatedness shared with followers influences follower motivation (Deci et al., 2017; Gagné & Deci, 2005). Efforts by the entrepreneurial leader to establish follower relatedness will set norms that model how followers can do the same with one another.

Finally, an entrepreneurial leader with social competence recognizes the importance of enabling follower competence. Entrepreneurial leaders have the ability to influence how followers feel about their capability, which in turn affects follower intrinsic motivation and subsequent performance (Fransen et al., 2018).

Leaders enabled by psychophysiological (emotional, cognitive, and hormonal) functions, demonstrate ESC. This competence enables entrepreneurial leaders to satisfy the three human needs of autonomy, relatedness, and competence for their followers.

Proposition 4: Entrepreneurial leader emotional and social competence will positively influence follower need satisfaction.

Follower need satisfaction and motivation to act entrepreneurially

SDT research (Deci & Ryan, 2002a; Ryan & Deci, 2017) has repeatedly shown that when individuals experience need satisfaction (autonomy, relatedness and competence), they experience intrinsic motivation. As discussed earlier, an entrepreneurial leader can fulfill follower needs by advancing a positive emotional tone. Positive emotions support empathetic network activation and parasympathetic nervous system arousal. When these psychophysiological functions occur, they engage the whole person in a creative, resilient, and outward-focused drive (Ryan & Deci, 2017). A follower in this state of readiness (emotional, cognitive, and hormonal) is self-directed and self-motivated to act.

As our conceptual model (Fig. 1) depicts and as SDT supports, the outcome of need fulfillment will be follower intrinsic motivation to act. For this state to lead to entrepreneurial action, a follower must find the entrepreneurial activity intrinsically desirable. An entrepreneurial leader who demonstrates ESC can foster need fulfillment and spur behavior motivation toward entrepreneurial action by the follower. The leader's entrepreneurial mindset will moderate and influence the relationship between follower need satisfaction and follower intrinsic motivation to act entrepreneurially As depicted in our model, we assume that followers are in a context that supports them and the leader to act entrepreneurially. The desire to do so is enabled and enriched by (1) having the three SDT needs met, which catalyzes the intrinsic motivation to act, and (2) an entrepreneurial leader who models an entrepreneurial mindset for the follower. When need satisfaction supports and relates to an entrepreneurial leader's effort to motivate followers to act entrepreneurially (i.e., followers anticipate value and satisfaction to think or act entrepreneurially), followers will be motivated to think and/or act entrepreneurially. Followers will be open to noticing new ideas and opportunities which precede their entrepreneurial behavior.

Proposition 5: When a follower experiences an entrepreneurial activity as intrinsically important, the follower will have intrinsic motivation to act entrepreneurially.

An entrepreneurial leader's ESC can influence follower motivation, but it is only a high level of motivation if the entrepreneurial leader has an entrepreneurial mindset. An entrepreneurial leader might influence followers to act entrepreneurially without an entrepreneurial mindset, but it is likely not entrepreneurially focused motivation or at a high level. Conversely, an entrepreneurial leader might have an entrepreneurial mindset; however, without demonstrating ESC, the leader will only achieve short-term follower motivation, likely extrinsic (e.g., based on a desire to comply or please, or on fear or uncertainty) rather than intrinsic. Finally, without an entrepreneurial mindset or demonstrating ESC, there is little chance of follower motivation to act entrepreneurially.

Proposition 6: Follower need satisfaction will positively influence follower motivation to act entrepreneurially when positively moderated by an entrepreneurial leader's entrepreneurial mindset.

Follower entrepreneurial mindset

SDT research has shown that when individuals are intrinsically motivated, they are more effective at tasks requiring cognitive flexibility and creativity (Gagné & Deci, 2005, p. 337). The same three psychophysiological states operate with followers as they do with the entrepreneurial leader. For example, we believe follower cognitive flexibility is fundamental to follower entrepreneurial mindset. Therefore, we define follower entrepreneurial mindset as we defined leader entrepreneurial mindset to include emotional, cognitive and hormonal domains that drive entrepreneurial behavior. We explore one of these three by looking at follower cognitive flexibility related to analytical and empathetic network activation.

Follower cognitive flexibility

Given that prior SDT research shows a relationship between intrinsic motivation and cognitive flexibility (Gagné & Deci, 2005), we believe that once followers are motivated to act entrepreneurially, positive motivation combines with the prior modeling and influence of the entrepreneurial leader's mindset to foster a follower's entrepreneurial mindset. Followers are able to move efficiently between empathetic and analytical cognitive states because they feel autonomous, competent and supported. This creates an "ambidextrous" competence in moving between cognitive states (Lynch & Corbett, 2023). Need satisfaction elicits positive emotion that correlates with intrinsic motivation. Because of their intrinsic motivation, followers' level of cognitive flexibility will be higher than if they were not intrinsically motivated, facilitating their free movement in and out of cognitive functions.

Proposition 7: Follower motivation to act entrepreneurially will positively influence follower cognitive flexibility.

Collaborative action to recognize and pursue entrepreneurial opportunities

McMullen and Shepherd (2006) theorized entrepreneurial action is an outcome of cognitive and motivational processes that allow one to function in an environment of uncertainty. Our conceptual model follows this perspective but details the antecedent role that cognitive, emotional, hormonal, relational, and motivational mechanisms can play toward collaborative action to recognize and pursue entrepreneurial opportunities in ambiguous and uncertain space.

Collaborative action may appear in many forms (e.g., increased ideation, entrepreneurial intention, problem-solving, entrepreneurial behavior, venture creation). We purposely do not limit these outcomes to venture creation. We need entrepreneurial leaders who can foster venture creation but who also can enable responses to organizational challenges and complex, unresolved, societal problems.

Therefore, we operationalize this outcome as leader *and* follower (1) innovativeness, (2) risk-taking, and (3) proactiveness (Covin & Slevin, 1991; Kuratko, 2007). Covin and Slevin (1991) refer to these as the "three dimensions of entrepreneurship" (see also Kuratko, 2007). Our collaborative outcome is focused on the innovative, risk-taking, and proactive entrepreneurial *behavior* the leader and followers take, rather than simply their *intention* to do so.

Bolton and Lane (2012, p. 229) describe risk-taking as being willing "to take bold action by venturing into the unknown" and to "act boldly in situation where risk is involved." They describe innovativeness as trying "new and unusual activities that are not typical" and preferring to take unique approaches. Finally, they refer to proactiveness as acting "in anticipation of future problems, needs, or changes" and "planning ahead on projects" with eagerness for action.

Our conceptual model assumes that recognizing and pursuing entrepreneurial opportunity is a unifying, collaborative effort between entrepreneurial leader and followers; it is collective action. This collaborative effort is enabled by the contagious nature of empathetic cognition, positive emotion, and parasympathetic nervous system arousal, what Boyatzis (2024) calls a "positive emotional attractor" state. These enable and sustain a shared, collaborative experience between entrepreneurial leader and follower.

This collaboration requires intrinsic motivation from followers and continues to keep the leader integrated with the EL process (feeding the leader's ESC and entrepreneurial mindset). Evidence shows that a personal network of strong ties promotes entrepreneurial behavior (Sequeira et al., 2007). Research has shown that high levels of team connectivity (team openness and generativity) lead to more innovative behavior (Friedman & Carmeli, 2018).

For these reasons, we propose that follower entrepreneurial mindset will positively affect follower innovativeness, risk-taking, and proactiveness. A key to demonstrating behavior to pursue entrepreneurial opportunity is whether followers are receptive to others' ideas and willing to share their own ideas with others, so that the best entrepreneurial thinking emerges, then be willing to take risks and pursue challenges. Our model proposes that entrepreneurial leaders facilitate this capability with followers; they foster a climate that encourages followers, supports sharing, and enables cognitive flexibility.

Research has established a relationship between cognitive flexibility and entrepreneurial action related to risky or emotional decisions (Lawrence et al., 2008). Some have argued that an entrepreneurial mindset drives entrepreneurial opportunity (Kuratko et al., 2021; McGrath & MacMillan, 2000) by unlocking "the entrepreneur's power within" (Caputo et al., 2025, p. 22). In the language of our model, this occurs because an entrepreneurial leader invokes follower openness to new ideas and opportunities through positive emotional contagion, empathetic cognition, and parasympathetic nervous system arousal rather than via rational planning. This approach inspires a shared collaborative effort, a shared vision and purpose, that captures the hearts and minds of followers.

Therefore, we propose:

Proposition 8: Follower entrepreneurial mindset will positively influence follower and leader collaborative action to recognize and pursue entrepreneurial opportunities.

Entrepreneurial context

Context has an impact on entrepreneurial activity (Ahmed et al., 2025; Kang et al., 2015; Tetteh et al., 2024; Wynn & Jones, 2019). Figure 1 positions entrepreneurial context as a contingency to our model. We assume that to recognize and pursue entrepreneurial opportunity, an entrepreneurial leader and their followers must be supported by organizational culture, reward and support systems, senior leader support, or other contextual elements that enable pursuit of opportunities (O'Connor et al., 2018). It is not the scope of this paper to detail such a context. We note that when an organizational context fosters ESC among employees and works to create an environment that values and enables empathetic cognition, EL would likely emerge.

Discussion

We comment below on our theorizing and describe what our definition and conceptual model of EL mean for the future of EL research and practice. We first examine the need to develop follower motivation. We then explicate what we see as the unique domain of EL and its relevance over time. We conclude by highlighting implications of our work for research and practice.

Follower integrated extrinsic motivation to act entrepreneurially

We accept that despite an entrepreneurial leader's entrepreneurial mindset and efforts to satisfy the three SDT needs, the outcome may not always result in follower intrinsic motivation. Our model must account for times when limited need satisfaction results in extrinsic motivation. This could be because, in spite of a positive relationship with the leader, the anticipated entrepreneurial activity itself is not perceived as fulfilling. Thus, followers may choose to support the entrepreneurial leader for extrinsic reasons (e.g., compliance, deference to the leader, or promise of some external reward like a promotion). In such a case, the entrepreneurial leader would need to reassess

the degree of follower need fulfillment. Even then, the follower may not internalize the experience to the point of intrinsic motivation, but the entrepreneurial activity could become instrumentally important to the follower. This internalization is not intrinsic but becomes an autonomous form thereof called *integrated extrinsic motivation*. This form of motivation is "characterized not by the person being interested in the activity but rather by the activity being instrumentally important for the personal goals" of the follower (Gagné & Deci, 2005, p. 335). Thus, the follower views the entrepreneurial efforts of the leader as foundational to achieving the follower's personal goals or aspirations. SDT would argue that like intrinsic motivation, integrated extrinsic motivation, produces outcomes similar to those of intrinsic motivation.

SDT refers to the process of taking external values, beliefs, and activities and making them one's own (Ryan & Deci, 2017, p. 182). "SDT proposes that extrinsic motivation may be more or less *internalized* to or congruent with one's self, so the degree of internalization reflects the degree to which the behavioral regulation is relatively autonomous versus controlled" (Ryan & Deci, 2017, p. 14). The more an external influence becomes internalized and feels autonomous, the more it moves from being purely external to "introjected" which is experienced as "internally controlling" (p. 15). When this is the case, the resulting behaviors are unlike those from extrinsic motivation. If the follower's identification with the activity becomes even more autonomous, it can become "*integrated* with one's other values and beliefs" (p. 15), which results in performance and persistence that are higher than if experienced as controlled. "The more autonomous the motivational form generally the more the individual has access to organismic supports for acting, which in part explains the energetic, affective, and cognitive advantages of autonomy as a characteristic of action" (p. 15).

A fundamental responsibility of an entrepreneurial leader is to help followers make thinking and acting entrepreneurially an internalized experience. Doing so is directly contingent on the entrepreneurial leader's ability to model an entrepreneurial mindset and fulfill the three needs that facilitate follower internalization. Meeting these needs depends on the entrepreneurial leader's ESC, belief that followers can adapt and change (internalize), and their own level of self-determination (and subsequent intrinsic motivation).

An entrepreneurial leader ensures that the follower's intrinsic motivation is inclined toward entrepreneurial behavior and that the extrinsic environment fosters and drives entrepreneurial behavior. Both are part of an entrepreneurial mindset that moderates followers' intrinsic and extrinsic motivation toward entrepreneurial behavior.

The unique domain of EL

There is ongoing debate whether EL is meaningfully distinct from traditional leadership (Leitch & Harrison, 2018b; Harrison et al., 2019). Is it simply another leadership style like transformational leadership, operating in an entrepreneurial setting (Ma & Jiang, 2018)? Previously, scholars have suggested that EL is likely distinct and operates differently from other forms of leadership (Cai et al., 2019; Newman et al., 2018). In fact, one set of authors opined that a key difference between EL and other leadership styles is that a leader is someone who "is entrusted with the tasks that

are performed in a defined context. Whereas an entrepreneurial leader undertakes an emergent task that is not carefully planned and unveils a new transaction, that is not previously visualized" (Hussain et al., 2024, p. 7480.).

We offer three seminal sources that have claimed EL and traditional leadership are not the same constructs. First, Gupta et al. (2004) argued that EL includes characteristics (e.g., autonomy, adaptability) essential to overcoming the constraints of traditional leadership. Traditional leadership establishes hierarchy and structure, often at the sacrifice of adaptability, creativity, and innovation within organizations. This supports our theorizing and notion that entrepreneurial leaders do not seek conformity but instead envision structure and hierarchy as malleable and subject to questioning, innovation, creativity, and change.

Second, Kuratko (2007) described EL as being inherently counterintuitive to traditional leadership because it prioritizes innovativeness, risk-taking, and proactiveness (p. 4), whereas traditional leadership models focus on stability and efficiency. This research underpins our call for an entrepreneurial mindset to be developed and be given the autonomy to pursue collective action that may be outside the norms of the organization.

Third, Leitch et al. (2013) contend that "entrepreneurial leadership is a social process and…in the practice of relational learning" (p. 361). We build from their work and show that social, human and institutional capital can be used to question and redesign organizational norms and structures. They contend that this type of leadership (in contrast to traditional models of leadership) enables innovation and transformation in ways that traditional leadership does not.

Together these three works support the thesis and offer evidence that EL is characterized by a propensity to question unyielding structures, allow for non-conformity, and catalyze greater flexibility and innovation in organizations.

On the other hand, these three previous arguments do not go far enough. We now extend the contention that EL is distinct from traditional leadership by highlighting the importance of the *emotional* and *social* relational dimension of EL.

First, the entrepreneurial leader demonstrates a different set of competencies and a mindset to develop a relationship with followers that activates followers' intrinsic motives. It starts with an entrepreneurial leader creating a relationship through their ESC *and* their entrepreneurial mindset and drawing on those relational dimensions to encourage entrepreneurial activity. What enables an entrepreneurially driven leader to become an effective entrepreneurial leader are their emotional and social intelligence competencies that foster and sustain resonant relationships with followers.

Second, the entrepreneurial leader focuses on and motivates followers' entrepreneurial behavior. An entrepreneurial leader builds relationships that inspire followers to innovate and enact *non-normative* behavior. The entrepreneurial leader champions and supports independent if not counter-dependent action in followers. This is the opposite of what traditional leaders in most organizations, public or private, are motivated to do. The latter strive for coordinated activity. EL relationships are different from the traditional leader-follower relationships in that they seek *less* conformity, *less* adherence to existing norms, and *less* consistency with existing cultural norms. EL embraces a degree of uncertainty not characteristic of or essential to traditional leadership.

Third, the shared motivation between the entrepreneurial leader and follower replaces the (often exclusive) focus on goal achievement in the traditional leader-follower relationship. The shared vision and purpose between the entrepreneurial leader and follower enable followers to feel supported in *entrepreneurial behavior* (e.g., innovativeness, risk-taking, and proactiveness) and not overly focused on pre-planned organizational norms and goals. Shared compassion enables followers to feel safe and willing to take risks (i.e., innovate). Shared motivation enables action. These factors are all driven by the nature of the relationship between the entrepreneurial leader and follower. Thus, our conceptual model explicates how the entrepreneurial leader enables collective action motivating followers to discover, recognize, and pursue entrepreneurial opportunities.

In summary, and to be clear, we are not saying that entrepreneurial leaders do not have to concern themselves with norms that support structure. Instead, we are highlighting that to find and execute new entrepreneurial opportunities, the entrepreneurial leader needs to develop relationships with followers that go beyond traditional leadership. However, it is more nuanced and counter-intuitive than this alone. Barnard (1968) said the purpose of an organization was to foster conformity to produce predictable results. In today's world, an entrepreneurial leader does the opposite.

What is EL relevant for and for how long?

Unfortunately, many successful entrepreneurs stumble and fail once their venture succeeds and grows to more than a few hundred people (McClelland & Boyatzis, 1982). They exceed their level of competence in the leadership domain. In fact, prior work has shown that the entrepreneurial mindset in a person can be detrimental to effective leader behavior (McClelland & Boyatzis, 1982). In contrast, Kendall (2021) found that technology executives demonstrating high levels of ESC mediated their ability to form relationships with followers, resulting in more product and process exploration and exploitation. Our model suggests that even with venture creation, there is a path for EL to avoid leader ineffectiveness. This is because our model of EL is rooted in emotional and relational effectiveness that builds strong leader-follower bonds. These relationships go beyond goals and one-time venture creation and thereby drive lasting collective action.

When does EL end? A reader might assume that the role of EL is only to support and enable followers working collaboratively to recognize and pursue entrepreneurial opportunity. Such an assumption would undermine other functional roles that entrepreneurial leaders may be required to play in an organization, roles that may change throughout the lifecycle of an entrepreneurial activity. Some assume that EL is needed mainly to launch a new venture or entrepreneurial activity, but that it is not a form of leadership needed beyond early stages of development. For example, Pollack et al. (2020, p. 922) claim, "As ventures grow and become more stable, entrepreneurial leadership is likely to be increasingly replaced by organizational leadership." We believe our conceptual model of EL is as relevant to a startup as it is to a well-established corporate setting. In short, our conceptual model seeks to present key elements that are essential to any EL role a leader might assume.

We suggest that all entrepreneurial leaders are leaders, but not all leaders are entrepreneurial leaders. In what roles or how long EL should last is not contingent upon the role or the age or stage of the venture, project, product, or idea. We do not see EL constrained to being necessary only in a startup. EL is about leading followers in a manner that generates the recognition and pursuit of entrepreneurial opportunity of any kind in any role an entrepreneurial leader may pursue. One might ask at what point is having entrepreneurial thinking and action no longer relevant, whether at the individual, team, or organizational level. In our discussion with senior leaders in all types of organizations and industries in all ages and stages, we hear a clarion call for more employees to think and act entrepreneurially, not less. One Fortune 500 CEO countered our question about when EL is no longer necessary by asking, "At what point is it okay for the human body to stop breathing? That is when it is okay for EL to end in our organization."

Implications for research

The propositions offered in this paper collectively serve as an agenda for future research. We believe these propositions are essential for future EL research to address the noticeable gap between current definitions of EL and follower outcomes. Our propositions state what we believe exists as the independent variable and the dependent variable of leader-follower entrepreneurial action. Ongoing research needs to account for the interaction among cognitive, emotional, and hormonal functions and how these psychophysiological functions affect ESC, follower creativity, and followership. Some of our propositions (e.g., propositions 2 and 3) will require further fMRI work to test the proposed positive relationship between entrepreneurial leader ESC and efficient movement between empathetic versus analytical network activation, and to test our proposition that entrepreneurial leader cognitive flexibility is increased when the leader can efficiently move between empathetic and analytical cognitive networks.

We believe an additional, critical next step is for researchers to develop a valid, reliable measure of EL that takes into account the relational and emotional principles put forth in our model. Once a new measure of EL is established, we recommend scholars conduct studies to establish the discriminate validity of this conceptualization of EL against other leadership constructs, such as authentic leadership, servant leadership, transformational leadership, and the like. Once validated, such an EL measure will aid in assessing individuals in positions of authority, entrepreneurs, and students desiring to develop EL.

We believe there are many extant scales available that can be refined and/or enhanced to accelerate the development of a new EL scale. Leader ESC can be measured using multi-rater instruments such as the Emotional and Social Competence Inventory (ESCI) (Boyatzis & Gaskin, 2010). Traditional measures of cognitive flexibility exist to assess leaders and followers. These include the Cognitive Flexibility Inventory (CFI, Dennis & Wal, 2010) or the Cognitive Flexibility Scale (CFS, Martin & Rubin, 1995). Johnco et al. (2014) reviewed and tested these two self-report measures of cognitive flexibility. Leader Entrepreneurial Mindset can be assessed by using the Entrepreneurial Mindset Profile (EMP, Davis et al., 2016). We would cau-

tion that any new scale should capture effectively how we have defined leader and follower entrepreneurial mindset in this model.

We suggest that the Motivation at Work Scale (Gagné et al., 2010) or the Work Climate Survey (WCS, Deci et al., 1989) may be useful to assess the intrinsic motivation of entrepreneurial leaders and followers. The three needs (autonomy, competence, and relatedness) can be measured by the Work-Related Basic Need Satisfaction Scale (Van den Broeck et al., 2016) or the Need Satisfaction Scale (Ilardi et al., 1993). These measures may be adapted to assess both followers and entrepreneurial leaders (via self-assessment or followers assessing the entrepreneurial leader).

Our outcome variable (i.e., collaborative action to recognize and pursue entrepreneurial opportunities), which we operationalize as proactive, risk-taking, and innovative behavior, has several possible measures. Bolton and Lane (2012) have a measure that assesses the three dimensions and the individual level. Likewise, Gorostiaga et al. (2019) developed a scale that includes innovativeness, risk-taking, and proactiveness. A common measure for risk-taking behavior is the Risk Propensity Scale (Meertens & Lion, 2008; for a general risk propensity scale, Zhang et al., 2019). Lumpkin and Dess (1996) have a measure that includes all three dimensions of proactiveness, risk-taking, and innovativeness.

Last, our model presumes followers have an interest in acting entrepreneurially. This level of interest would certainly be a variable to assess.

Future research on the relational science of EL

The above implications for research primarily focus on our conceptual model at the individual level, measuring the leader and the follower at the individual level. Yet, we have treated EL as a *relational* leadership construct. Much of psychological and leadership research has focused on measurement that assesses the individual rather than the relational (Berscheid, 1999; Jordan, 1986, 1991). Jordan (1991, p. 81) observed, "Most [psychological or clinical] theories…reserve the relational emphasis for the earliest years of life…and view autonomy, separation, and independence as hallmarks of maturity. The individual is…studied as a self-contained being; internalization of structure, which renders the individual more independent, is seen as the desired endpoint of development." Jordan (1986, p. 1) argues rather than studying development "as movement away from and out of relationship" there is a need to look at development as a "growth through and toward relationship." We contend the same is true to our approach to EL. Rather than seeing EL as a movement way from and out of relationship (as so often has been the past treatment of leadership research and even entrepreneurship in general), there is a need to look at EL as a phenomenon moving toward relationship.

Our model seeks to unite several disciplines. Future studies can do the same in using methods that study the *relational* aspects of EL. Therefore, we advocate for future research that does not just study the entrepreneurial leader and the follower separately as individuals, but also studies their interactions with each other. As Berscheid (1999, p. 261) observed, "…the tissue of a relationship, and the object of study, is the oscillating rhythm of influence observed in the interactions of two people." Studying EL from a relational perspective will require observing the nuances of that

relationship over time (e.g., longitudinal studies) because "a relationship is invisible; its existence can be discerned only by observing its effects" (Berscheid, 1999, p. 261).

This will require different methodological and analytical techniques. For example, one approach might look at how much of the impact of leader and follower risk-taking, innovativeness, and proactiveness the leader and followers attribute to themselves, the other, or their relationship. Our model suggests that leader and follower will ascribe more of their recognizing and pursuing entrepreneurial activity to the relationship than to the individual; success will be attributed more to aspects of the relationship than the stated goals or individual achievement. In addition, the positive psychophysiological functions (empathetic cognition, positive emotion, parasympathetic nervous system arousal) are relational connectors. Scholars might study the level of those factors present in the team to gain insight into the nature of the relationship between the entrepreneurial leader and followers and among the followers themselves.

As we noted earlier while discussing organizational context, the context in which the entrepreneurial leader and follower are embedded will impact the dynamics of our EL model. It will also impact the leader-follower relationship. Future studies should take the context into account by looking at the organizational climate in which the leader and followers reside, for example. As Berscheid observed, "To predict a relationship's future, we also have to predict the nature of the environments the relationship will inhabit as it moves through time' (1999, p. 265). Future studies should explore the characteristics of the contexts in which our conceptual model for EL is most operative.

Finally, future research should explore the inherent relational complexity within our conceptual EL model. We are not naive to this complexity; yet we do not see this complexity as a limitation but as a generative catalyst for new frontiers in EL research. Passarelli and Taylor (2025) make the argument that leaders must deal with paradoxical, even competing forces. In confronting and working with these forces, they argue leaders must learn to balance the competing, paradoxical forces to effectively navigate complexity of all kinds. For example, they discuss the paradoxical forces of empathetic cognition and analytical cognition. One is not good and the other bad. Both have their relational benefits and their liabilities, but they require dynamic balancing. We believe EL is fraught with such competing forces and the need to balance them. As possible frontiers for future research, we offer a few examples where dynamic balancing of paradoxical forces will be needed.[2]

First, future research should revisit propositions in this paper vis-à-vis our three outcomes variables of proactivity, risk-taking, and innovative behavior independently. Some of the relationships proposed in this paper may differentially affect the outcomes described and additional mechanisms might be at play. For example, it could be that autonomic nervous system arousal influences self-regulatory states (Higgins, 1997), which is more influential on leader or follower proactive risk-taking behavior than intrinsic motivation from fulfillment of SDT needs.

[2] We gratefully acknowledge these examples offered by one of our anonymous reviewers.

Higgins' theory (1997) discusses promotion versus prevention self-regulatory focus. A prevention focus leads a person to restrain oneself and demonstrate self-control or avoidance behavior. With a premotion focus, a person is excited about trying something new. The type of hormonal, cognitive, and emotional activation can trigger a promotion or a prevention focus (Boyatzis, 2024), with positive emotion, empathetic cognition, and parasympathetic nervous system arousal triggering a promotion focus, for example. It is possible, therefore that a strong prevention focus (activated by negative emotion, analytical cognition and sympathetic nervous system arousal) by an external factor (e.g., the organizational context) may work against the efforts of an entrepreneurial leader to satisfy SDT needs to enable follower intrinsic motivation. As Boyatzis observed, (2024, p. 67): "Self-regulating systems are inherently homeostatic. Over time, if the system is perfectly efficient, it will maintain itself. But humans are not efficient and are exposed to input from myriad others and events." These types of competing relational forces are worthy of further scholarly exploration, especially in considering how an entrepreneurial leader can learn to balance such paradoxical forces inherent in our treatment of EL.

Second, an anonymous reviewer asked: what if fulfillment of competence needs creates a false sense of confidence that leads to risk-taking with negative consequences? If this happens for the leader, there are likely ESC pathways to manage the learning process with followers. If it happens for the follower, what dynamics then ensue? We see this observation again as a wonderful area for future exploration with our model. We will opine here that given the relational nature of EL, an entrepreneurial leader high in ESC will help followers develop and demonstrate the same. We have known for some time that emotions of leaders can "transfer" to followers through emotional contagion, where followers unconsciously take on and demonstrate the leader's emotional expressions (Sy et al., 2005). This suggests that leaders high in ESC can foster a high ESC team environment. Further, recent empirical work has shown that coach leaders high in ESC engender ESC development in their followers (Boyatzis et al., 2024). We believe entrepreneurial leaders have the responsibility to monitor levels of follower risk taking behavior. How that is effectively done, how it is balanced, and how scholars measure it from a relational perspective are fertile areas for future research.

Implications for practice

Prior research shows that entrepreneurial ability can be developed (McClelland, 1985). Our model can serve as a guide for how managers, mentors, educators, and coaches can cultivate EL. Work undertaken to build the practice of EL should pay close attention (using the elements of our conceptual model of EL as a guide) to the *relationship* between leader and follower. Focusing on just the leader or just the follower (as so often occurs in leader training and development, for example) misses the imperative that EL is inherently tied to the nature of the entrepreneurial leader-follower relationship and the relationships among the followers themselves. For example, coaches, trainers, managers, etc. should not just talk to entrepreneurial leaders about what they are doing to satisfy follower SDT needs but also ask leaders

what they are noticing about their relationship(s) with followers when leaders do and do not successfully meet those needs.

Relatedly, our model also may guide those who want to understand the degree to which they are working effectively to satisfy fundamental needs in others, the needs that drive intrinsic motivation. For example, aspiring entrepreneurial leaders can ask themselves: (1) Are those I seek to lead experiencing greater or less autonomy because of my leadership? (2) Are those I seek to lead growing in competence or less so because of my leadership? (3) Are those I seek to lead experiencing a stronger relationship with me or less so because of my leadership?

Those interested in developing EL in themselves and/or others should start by developing their ESC, in particular self-awareness and empathy. Next, it is essential for employees and students to understand the principles of SDT, including the differences between intrinsic and extrinsic motivation and the implications of both on the ability to be creative and receptive to others. Likewise, students and employees need to understand the implications of negative versus positive emotion, parasympathetic versus sympathetic nervous system arousal, and the antagonistic relationship between analytical cognition versus empathetic cognition. With the understanding of these important psychophysiological functions, employees and students can strengthen their ability to work with others in collaborative action to recognize and pursue entrepreneurial opportunities.

We believe individuals can develop EL. One can develop self-determination, cognitive flexibility, ESC, creativity, and an entrepreneurial mindset. We also believe that measures of EL can be designed to aid consultants, management educators, and human resource professionals in assessing an individual's baseline EL capability. Likewise, through training and leadership coaching, they may learn to help clients, students, and leaders increase their EL ability.

Conclusion

Several emerging work trends support the need for entrepreneurial leaders as we have defined them. There is an increase in employee desire for high quality relationships at work, particularly in the form of developmental networks and meaningful ties (Murphy & Kram, 2014; Waters et al., 2021). Employees seek environments where their full array of talents, knowledge, and potential—what some have called their "whole self"—are welcome and valued in the workplace (Ferdman & Roberts, 2014). Science is contributing to enhanced understanding of, and workers are becoming more aware of, the importance of good relationships and their impact on longevity (Holt-Lunstad, 2021). We see a need for work environments that enable human flourishing and resilience, foster positive interpersonal processes, and support positive emotions, meaning, and enhanced character strength (Waters et al., 2021). To address the challenges of our day, we need leaders who seek followership that deviates from what has been the norm, acts with greater independence than formerly, and embraces a degree of uncertainty. We believe our model of EL will foster such followership. We invite scholars and practitioners to join us in advancing new frontiers for the research and practice of EL.

Declarations

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