



Transformational and entrepreneurial leadership: A review of distinction and overlap

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Abstract

Entrepreneurship represents a key motor of economic growth, and entrepreneurial leadership (EL) represents a vital constituent thereof. However, its examination remains factious, and integration with the wider leadership literature is fragmentary. EL is claimed by some as representing a construct distinct from extant leadership styles, even though the major contribution made by transformational leadership (TL) theory remains under-researched and under-reported. Furthermore, TL is often used to measure leaders in entrepreneurship, resulting in a lack of clarity regarding the relationship between TL and EL. Our study seeks to contribute to the literature by elucidating the distinction and overlap between the two leadership constructs, as currently defined by available questionnaires. To this end, conceptual work, current findings, and research practice are reviewed. Drawn from a final sample of 25 articles, our findings show appreciable conceptual divergence. However, questionnaires of EL overlap significantly with TL and are subject to validation and discriminant validity issues; many researchers furthermore continue to use TL questionnaires to measure EL. Very little compelling empirical evidence for divergent validity was found, though strong correlations between EL and TL were observed. Our study contributes an overview of EL from the viewpoint of leadership science, providing recommendations to entrepreneurship researchers examining EL. We suggest that future work should satisfy two main goals: the establishment of a conceptualization of EL which can empirically demonstrate divergent validity versus other, accepted measures of leadership, and the creation of a cogent and a specific theoretical model to support it.

Keywords Entrepreneurial · Transformational · Leadership · Systematic Literature Review

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1 Introduction

The study of entrepreneurial leadership (EL) examines those who set out to improve their circumstances by founding new enterprises (Hensellek et al. 2023), and by gathering around them a group of like-minded followers who join them in realizing their vision (Liu et al. 2022). EL today presents a disparate array of conceptual and practical approaches to those interested in pinning down its measurement (Clark et al. 2019). Research using the term includes anything from the procedural examination of leadership of entrepreneurial ventures (Freeman and Siegfried 2015), to strategic considerations of the value of entrepreneurially-minded management in extant enterprises and their corporate venturing (Karol 2015; Niemann et al. 2022), to the behavioral delineation of a unique leadership style that is unalienably entrepreneurial (Bagheri and Harrison 2020). However, mainstream leadership research diverges from employing these kinds of broad definitions (Reid et al. 2018). More concrete, quantifiable operationalizations of leadership styles, such as empowering leadership (Cheong et al. 2019) or transformational leadership (TL) (Bass and Avolio 1997) have long proven fruitful (Derue et al. 2011) and continue to be sought after (Hemshorn de Sanchez et al. 2022). While some conceptual work on EL acknowledges this kind of convention (Leitch and Volery 2017), it rapidly swells to encompass a blend of interpersonal and strategic components (Bagheri and Harrison 2020). However, the importance to EL scholarship of arriving at a serviceable, shared definition is clear, as many scholars seek to measure EL as a distinct, operationalized style (e.g. Niemann et al. 2022). As leaders, entrepreneurs are undoubtedly a key ingredient in determining the viability of their idea and the success of the venture it begets (Liu et al. 2022; Tarí et al. 2023); their ability to marshal the resources needed for success, both human and non-human, is essential (Brush et al. 2001). In short, EL represents the crux of successful entrepreneurship (Faridian 2023), so how is it best measured? Is EL capturable through mainstream conceptions, as some have suggested (Vecchio 2003), or does it require some unique, distinct construct? The examination of these questions has remained fragmented, and their answer has yet to be found (Clark et al. 2019; Clark and Harrison 2019). Calls to integrate EL more closely with the field of leadership are not new (Antonakis and Autio 2012), even though a paucity of comprehensive integration of a theoretical framework persists from within mainstream leadership science into EL, such as the Full-Range Leadership Theory (FRLT; see Bass 1985; Bass and Avolio 1997). Conceptually, both TL and its parent theory, the FRLT, formulate leadership styles as a composition of concrete, visible behaviors and saliently displayed attributes, together constituting “a process whereby an individual influences a group of individuals to achieve a common goal” (Northouse 2018, p. 43). Current measures of EL however do not fully conform to this theoretical framework (c.f. Bagheri and Harrison 2020; Renko et al. 2015), despite the three prominent operationalizations of EL drawing considerably on TL (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015). In fact, even a cursory examination of these measures reveals marked item overlap with questionnaires for TL, an issue which

authors in the field of EL have previously pointed to (Renko et al. 2015). This kind of admixture obstructs the establishment of a distinct, behaviorally proximal definition of EL.

This alone represents sufficient reason to consider an examination of TL and EL in concert. Aside from the overwhelming acceptance of TL in mainstream leadership literature (Deng et al. 2022), it continues to be used “routinely” in the examination of entrepreneurial leaders (Reid et al. 2018, p. 152). However, there are also conceptual differences which several authors have pointed to. The question of scope, of “leadership in” versus “leadership of” organizations, is crucial (Antonakis and Autio 2012). For example, some authors point to behaviors such as opportunity recognition (Renko 2017) or recruitment (Bagheri and Harrison 2020) which are not inherently connected to the leadership of employees, as representing the key differences between TL and EL. A further dimension is context; some acknowledge the behavioral similarities between the two forms of leadership behaviors, but then point to the position of the entrepreneurial leader within a firm that experiences evolving environmental contingencies as a key antecedent for their ability to motivate followers (Gupta et al. 2004). The genesis of leadership concepts is thought by some to represent another point of difference; TL, developed purely within leadership science, is deemed somehow limited in its applicability or dynamism (Cai et al. 2019, p. 212; see for comparison Deng et al. 2022; Gerards et al. 2021; Jensen et al. 2020), while EL is considered as representing a new construct suitable for capturing leadership in the current era of economic upheaval and opportunity (e.g. Mehmood et al. 2021a; Röschke 2018a). While the progenitors of novel constructs convincingly claim their distinctiveness, originality, and usefulness, this does not necessarily make them so (Shaffer et al. 2016); proof of their divergent validity, and thus their utility, may be delivered only through empirical examination. Moreover, locating and positioning an entrepreneurial style within the field of extant leadership styles has long been called for (see Antonakis and Autio 2012, p. 203) particularly in light of suggestions that there may be nothing unique about EL at all (e.g. Vecchio 2003). Some scholars even argue that the two fields of entrepreneurship and leadership are phenomenological derivatives of an underlying, deeper construct, namely EL (Becherer et al. 2008). Helpfully, several recent reviews have sought to bring clarity in one way or another (e.g. Clark et al. 2019; Faridian 2023; Harrison et al. 2018; Leitch and Harrison 2018a; Leitch and Harrison 2018b; Leitch and Volery 2017), even though these papers failed to substantively engage with the mainstream leadership discourse. A wide gap is also visible between these reviews, on the one hand, and review publications from within leadership science, on the other (e.g. Reid et al. 2018). Moreover, these EL-focused conceptual works refrained from engaging in an exhaustive examination of the overlap and differences between TL and EL, both comprehensively and at various levels of analysis, while combining the level of concept, measure, and findings. It is this contribution our paper seeks to provide.

In summary, the measurement of EL may be considered a key challenge facing entrepreneurship and leadership research; a distinct research gap exists around the current state of EL measurement, as well as its underlying theoretical conceptualization (Clark and Harrison 2019). It is also unclear whether current conceptualizations are inherently reliant on TL, or whether they present as sufficiently distinct to permit

the measurement of a unique construct. How does the theoretical work behind them support such a distinction; how do the commonly used questionnaires differ in content; and how do researchers in the field of EL view this distinction? In short, is it currently possible to measure EL without measuring TL? To provide an answer, three specific research questions (RQs) will be examined:

RQ1: What is the conceptual overlap between EL and TL?

RQ2: What is the overlap of content among the currently available operationalizations of EL and TL?

RQ3: How does empirical research in the measurement of leadership within the field of entrepreneurship research reflect this potential overlap?

The authors deem it essential to take this kind of holistic, multi-leveled view, and it is this gap that the present review seeks to close. Adhering to previous convention (Bichler et al. 2022; Kraus et al. 2020), we adopted a systematic literature review with content analysis as the method for shedding light on this fragmented field (Leitch and Volery 2017). In doing so, our paper offers three sets of results. With respect to RQ1, a marked lack of mutual interaction is found on the one hand between the main corpus of theoretical development in EL and, on the other, mainstream leadership research. This hampers attempts to embed EL within the wider leadership literature, particularly concerning its relationship with TL. Regarding RQ2, a deeper analysis of the three extant measures of EL found not only strong overlap with TL, but also profound issues in their conceptualization and validation, particularly with regard to their discriminant validity relating to other leadership styles. Finally, in answering RQ3, the review found no consensus on the use of EL questionnaires in the current literature; notably, it found TL-questionnaires to be widely used in the measurement of EL. It furthermore found conflicting statistical results indicating a clear lack of discriminant validity between measures of the two constructs.

2 Theoretical background

2.1 Transformational leadership

Current leadership literature has been described as vast (Klijn et al. 2022), vibrant (Gardner et al. 2020) and mature (Cogliser and Brigham 2004). The FRLT (Bass 1985; Burns 1978), often termed the Full-Range Leadership Model, has long represented the dominant paradigm within it (Gardner et al. 2020). Implicitly, the FRLT subscribes to a model of leadership based on the interaction between followers and leaders. This interaction constitutes an influence process, the agent of which is the leader, and the objective of which is the motivation of individual followers towards the achievement of a shared goal (Banks et al. 2022). In other words, such conceptions of leadership are considered as constituting “an interactional phenomenon that unfolds through discrete observable behaviors” (Hemshorn de Sanchez et al. 2022, p. 342). This perspective may broadly be conflated with what Antonakis and Autio (2012) termed “leadership in” organizations, as opposed to the more strategically

oriented “leadership of.” The conception of leadership as a granular, behavioral, interpersonal influence process forms the theoretical paradigm in which the present review remains grounded, especially since it informs most current, mainstream leadership research, including the FRLT (Yukl 2013).

TL is the most active and effective style of leadership posited in the FRLT (e.g. Żywiłek et al. 2022). Furthermore, and in contrast to the closely related, similarly effective, but poorly defined concept of charismatic leadership (Antonakis et al. 2016; House 1977), TL is clearly established to encompass four key dimensions based on Avolio (2010). First, idealized influence denotes a leader who is considered moral, trustworthy, and principled, and who displays a sense of purpose and power while reassuring, guiding, and ennobling their followers. Inspirational motivation, the second facet, is the evocation of motivation through the articulation of an engaging, challenging, compelling vision of a shared future. This goes hand in hand with intellectual stimulation, the third constituent, which is essentially the furtherance of the ability of both oneself and followers to consider problems in novel, unusual, and productive ways. Individual consideration finally encompasses a leader’s mandate to pay due attention to his or her followers, assisting in their development, listening, mentoring, and nurturing (Avolio 2010). Crucial here is the aspect of individuality, with due care being given to each and every follower as a unique individual whose needs diverge from those of others, and from those of the group at large. Taken together, proper practice of these dimensions has shown itself overwhelmingly effective (Wang et al. 2011). Aside from the transformational-transactional paradigm, numerous further approaches are currently trending, such as digital (Oberer and Erkollar 2018), empowering (Cheong et al. 2019) and servant leadership (Eva et al. 2019). Most, however, have long conceptualized leadership as an influence process largely aligned with the FRLT’s underlying paradigmatic perspective (Yukl 1989), and continue to do so (cf. Montano et al. 2023; Tari et al. 2023).

The importance of leadership to organizational outcomes can hardly be overstated (Banks et al. 2017), and TL in particular has repeatedly shown itself to be an eminently effective tool in a leader’s kit (e.g. Deng et al. 2022; Judge and Piccolo 2004; Lowe et al. 1996). Specifically, TL has been found to stimulate organizational citizenship behaviors (e.g. Khan and Khan 2022), performance (e.g. Prabhu and Srivastava 2023), attitudes, and employee satisfaction (Alwali and Alwali 2022) to name just a few. In particular, transformational leaders have been shown to facilitate not only followers’ performance, but also their creativity (e.g. Żywiłek et al. 2022) and innovation (e.g. Begum et al. 2022), two vital constituents “inseparable” from entrepreneurship (Gilad 1984, p. 151). These beneficial effects have been theoretically and empirically linked to each of the four facets of TL noted above. For example, inspirational motivation is considered as boosting followers’ intrinsic motivation, which in turn is crucial to creativity (Amabile 1996; de Jesus et al. 2013), while intellectual stimulation engages and promotes followers’ capacity for critical and exploratory thinking (Sosik et al. 1998), thereby boosting creativity and innovation (e.g. Thuan 2020; Yasin et al. 2014), which has been shown to mediate the positive effect of TL on firm performance (Overstreet et al. 2013). In addition to its widely accepted utility, there are further reasons for explicitly examining TL as it relates to EL. First, TL is the one mainstream style of leadership most routinely applied to entrepreneur-

ship (e.g. Fries et al. 2021; Luu 2023; Soomro and Shah 2022), having been used to predict entrepreneurial creativity (Gumusluoglu and Ilsev 2009) and performance (Harsanto and Roelfsema 2015), among other outcomes. Second, as their respective authors state, the three most eminent measures for EL currently available (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015) relied on TL to varying degrees during their conceptualization, in particular on the sub-facets of visionary leadership (inspirational motivation) and encouraging novel ways of thinking in followers (intellectual stimulation). These three eminent measures together represent the vast majority of citations for any measures of EL, and lie at the heart of much of the theoretical discourse on EL (see e.g. Clark et al. 2019; Leitch and Harrison 2018b). Third, other researchers continue to use TL, as defined in the Multifactor Leadership Questionnaire (Bass and Avolio 1997), to measure the leadership of entrepreneurs, in place of any of the three currently available EL questionnaires (see e.g. Bamiatzi et al. 2015; Ensley et al. 2006; Ng and Kee 2018; Verma and Kumar 2021). In addition, numerous studies have recently sought to replicate the results achieved with TL using novel conceptualizations of EL (e.g. Newman et al. 2018). Finally, a select few studies have actually quantitatively examined the two together (Cai et al. 2019; Lee et al. 2020; Newman et al. 2018); their contribution has yet to be considered within the larger picture. The interaction between EL and TL is therefore intensifying.

In summary, TL may be considered a staple of mainstream leadership science, with extensive evidence accrued in support of its predictive power and validity. It has been repeatedly used to measure EL, is considered by some to represent the leadership component of EL and is heavily represented in EL questionnaires.

2.2 Entrepreneurial leadership

Entrepreneurship is an important engine for both national and global economies (Carlsson et al. 2013; van Praag and Versloot 2007). Central issues in entrepreneurship research continue to include opportunity recognition, innovation, and risk-taking (Carlsson et al. 2013), mirroring classical lines of thought which conceptualized the entrepreneur as a risk-taker (Knight 1921), a creator (Schumpeter 1942), or an arbitrator of economic disequilibria (Kirzner 1973). All of these emphasize the person of the entrepreneur, who represents by definition a leader of sorts. Though more modern approaches, such as effectuation (Hubner et al. 2022), knowledge spillover (Iftikhar et al. 2022), or bricolage (Crupi et al. 2022), have sought more holistic and process-oriented frameworks for understanding entrepreneurship, this emphasis has remained central. For example, Sarasvathy argues that entrepreneurs are effectuators first, and that the charismatic or visionary leadership frequently attributed to them is often misperceived (2008, p. 235). In contrast, the bricolage approach seeks to take a firm-wide perspective, tackling the phenomenon of entrepreneurship through socio-economic analysis (Baker and Nelson 2005). A wide variety of approaches are now available which variously examine entrepreneurship as a mindset (e.g. Kuratko et al. 2021), a process (e.g. Hikkerova et al. 2016), or a collection of traits (e.g. Munir et al. 2019), although the general focus remains on the figure of the entrepreneur. Over the last two decades, however, the debate has widened in its appreciation of the scope and nature of entrepreneurship (Landström 2020), kicked off by a widely quoted

assertion by Shane and Venkataraman (2000, p. 218) that “the field involves the study of sources of opportunities, the process of discovery, evaluation, and exploitation of opportunities, and the set of individuals who discover, evaluate, and exploit them”.

As may be expected, such a wide field has given rise to an equally extensive range of appreciations of what EL may be understood to be. Even though the progenitor fields of entrepreneurship and leadership display certain similarities in their historical development (Harrison and Leitch 1994; Leitch and Volery 2017), the explicit, scientific examination of their intersection is a comparatively novel field of inquiry (Fernald et al. 2005), regardless of whether it is considered as starting with Lippitt (1987), or with Cogliser and Brigham (2004). Numerous definitions of EL have been proposed, some prominent examples of which are given in Table 1. Cunningham and Lischeron’s (1991) definition is foundational, and the aftereffects that were conjured by the breadth of its scope continue to be felt in the disparity of the field three decades later. Following this, Ireland et al. (2003) as well as Cogliser and Brigham (2004) are both often referenced. The former, with its emphasis on leading others to strategically manage resources, somewhat evokes the concept of empowering leadership (Cheong et al. 2019). In contrast, Cogliser and Brigham’s (2004) definition makes no real mention of leading followers, instead stating that resources must be marshaled, detailing how an entrepreneur must adapt leadership of their venture along with its growth;

Table 1 Definitions of EL - Adapted from Leitch and Volery (2017)

Source	Definition
Cunningham and Lischeron (1991)	EL involves setting clear goals, creating opportunities, empowering people, preserving organizational intimacy, and developing a human resource system.
Nicholson (1998)	Entrepreneurial leaders can differ from other leaders and nonleaders in specific respects including traits such as high risk-taking behavior, openness, need for achievement and low deliberation. EL is also about being resistant to the socialisation that shapes managerial personality and the willingness to escape management into leadership.
Ireland et al. (2003)	EL entails the ability to influence others to manage resources strategically in order to emphasize both opportunity-seeking and advantage-seeking behaviors.
Cogliser and Brigham (2004)	EL should involve idea generation, idea structuring and idea promotion, where idea generation is critical in the early stages of a venture and idea structuring and promotion in the latter stages. Therefore, an entrepreneurial leader does not only need to recognise opportunities, but he or she must also be able to marshal the resources necessary to reach the potential of that opportunity.
Gupta et al. (2004)	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.
Kuratko (2007)	EL is a unique concept combining the identification of opportunities, risk taking beyond security and being resolute enough to follow through.
Surie and Ashley (2008)	Leadership capable of sustaining innovation and adaptation in high velocity and uncertain environments.
Leitch et al. (2013)	EL is the leadership role performed in entrepreneurial ventures, rather than in the more general sense of an entrepreneurial style of leadership.
Renko et al. (2015)	EL entails influencing and directing the performance of group members toward the achievement of organizational goals that involve recognizing and exploiting entrepreneurial opportunities.

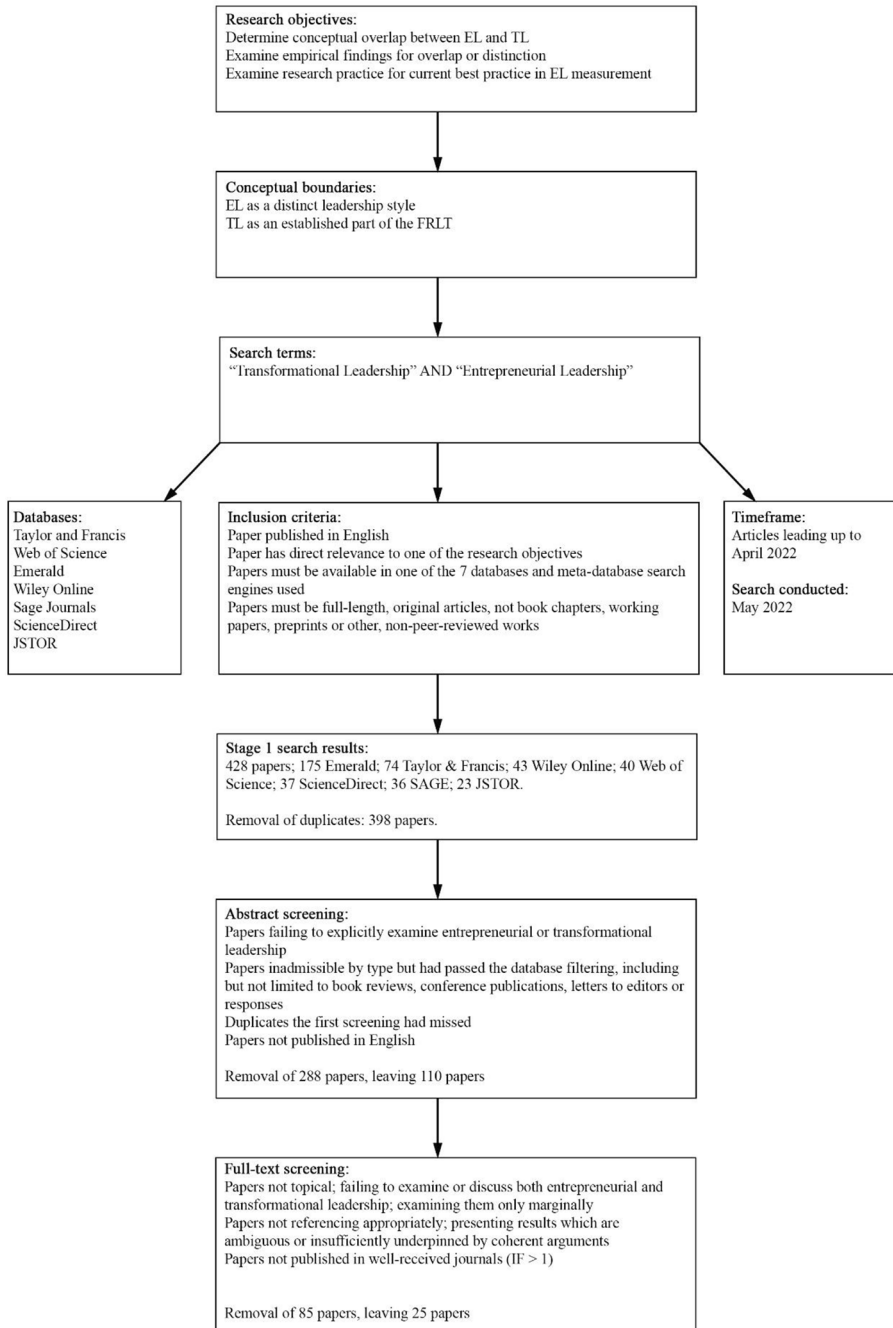


Fig. 1 Flowchart, showing the stages of the systematic literature review

this bears little resemblance to mainstream theories of leadership, and has yet to give rise to any instruments of measurement. Finally, the most influential definition has almost certainly been that of Gupta et al. (2004), which will be discussed in detail below. However, even at this early stage, it may be noted that their definition bears some resemblance to TL, with its emphasis on vision (Gupta et al. 2004). Though some still adhere to this conceptualization (e.g. Pu et al. 2022), most now engage with the definition of Renko et al. (2015), the use of which has been increasing in recent publications (e.g. Hoang et al. 2022; Lin and Yi 2022; Malibari and Bajaba 2022; Strobl et al. 2022).

An increasing body of work is seeking to pin down EL, with two clearly visible overarching perspectives emerging: leadership or entrepreneurship (Leitch and Harrison 2018a; Röschke 2018b). The latter generally conceptualizes EL as a mindset, with leadership subsumed into the overall application of entrepreneurship. This point of view is typified by Gupta et al. (2004) and Kuratko (2007), though some more recent work follows in the same vein (e.g. Lyons et al. 2020). Others take a slightly different tone, clearly stating that EL is not a “style” of leadership, but instead describes the leadership role performed in entrepreneurial ventures (Leitch and Volery 2017). This thread of research embraces the notion that, as such, leadership is not merely a subordinate component in a hierarchical topology that emanates from entrepreneurship, but that, indeed, entrepreneurship may be regarded as the essence of EL (Harrison et al. 2016). In contrast, the approach exists which defines EL from the standpoint of leadership science (Baumol 1968; Leitch and Volery 2017). The pinnacle of this viewpoint was seen with Vecchio (2003), who framed EL merely as leadership carried out within the narrow context of an entrepreneurial venture, and nothing more. Within this school of thought, a further division may be made between adherents to behavior (e.g. Bagheri and Harrison 2020; Hoang et al. 2022) or trait-based (e.g. Kuratko 2007; Nicholson 1998) theories. The latter is however criticized for its relatedness to now-outmoded trait-based theories in mainstream leadership science (e.g. Kempster and Cope 2010). Complicating the debate is the atheoretical and fragmented nature of the EL field (Leitch and Harrison 2018a), due in part to the various streams of inquiry from which the modern pool of research has long drawn its inspiration, including areas as diverse as education (Peck 1991; Raby et al. 2023), political (Schneider and Teske 1992; Vivona 2023), and community entrepreneurship (Dongul and Artantaş 2022; Selsky and Smith 1994). Some consider a kind of “cross-pollination” between entrepreneurship, leadership, and their area of focus to be increasing, with the flow becoming increasingly multi-directional (Leitch and Harrison 2018a), while others suggest that both the field of leadership and entrepreneurship stem from a common phenomenon (EL) or the need to create (Becherer et al. 2008). Consensus in short is lacking, and definitions vary.

To summarize, EL is a field of scholarship undergoing rapid development, which has hitherto lacked a coherent, widely accepted definition of its subject of inquiry. In light of the reviewed literature, it may be noted that TL and EL are two concepts that often intermingle in the study of entrepreneurship (Reid et al. 2018). While a number of reviews (e.g. Clark et al. 2019; Faridian 2023) have recently sought to bring some clarity, and have done so with admirable depth and acuity, questions remain. Two points remain unclear: the differences between the recognized role of TL in informing

questionnaires of EL, the actual distinction these measures show from measures of TL and their unique contributions beyond TL; and the resulting research landscape with respect to the questionnaire-based measurement of EL. In the next section we present the method which we used to help us answer our RQs.

3 Methodology

3.1 Planning the review

In line with the methodology set out in Tranfield et al. (2003), Kraus et al. (2020) and Kraus et al. (2022), the present systematic literature review was split into distinct stages. Before commencing, a purely exploratory reading of the recent literature on EL was carried out, encompassing a primary analysis of all literature available under the search term “Entrepreneurial Leadership” on the Clarivate Web of Science. This established several primary antecedents for the creation of a systematic literature review (SLR) (Kraus et al. 2020). First, a sufficient number of articles were found, as was a clear surge in the number of articles published over the last five years. Second, a lack of both solid theory and formally agreed-upon definitions were noted by a number of authorities in the field (e.g. Ahmed and Harrison 2022; Leitch and Harrison 2018a). Finally, the specific area under investigation presented a broad range of literature based on inconsistent terminologies, and displayed considerable fragmentation (Clark et al. 2019). As such, it was determined that the application of the SLR methodology bore the potential to establish a worthwhile contribution to current research.

After the primary, unstructured analysis of the current literature had established the need for an SLR, a panel of experts on the study of leadership in entrepreneurship was convened. In line with the reasoning detailed in Sects. 1 and 2 above, the three RQs stated in the *Introduction* were derived and formalized to circumscribe the scope of the present review more precisely. Regarding RQ1, the current literature was to be examined with respect to the similarities and distinctions between EL and TL, including theoretical and conceptual contributions that considered EL with explicit reference to TL. This simultaneously included examining the conceptual placement of EL, as well as the implicit and explicit extent to which it cohered with TL’s theoretical framework, embedded within the FRLT, i.e. leadership as an interpersonal influence process. Regarding the second RQ, the literature was to be examined with respect to the similarities and distinctions between EL and TL at the level of specific operationalizations, i.e. questionnaire based measures available to those intent on measuring EL quantitatively. Regarding the third RQ, the literature was to be examined to yield empirical findings on both EL and TL, contextualizing the relationships between EL and TL discerned in the answers to questions 1 and 2.

Furthermore, inclusion criteria were established to increase the transparency and replicability of the results, and to ensure that only papers of sufficient quality were included. Since the objective of the present review was to furnish readers with a comprehensive, multi-level overview of the overlap and differences between TL and EL, both conceptual and empirical papers were accepted, the latter including both qualita-

tive and quantitative investigations of EL. All included papers had to be published in English, and had to be presented as full-length, original articles, which represented either an empirical or a conceptual contribution relevant to answering one of the three RQs. Furthermore, the included papers had to be available in one of the seven databases and meta-database search engines used (see Sect. 3.2.1- *Primary Search*). In addition to these criteria for inclusion, an SLR demands specific exclusion criteria. These were thus defined, with the goal of ensuring that no papers of low quality or thematic unsuitability were accepted into the sample. Following the recommendations for reviews of research on entrepreneurship by Kraus et al. (2020), books, conference proceedings, letters to the editor, responses to these, and other, non-peer-reviewed articles were specifically excluded. Furthermore, papers were excluded if they appeared in journals with an impact factor of less than 1 at the time of the search (April 2022), in line with previous SLRs in the *Review of Managerial Science* (e.g. Ribeiro-Navarrete et al. 2022; Salmony & Kanbach 2022). Finally, papers were excluded if abstract or full-text screening showed that they failed to discuss as a main topic either TL used as EL, or both TL and EL in explicit concert.

3.2 Conducting the review

3.2.1 Primary search

In order to adhere to the subject matter while ensuring that all possible, pertinent contributions would be included, an exhaustive all-fields search was carried out across a number of major databases and search engines. These were identified via analysis of previous SLRs, both within the field of EL (e.g. Clark et al. 2019; Harrison et al. 2016) and within the journal targeted for publication, the *Review of Managerial Science* (e.g. Feser 2022; Salmony and Kanbach 2022). This led to the selection of the databases of *Taylor and Francis*, *Emerald*, *Wiley Online*, and *SAGE Journals*, as well as the meta-database search engines *Web of Science*, *ScienceDirect*, and *JSTOR*. In line with previous publications (e.g. Alaassar et al. 2022; but see also Deyanova et al. 2022), *Google Scholar's* search engine was additionally utilized, and findings compared to the final sample to determine whether a significant number of peer-reviewed works might have been excluded due to selection of these databases. No major contributions were found that had been excluded without warrant.

Keyword strings were kept constant across all databases and search engines. The combination of “Entrepreneurial leadership” coupled with “Transformational leadership” was employed, using the Boolean operator “AND” to conjoin the two, thus excluding any articles which failed to mention both. Since the RQs focus on examining the overlap and difference between the concepts of EL and TL specifically, using these concrete terms without variation was deemed most fitting. Including research on entrepreneurial or visionary leaders, for example, would have broadened the scope beyond the core definitional and conceptual discourse the RQs sought to unravel; articles not even containing the term “Entrepreneurial leadership” were considered to represent a tangential contribution to the discourse. The same logic was applied to articles not explicitly referencing TL. This step, while potentially subject to type-1 errors, represented the only clear and replicable path to the creation of a sample of

manageable size. Limiting the search to title, abstract, and subject terms would have excluded an excessive number of relevant results, even using truncated forms (such as *entre** and *transf** and *leader**). Using an all-fields search with truncated forms would have yielded an excess of 10,000 articles without guaranteeing full coverage due to the terminological disunity surrounding EL. The coverage period was chosen to stretch up until April 31st, 2022, given that data collection was carried out in May 2022. In response to the authors' initial sighting of the literature, no bound on past papers was considered necessary, as an explicit mention of both EL and TL would not pre-date the creation of the FRLT. Any potential early articles which dealt with the topic were considered valuable input. This search methodology yielded a primary pool of 428 articles. The searches had already filtered by publication type, with only peer-reviewed articles accepted, and all others rejected. Duplicates were then removed, leaving 398 articles.

3.2.2 Abstract screening and full-text screening

Synthesis of the literature followed a two-step approach, in line with recently published SLRs (e.g. Feser 2022). First, abstract screening led to the inclusion of 110 papers, with 298 removed (see Fig. 1). This involved removing all articles which failed to explicitly examine EL or TL, were deemed inadmissible by type but had passed the database filtering, were duplicates the first screening had missed, or were not published in English. For example, many articles were found which mentioned either TL or EL only once or twice, included references in the bibliography that contained those terms, or had abstracts in English but were written in another language. Such articles were removed from the sample.

Finally, a full reading of the remaining 110 articles was carried out, leading to the exclusion of a further 85 papers. All papers were read by two researchers, and decisions had to be unanimous for exclusion to occur; in cases where the researchers failed to agree, a third member of the team made the decision to include or reject. Only a few articles were found which required this measure. This screening phase addressed two main points: quality and relevance. With respect to quality, papers were examined for appropriate referencing; for a presentation of results that was both unambiguous, and sufficiently underpinned by coherent arguments; and for publication in reputable and widely cited journals, with an impact factor of greater than 1. Regarding the second point of concern, i.e. relevance, attention was paid to the features of the articles which would help in answering the three RQs (see above). The topicality of the articles was examined, in line with the reasoning stated in Sect. 3.1; it should be noted that articles which framed EL purely in terms of TL were not excluded. In addition, papers were cross-referenced while reading to make sure that no key works had been missed. Some contributions were identified that could have offered a potential benefit but appeared in journals with an impact factor lower than 1.

3.2.3 Synthesis and content analysis

As a consequence of the screening procedures detailed above, a sample of 25 papers was conserved for data extraction and analysis; these are listed in Sect. 4, Table 2.

Due to the fragmentation of the field, the heterogeneity of the resulting sample, and the conceptual and terminological disunity, a qualitative methodology was combined with a synthesizing approach (Gentles et al. 2016). In doing this, both deductive and inductive codes were used, while reference to the underlying framework of the FRLT provided a guideline for the categorization of approaches to EL determined in the sample (cf. Feser 2022). In a first step, key characteristics of the articles were identified, permitting a rough separation along formal lines. Conceptual and empirical articles were separated, with all purely conceptual articles forming the first category. Articles which examined EL explicitly using measures of TL were then grouped into a second category. This led to a remainder of articles that could be split into two final categories: three articles that proposed measures of EL, as well as four articles which used such measures to empirically examine EL. In all, four categories emerged which will inform the discussion below. A second step then saw the content analysis of all articles by all three authors, identifying thematic and conceptual similarities and differences, with the researchers engaged in a constant and iterative exchange. The resulting corpus of content was then analyzed with respect to the RQs, elucidated in the *Results* section, and key findings drawn for further contextualization in the *Discussion* section.

4 Results

The results of the SLR paint a clear picture of a thriving and rapidly growing field of research. As can be seen in Fig. 2, research on the intersection between EL and TL has increased markedly within the last decade, catalyzed perhaps by the *Journal of Small*

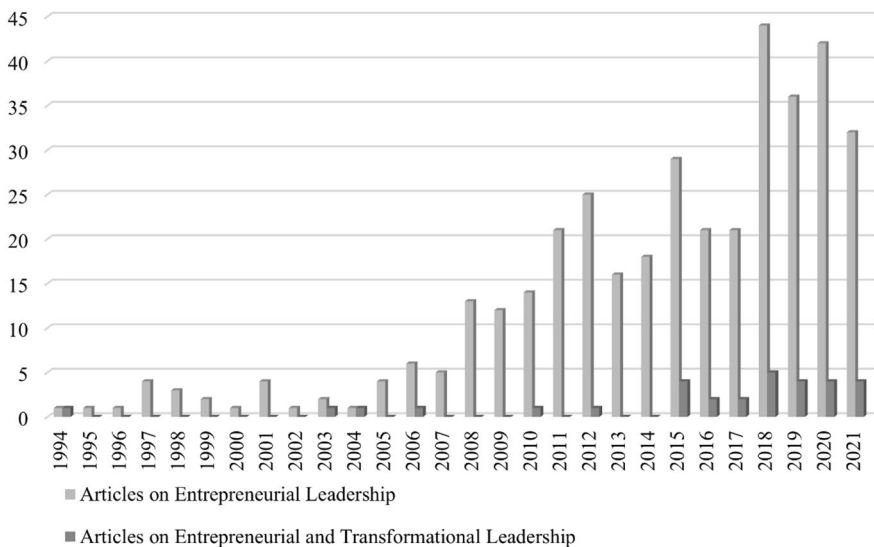


Fig. 2 Chart showing publication frequency of articles covering EL, and both EL and TL, by year

Business Management's 2015 special issue on EL. As can be seen from the overlay with general search results for EL, specific interest in the role of TL in EL increased in tandem during the previous decade. The final sample is depicted in Table 2.

In the present systematic literature review, 25 articles were examined to gain a better understanding of the conceptual and practical relationship between TL and EL. Four categories of articles were thematically distinguished (see Table 4), and each was analyzed with specific regard to their particularities and individual contributions. The first group of seven articles discusses EL and TL conceptually, some systematically, and some in a narrative manner. These offer an interesting meta-informational view, and shall inform the discussion both with regard to similarities between the two leadership styles, and concerning the distinctness which researchers at large attribute to current conceptualizations of EL. These papers will inform the answer to RQ1. A second category of three papers contains the three extant measures of EL (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015). Examining their component items and dimensions will offer first-hand input for a direct comparison of EL and TL operationalization, and will be central to answering RQ2. Vital for answering RQ3 are first four articles quantitatively examining EL, three doing so side by side with TL (Cai et al. 2019; Lee et al. 2020; Newman et al. 2018), and the other replicating results previously garnered with respect to TL, but using EL instead. The statistical results contained within these four will offer vital clues to the discriminant validity at the level of pure data, of EL versus TL. Finally, the fourth and largest group of eleven articles examined EL using TL both quantitatively and qualitatively. As such, they lend an interesting counterpoint to current conceptions which determine EL to be a distinct style (e.g. Renko 2017). Of particular interest will be an analysis and synthesis of the arguments put forth within them for the use of TL within the entrepreneurial paradigm. The results of the content analysis of each article are offered below, by category, beginning with previous reviews and conceptual contributions, followed by extant measures of EL, moving on to quantitative examinations of EL and TL, and ending with papers that examine EL purely in terms of TL.

4.1 Reviews and conceptual contributions

In beginning the content analysis of the results, the theoretical articles of Category I offer an interesting window into the previous theoretical discussion regarding the relationship between EL and TL at the construct level. Moreover, by assessing their implicit and explicit adherence to the FRLT's paradigm of leadership, interaction-based leader-follower influence, a description of their congruence with the mainstream of leadership literature is made possible.

Of seven purely conceptual articles, only two lead with the assumption that EL should be regarded as a coherent and distinct concept or style (Harrison et al. 2020; Leitch and Volery 2017). In contrast, the other articles reveal the breadth of current, alternative perspectives. These share no theoretical accord in their view of EL; whether in their level of analysis of leadership (Lyons et al. 2020), their epistemic approach (Kimbu et al. 2021), or the centrality they accord to the measures and concepts currently at the heart of EL (Reid et al. 2018; Leitch and Volery 2017) definitively argue that EL represents a new and distinct paradigm at the intersection of its

Table 2 Final sample of 25 papers Of these, the five most highly cited articles are listed in Table 3

Authors and Year	Conceptual or Empirical	Focus	Journal
Bagheri and Harrison (2020)	Empirical	Develops a novel, extensive scale of EL, drawing on Gupta et al. (2004) and Huang et al. (2014).	J Small Bus Enterp Dev
Baldegger and Gast (2016)	Empirical	Uses the FRLT as the basis for a qualitative investigation of leadership in entrepreneurial ventures, and suggests that an evolution from transformational to transactional takes place.	Int J Entrep Behav Res
Bamiatzi et al. (2015)	Empirical	Examines female entrepreneurs using the full MLQ, finding that the highest scores by far were achieved on TL.	J Small Bus Manag
Cai et al. (2019)	Empirical	Measures the connection between creativity at various levels in an entrepreneurial venture and ENTRELEAD.	J Bus Psychol
Ensley et al. (2006)	Empirical	Examines the effect of TL and transactional leadership styles on new venture performance and new venture growth.	J Bus Ventur
Fries et al. (2021)	Theory	Literature review comparing leadership styles (TL, transactional, autocratic, expert, laissez-faire, participative and referent) with leadership behaviors (entrepreneurial, nepotistic, paternalistic, steward and supportive) in family firms. EL behavior overlaps strongly with only TL.	J Fam Bus Strategy
Gupta et al. (2004)	Empirical	Development of a scale of EL with five behavioral dimensions: Framing the challenge, absorbing uncertainty, path clearing, building commitment and specifying limits.	J Bus Ventur
Harrison and Leitch (1994)	Theory	Discusses at length the then nascent field of EL, with reference to both progenitor fields and possible future directions and theoretical currents.	Entrep Reg Dev
Harrison et al. (2020)	Theory	Provides an overview of the fields of entrepreneurship, leadership, and EL through the use of a critical literature review.	J Small Bus Entrep
Hensel and Visser (2018)	Empirical	Examines TL in entrepreneurial teams with shared responsibilities, its positive effects, as well as the mediating role of personality traits.	Int J Entrep Behav Res
Kimbu et al. (2021)	Empirical	Qualitative investigation of female EL in the Ghanaian and Nigerian tourism industry. Discusses the role and utility of TL.	Ann Tour Res
Lee et al. (2020)	Empirical	Meta-analytic review of thirteen established leadership styles, including both TL and EL, and their respective effects on creativity.	Eur J Work Organ Psychol
Leitch and Volery (2017)	Theory	Introductory literature review which seeks to provide a brief overview of the fields of entrepreneurship, leadership, and EL, as well as their interconnections.	Int Small Bus J
Lyons et al. (2020)	Theory	Proposes a 30-point skill inventory for successful entrepreneurship, which includes TL.	J Entrep Public
McCarthy et al. (2010)	Empirical	Examines leadership styles in Russian entrepreneurial ventures, with qualitative coding revealing that a style termed "open" is most prevalent, which strongly resembles TL.	Calif Manag Rev
Newman et al. (2018)	Empirical	Examines both EL and TL quantitatively, as well as their effect on the relationship between creative self-efficacy and innovation.	J Bus Res
Ng and Kee (2018)	Empirical	Examines TL in SMEs combined with measures of "entrepreneurial competencies" (Chandler and Jansen 1992), including opportunity recognition.	Manag Decis

Table 2 (continued)

Authors and Year	Conceptual or Empirical	Focus	Journal
Ng et al. (2019)	Empirical	Similar to the earlier study by Ng and Kee (2018). Examines the role of TL and “entrepreneurial competence” (Chandler and Jansen 1992) on the performance of SMEs.	J Small Bus Enterp Dev
Paudel (2019)	Empirical	Seeks to replicate previous results linking TL with entrepreneurial performance using Gupta et al.’s (2004) measure for EL.	South Asian J Bus Stud
Reid et al. (2018)	Theory	Critical literature review examining the intersection between the fields of leadership and entrepreneurship, from a leadership perspective.	Leadership Q
Renko et al. (2015)	Empirical	Development of a new, short measure for EL. Encompasses eight items in one dimension.	J Small Bus Manag
Verma and Kumar (2021)	Empirical	Examination of leadership styles, TL among them, in ecologically-minded startups and the interactions with the mindset that typifies them, termed “green entrepreneurship”.	J Entrep Emerg Econ
Wang et al. (2012)	Empirical	Case-study-based examination of differing styles of leadership in entrepreneurial ventures, and a discussion of how these connect to traditional Chinese philosophies of Confucianism, Legalism and Daoism.	Asia Pac Bus Rev
Xu and Jin (2022)	Empirical	Empirical examination of stressors typically encountered within entrepreneurship on TL in its function as EL.	J Bus Res
Zaech and Baldegger (2017)	Empirical	Empirical examination of the prevalence of the leadership styles of the FRLT in entrepreneurial ventures, as well as their effect on performance.	Int Small Bus J

Table 3 Highly cited articles ($n > 200$) discussing TL and EL. Given above are the authors, year of publication, the title of the article and journal of publication, as well as the number of citations as stated on Google Scholar™ as of February 1st, 2023

Authors and Year	Title	Citations	Journal
Ensley et al. (2006)	The moderating effect of environmental dynamism on the relationship between entrepreneur leadership behavior and new venture performance	576	J Bus Ventur
Gupta et al. (2004)	Entrepreneurial Leadership: Developing and measuring a cross-cultural construct	1,228	J Bus Ventur
Leitch and Volery (2017)	Entrepreneurial Leadership: Insights and directions.	278	Int Small Bus J
Newman et al. (2018)	The effects of employees’ creative self-efficacy on innovative behavior: The role of Entrepreneurial Leadership	351	J Bus Res
Renko et al. (2015)	Understanding and Measuring Entrepreneurial Leadership Style	676	J Small Bus Manag

two parent fields of entrepreneurship and leadership, offering three reasons. First, they argue that numerous scholars view entrepreneurs as leaders by default (e.g. Cunningham and Lischeron 1991); second, they mention the similar evolutionary paths of the two fields; finally, they adduce the similarities between EL on the one hand, and TL, charismatic, and authentic leadership on the other. With respect to the

Fig. 3 Proportion of overall sample according to category

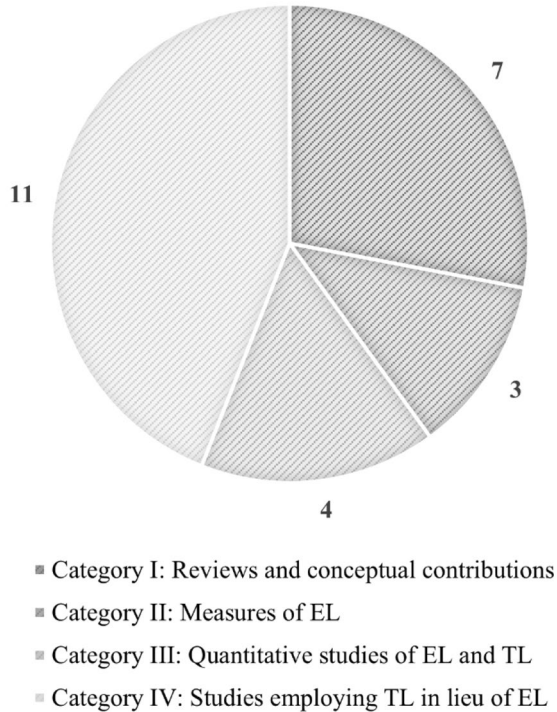


Table 4 Articles distributed into the four categories

Category	Articles
I: Reviews and conceptual contributions	Fries et al. (2021), Harrison and Leitch (1994), Harrison et al. (2020), Kimbu et al. (2021), Leitch and Volery (2020), Lyons et al. (2020), Reid et al. (2018)
II: Measures of EL	Bagheri and Harrison (2020), Gupta et al. (2004), Renko et al. (2015)
III: Quantitative studies of EL and TL	Cai et al. (2019), Lee et al. (2020), Newman et al. (2018), Paudel (2019)
IV: Studies employing TL in lieu of EL	Baldegger and Gast (2016), Bamiatzi et al. (2015), Ensley et al. (2006), Hensel and Visser (2018), McCarthy et al. (2010), Ng and Kee (2018), Ng et al. (2019), Wang et al. (2012), Verma and Kumar (2021), Xu and Jin (2022), Zaech and Baldegger (2017)

theoretical paradigm of the FRLT, the authors initially confirm and acknowledge that leadership “revolves around the process of influencing others” (Leitch and Volery 2017, p. 147). However, thereafter, the separation between “leadership in” and “leadership of” is quickly subsumed by a broader, phenomenological interpretation of EL as a field of research, as opposed to a concrete, operationalizable style of leadership. Concretely, the authors consider EL as a “leadership role performed in entrepreneurial ventures, rather than in the more general sense of an entrepreneurial style of leadership” (Leitch and Volery 2017, p. 148). In a similar vein, Harrison et al. (2020) also argue that EL is a distinct phenomenon. Though providing extensive and useful theoretical exploration, however, their treatment of TL is somewhat perfunctory; they

make no mention of its pertinent role in informing all extant conceptualizations of EL (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015), nor of the numerous authors who use TL in lieu of EL (see e.g. Category II). These authors argue for what may be termed the positive integration perspective (Fernald et al. 2005), which posits that EL as a field emerged from the positive integration of its two parents.

At the root of this perspective lies a paper by Harrison and Leitch (1994) that represents a foundational text in the field of EL. They cite Carsrud and Johnson (1989) to claim that the fields of entrepreneurship and leadership have evolved in parallel, laying the groundwork for numerous later authors who take this line (e.g. Harrison et al. 2020; Harrison and Leitch 1994; Leitch and Volery 2017). However, instead of claiming EL as representing a distinct construct at that point, Harrison and Leitch (1994) use these parallels to suggest a theoretical paradigm which future research at the *carrefour* of the two fields could follow: contingency. Arguing that leadership research developed from trait over situation to contingency, they note that entrepreneurship had yet to embrace the last step, and quote numerous studies advocating the use of contemporary developments in leadership (e.g. Chell et al. 1991; Greenberger and Sexton 1987). The contingency approach has indeed been applied to EL, though more so from within the field of leadership than recent conceptual developments in EL (Antonakis and Autio 2012; Baldegger and Gast 2016). The remaining four purely conceptual papers in the present sample take differing, more generalist perspectives. One discusses identity construction in female entrepreneurial leaders in Ghana and Nigeria through the lens of poststructural feminism (Kimbu et al. 2021). Building on the socially constructed nature of EL, the authors challenge the endemic, essentialist claims which implicitly couch entrepreneurship and EL in relation to norms that are predominantly male (Kakabadse et al. 2018; Tlaiss and Kauser 2019) and embedded in the Northern Hemisphere (Figueroa-Domecq et al. 2020). Similarly, the notion of TL and transactional leadership being respectively typical of women and men is tempered with the argument that both context, and the social construction of entrepreneurial identity, play a vital yet under-researched moderating role (Cliff et al. 2005; Zapalska et al. 2015). This viewpoint is invigorating, and moves beyond conceptualizations which focus merely on dichotomizing the theoretical heritage defining the current field of EL (e.g. Röschke 2018a). In contrast, Lyons et al. (2020) focus on a far more tangible, skill-based perspective of rural entrepreneurship, subsuming TL as a part thereof, but making no mention of the ongoing debates surrounding the definition of the term “EL” (e.g. Harrison et al. 2020; Leitch and Volery 2017). The authors determine TL, as defined by Bass (1985) as representing a mere one in 30 of the skills necessary for successful entrepreneurship. In doing so, they may implicitly be deemed as acknowledging the FRLT’s paradigm of leadership.

Finally, Reid et al. (2018) provide an overview of the cross-fertilization of entrepreneurship and leadership, in accordance with the five key dimensions described in the foundational work by Cogliser and Brigham (2004). The contribution of Reid et al. (2018) extensively discusses the contributions made by leadership research which have directly impacted the field of EL research. With respect to leadership, their perspective may be considered firmly aligned with the FRLT’s underlying paradigm, of “leadership in” versus “leadership of” organizations. Numerous contributions are discussed, among them the utility of TL in enhancing creativity and innovation in

entrepreneurial ventures and its place as a primary tool for growth-oriented entrepreneurs, while the effect of TL on stakeholder perceptions of entrepreneurial vision is stated as a possible question for future research. A final contribution examines leadership styles and leadership behaviors in varying types of family-owned businesses (Fries et al. 2021). These authors through their own literature review establish a number of leadership styles and leadership behaviors typical of family businesses. As one of five of the latter, they define EL behavior in accordance with Pistrui et al. (2000), while adhering to the more widespread definition of TL in accordance with Bass (1985). In doing so, these authors also implicitly adopt the FRLT's framework of leadership as a leader-follower process.

4.2 Measures of entrepreneurial leadership

Although the above-mentioned theoretical work provides insight into the conceptual debates surrounding EL, the key interface between theory and empirical findings is represented by operationalized tools for measurement. The present sample contains the three most prominent measures of EL, as well as several articles which employ them, discussed in the next subsection. First, there is Gupta et al.'s (2004) questionnaire, and a study which used it (Paudel 2019); second, Renko et al.'s (2015) measure, also found in two publications (Cai et al. 2019; Newman et al. 2018), themselves included in an in-sample meta-analysis (Lee et al. 2020). Finally, the recent contribution by Bagheri and Harrison (2020), though not used by any articles in the present sample, represents a major step in the creation of an operationalized measure of EL. The first operationalization of EL still in common usage is represented by Gupta et al.'s (2004) model. Not parsed directly as a questionnaire measure, the contribution instead develops a list of behaviors considered unique to an entrepreneurial style of leadership. Numerous steps of development occurred which will be examined in detail in the discussion, resulting in five behavioral dimensions: Framing the challenge, absorbing uncertainty, path clearing, building commitment, and specifying limits. Several of these behaviors clearly mirror certain aspects of TL, such as "Has a vision and imagination of the future", "Sets high standards of performance", or "Inspires emotions, beliefs, values and behaviors of others, inspires others to be motivated to work hard" (Gupta et al. 2004, p. 250). While the authors discuss these similarities, they point to differences such as "ambitious foresight and pattern recognition capabilities" required in entrepreneurial leaders which are absent in TL (Gupta et al. 2004, p. 254).

Renko et al.'s (2015) ENTRELEAD was developed as a short measure for EL, in part to explicitly remedy the issues inherent in the previously used measure (i.e. Gupta et al. 2004). Using standard procedures of scale development and validation, the authors settle on an eight-item scale for the measurement of EL. Just as in the previously examined scale, a strong resemblance to TL is evident. Three of ENTRELEAD's eight items ("Has creative solutions to problems", "Challenges and pushes me to act in a more innovative way", "Wants me to challenge the current ways we do business") bear a striking resemblance to the TL sub-dimension of intellectual stimulation, while one is identical in content to inspirational motivation ("Has a vision of the future of our business"), and another is strongly reminiscent of ide-

alized influence behavior (“Demonstrates passion for his/her work”). Building on both of these previous scales, Bagheri and Harrison (2020) presented the longest and most detailed scale of EL to date, composed of 40 items along eight dimensions, and with high internal validity. Among these eight dimensions, numerous items can be found that are strongly reminiscent of other leadership styles, such as empowering leadership (e.g. “Creates an environment where organization staff feel free to try new things”; cf. Cheong et al. 2019), self-leadership (e.g. “Shows awareness of their strengths and weaknesses”, “Demonstrates the ability to manage time effectively”; c.f. Houghton et al. 2003) or TL (e.g. “Leads their followers by serving as a role model”, “Inspires emotions, beliefs, values and behaviors of followers”, “Shows empathy towards his/her followers”; Bass 1985), while further items fit poorly with a mainstream conceptualization of leadership as an inter-personal, goal-oriented influence process (e.g. “Anticipates possible future events”, “Recognises existing market opportunities”, “Actively identifies, develops and goes after new business”). While Bagheri and Harrison’s scale, due to its novelty, has yet to be widely applied, the former two scales have found considerable use since their creation.

4.3 Quantitative studies of entrepreneurial and transformational leadership

Four contributions in the sample examine EL quantitatively. Of these, two publications examine both EL and TL quantitatively (Cai et al. 2019; Newman et al. 2018), while a third incorporates these and others into a meta-analysis (Lee et al. 2020). A fourth paper by Paudel (2018) examines only EL, employing the ENTRELEAD scale to replicate results connecting TL with innovation, and finds that EL predicts it ($\beta=0.58, p=.00$). Meanwhile, two studies directly assessed both EL and TL using designated measures. Cai et al. (2019) linked the ENTRELEAD scale with creativity and innovation, two aspects highly relevant to entrepreneurship. With respect to their treatment of TL, they cursorily noted that it failed to explain employee creativity when recognizing business opportunities. The authors do not further discuss the FRLT or its underlying theoretical framework, but adduce a definition of leadership as “influencing and directing the performance of group members towards the achievement of organizational goals that involve recognizing and exploiting entrepreneurial activities” by Renko et al. (2015, p. 55). Apart from the emphasis on opportunity recognition, this matches well with the FRLT’s conceptualization of leadership as an interpersonal, goal-oriented influence process. Their results found significant predictive effects by EL, and none whatsoever by TL for employees’ creative self-efficacy ($r=.52, p<.01$), team creative self-efficacy ($r=.35, p<.05$), employee creativity ($r=.58, p<.01$), and team creativity ($r=.64, p<.01$). Furthermore, they demonstrated no statistical correlation between EL and TL. In contrast, Newman et al. (2018) found a strong positive relationship between TL and EL ($r=.81, p<.05$) while showing only a correlation of EL with innovative behavior ($r=.14, p<.05$). TL was also found to correlate with innovative behavior ($r=.10, p<.10$). Like the publication by Cai et al. (2019), this contribution focuses on Bandura’s social cognitive theory (1986) to explain the positive effects of EL on creative self-efficacy and innovation (Newman et al. 2018). Incorporating both of these results is a meta-analysis by Lee et al. (2020), which tied EL with authentic leadership for the strongest correlation to creativity

(Spearman's $\rho=0.47$) with a weaker correlation to innovation ($\rho=0.29$), comparable to TL, which hovered at around $\rho=0.30$ for both creativity and innovation.

4.4 Studies using transformational in lieu of entrepreneurial leadership

To provide an interesting narrative counterpoint, Category IV examines the large swathe of articles which examined EL using the construct of TL, thereby implicitly adopting the theoretical framework of the FRTL. Four examined TL as an antecedent variable with respect to performance (Ng et al. 2019; Zaech and Baldegger 2017), and were variously moderated by environmental dynamism (Ensley et al. 2006) and personality (Hensel and Visser 2018). Overall, three main streams of argumentation can be found that pertain to the RQ. First, several argue for using TL in the study of entrepreneurship, either due to its intrinsically useful general effects (e.g. Ng et al. 2019; Xu and Jin 2022), or because measures of EL are deemed insufficiently focused on leadership in its classical definition (Baldegger and Gast 2016; Zaech and Baldegger 2017), or simply by default (Bamiatzi et al. 2015; Ensley et al. 2006). A second grouping (Hensel and Visser 2018; Ng and Kee 2018) examines the positive effect of TL on innovation, drawing on the wealth of literature supporting this link (Gumusluoglu and Ilsev 2009), as well as the equally well-supported link between innovation and entrepreneurial success (Ireland et al. 2003). Finally, a third tranche does not employ TL in particular, instead either examining it for beneficial effects in comparison with a number of other leadership styles (Verma and Kumar 2021), or finding TL, through inductively qualitative analysis, to be the main style applied by entrepreneurs or in entrepreneurial ventures (McCarthy et al. 2010; Wang et al. 2012). The theoretical arguments in each will be traced to provide clarity with respect to the RQs.

Ng et al. (2019) introduce their own, brief literature review in which a number of sources are cited supporting the value of TL to the success of enterprises. However, the relevance of some of these sources to entrepreneurship appears tenuous (e.g. Schaubroeck et al. 2007), and no explicit justification is given regarding why other measures, which are more visibly relevant, are avoided (e.g. Renko et al. 2015). Ensley et al. (2006) in contrast discuss at great length their rationale for employing the transactional-transformational paradigm. In essence, they define the entrepreneur as a leader by default, given the need to garner resources if opportunities are to be exploited. From there on, the use of the most prominent paradigm for the measurement of leadership is arrived at, equally, by default (Ensley et al. 2006). Another contribution traces the evolution of leadership style from within the paradigm of leadership emergence, documenting a shift from transformational to transactional with increasing maturity of the venture (Baldegger and Gast 2016). The rationale given here for the use of TL hinged on a clear separation between entrepreneur and entrepreneurial leader: EL is considered simply as leadership within an entrepreneurial context in the tradition of Vecchio (2003), the measurement which is considered perfectly achievable through the use of established tools (Baldegger and Gast 2016). The co-authored publication by Zaech and Baldegger (2017) follows the same line of reasoning. Only one article explicitly examined the female leadership of entrepreneurial ventures, by correlating Full Range Leadership Theory styles with entrepreneurial competencies

(Bamiatzi et al. 2015). Here, the Multifactor Leadership Questionnaire (Bass and Avolio 1997) is used, supplemented by specific but not further defined questions on leadership style (e.g. autocratic vs. democratic). Finally, Xu and Jin (2022) empirically examine stressors typically encountered within entrepreneurship, and how these moderate the expression of TL in its function as EL. These authors point to the considerable body of work that has demonstrated the effectiveness of TL when exhibited by entrepreneurial leaders.

Hensel and Visser (2018) offer a causal chain of reasoning for using TL. First, they state the importance of innovation to entrepreneurial effectiveness (Lukes and Stephan 2017), offering evidence for the undisputed importance of TL for team innovation (García-Morales et al. 2012), ultimately stating that little research has examined the latter assertion in teams under shared leadership. It is this gap they thereafter choose to exploit, finding that a variety of personality traits affect the two key dimensions of vision articulation and intellectual stimulation (Hensel and Visser 2018; Ng and Kee 2018), as in their paper detailed above, adduce TL together with entrepreneurial competences, examining their effect on SME performance. Again, no clear justification is established for a potentially direct, beneficial effect which TL might have that makes it suitable for entrepreneurship, except through the interposed variable of innovation (Ng and Kee 2018; Verma and Kumar 2021) do not explicitly state that TL is EL; instead, they examine a number of leadership styles (charismatic, visionary, TL, servant) and the interactions with “green entrepreneurship” which may affect overall firm growth. Interestingly, they refrain from including any extant measures of EL in their analysis. Finally, two publications can be distinguished by their use of a qualitative approach. One examines the relationship between EL, conceptualized as lying on the continuum between TL and transactional leadership, and traditional Chinese paradigms of leadership (Wang et al. 2012). The second paper analyzed open-ended questionnaires from 130 entrepreneurs using content analysis methodology to inductively categorize and identify common leadership styles. Their result showed an overwhelming proportion of entrepreneurs adhering to an “open” leadership style, which the authors determined to be “consistent with the characteristics of TL” (McCarthy et al. 2010, p. 55).

5 Discussion

5.1 RQ1 (theory)

In the previous section, we delineated the output of the content analysis and the identification of thematic groupings and their conceptual significance, with respect to the RQs this work is devoted to. Regarding RQ1, the results detailed above offer a conflicting picture. Two conceptual contributions examined here embrace the suggestion that EL is a distinct phenomenon (Harrison et al. 2020; Leitch and Volery 2017). Other recent works advocate a similar position (Clark et al. 2019; Harrison et al. 2016), in line with early work that foreshadowed a split appreciation of EL (Harrison and Leitch 1994). Indeed, this central cluster of scholarship in the field of EL (including Ahmed and Harrison 2021; Clark et al. 2019; Leitch and Volery 2017) is informed

by the notion of “diametrically opposed views” of EL, caused by research on EL being anchored “either in the leadership or in the entrepreneurship field” (Leitch and Volery 2017, p. 150). Even these authors however explicitly confirm the relevance of TL (Leitch and Volery 2017), and begin by considering leadership as “the process of influencing ... to accomplish shared objectives” (Leitch and Volery 2017, p. 147). This is completely in line with the FRLT’s theoretical conception of leadership, but the authors quickly proceed to vastly broaden the scope of what they consider to fall under the term of EL. As such, it could be argued that the authors argue more for a distinct paradigm than a distinct style, in contrast to others (e.g. Renko 2017). This represents a key issue; numerous key conceptual works, including those by Gupta et al. (2004), Leitch and Volery (2017) and Harrison et al. (2020), examine EL as an issue fundamentally collocated at several levels of analysis. Others are even more broad in their definition, considering EL “a new leadership style that is required to fulfill the current business changes in the fourth industrial revolution” (Pauceanu et al. 2021). While such a holistic appreciation may be useful in stimulating debate, it is this intermingling of levels of analysis which problematizes the creation of a conceptual basis suitable for greater operational specificity. This specificity is necessary for the development of an operational definition of EL that can be used by scholars for measurement; one that is sufficiently distinct from TL and one that is accepted by mainstream leadership science to meet the currently dominant definition of leadership as a behavioral influence process between leader and follower (Antonakis and Autio 2012; Hemshorn de Sanchez et al. 2022). Only if both these aspects were sufficiently realized could the gap between EL and the wider leadership literature be bridged, and a measure of EL found that is capable of receiving a greater degree of acceptance by researchers across their clusters. Furthermore, previous contributions exist which sought to establish definitions that could serve as a framework for such developments (e.g. Antonakis and Autio 2012), and recent work has already begun to determine behaviorally proximal components of EL (e.g. Maran et al. 2019).

Regardless of the precise terminology, an apparent consequence of this conceptual school of thought is the creation of a form of EL, detailed in the findings above, which stands somewhat apart from established measures of leadership (Harrison et al. 2020; Leitch and Volery 2017). Proponents of this model argue for its value, but both these and other review articles on the subject (e.g. Clark et al. 2019; Harrison et al. 2016) fail to acknowledge the extremely limited scope with which the current measures of EL have been accepted in mainstream leadership research (e.g. Reid et al. 2018). Issues also surround Harrison et al.’s (2020) conceptual discussion of TL. In their review of EL, which specifically seeks to disentangle the components of leader and entrepreneur, overviews are given of both fields of study. TL is briefly discussed, even though mention of the parent FRLT is absent, as is its value in supplying other, validated styles, such as transactional leadership, as is the central role of TL in informing all three measures of EL currently available (Harrison et al. 2020). Nor is mention made of the statistical results detailed in the present review. The authors point out, somewhat confusingly, that there have been failed attempts to redefine TL “by including vision” (Harrison et al. 2020, p. 6), which the authors consider key to EL; vision has been a central component of TL since its inception (Bass 1985; Burns 1978). Nevertheless, in elucidating their theoretical basis for this position, the

authors provide strong, implicit claims of comprehensiveness and authority in their discussion (Harrison et al. 2020), stemming from an epistemic narrative derived from earlier work (Fernald et al. 2005; Harrison and Leitch 1994). Furthermore, while partially acknowledging the role of TL, they detract from it rather vigorously, pointing to a “lack of empirical evidence” for its effectiveness (Harrison et al. 2020, p. 6) among other factors, but making no mention of the wealth of studies, reviews, and meta-analyses which offer the opposite picture (e.g. Dvir et al. 2002; Gumusluoglu and Ilsev 2009; Judge and Piccolo 2004; Lowe et al. 1996; Wang et al. 2011; see also Sect. 2.1- *Transformational Leadership*). As such, while these authors argue for a clear separation of EL from TL, the lack of engagement with mainstream leadership literature obscures how a broader dialogue might reflect their proposed, distinct construct. Instead, the suggestion is made that both entrepreneurship and leadership may be better understood by integrating them “via the lens of the EL paradigm”; it is not completely clear what this paradigm is, however (Harrison et al. 2020, p. 12).

This school of thought contrasts with other theoretical appreciations, both of the place of EL within leadership, and of EL as a style of leadership, that barely mention the EL construct elaborated above (Harrison et al. 2020; Leitch and Volery 2017), nor the measures deriving from it. For example, the review of leadership styles by Fries et al. (2021) makes no mention of the currently available scales of EL (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015). In contrast, they find EL behaviors to overlap strongly with, and only with, TL (Fries et al. 2021; see also Peters and Kallmünzer 2018). Similarly, in their comprehensive analysis of the intersection between entrepreneurship and leadership, Ried et al. (2018) touch on these measures of EL briefly, but merely to note their use of vision as a key component of measuring it. Neither engages with the theoretical arguments supporting their conception. Therefore, the value of these extant operationalizations of EL has not yet been fully accepted by more mainstream leadership researchers, indicating that the lack of engagement emanates not only from the nuclear field of EL, but also from the wider research community. For example, Kimbu et al. (2018) refrained from emphasizing the existence of a distinct style of EL, even though theirs represents a sweeping examination of leadership theory within entrepreneurship. This reality is paralleled in other, highly cited works on entrepreneurial leadership (e.g. Schoemaker et al. 2018). Similarly, Lyons et al. (2020) consider EL as representing the full gamut of behaviors a leader-entrepreneur must show in order to arrive at a successful venture, with the emphasis on the “entrepreneur.” The specific component of leading followers, they deem, is well served by the extant construct of TL. This conceptualization clashes with Leitch and Volery’s (2017) proposition that extricating EL from the “leadership in” or “leadership of” debate is incidental, precisely because EL should be more comprehensive, including interactions with shareholders and, more broadly, the dynamism of the phenomenon of entrepreneurship (Leitch and Volery 2017).

In summary, results show that several publications find EL and TL to overlap at the concept (e.g. Kimbu et al. 2021; Lyons et al. 2020) and construct (e.g. Fries et al. 2021; McCarthy et al. 2010) levels, while others argue for its value as a distinct construct (e.g. Harrison et al. 2020; Leitch and Volery 2017). In response to RQ1, it can be stated that a lack of clear and reciprocal engagement between theoretical work on EL and TL renders a determination of their overlap inconclusive, a result in line

with previous reviews of EL (Antonakis and Autio 2012). As such, it is suggested that this area in particular could benefit from further study, a greater exchange between scholars, and a more nuanced integration of extant leadership frameworks into EL.

5.2 RQ2 (content)

The theoretical landscape is inconsistent, as demonstrated above. The effects these inconsistencies have exerted on the three measures of EL currently in use will now be charted to answer RQ2. Gupta et al.'s conceptualization (2004) was chronologically the first of those still in use, and continues to inform current developments. It is however by no means unanimously adopted. Renko et al. (2015) specifically detract from the earlier measure, stating, among other concerns, that it was not specific to entrepreneurship, a suggestion seconded by Clark et al. (2019) in more recent works. Furthermore a number of its items were "characteristic of TL" (Renko et al. 2015, p. 60). In addition, this overlap with TL is admitted by the original authors (Gupta et al. 2004, p. 245). However, a more fundamental issue exists. Though largely ignored by those employing this measure, it was neither methodologically conceived nor suitably validated as a questionnaire. Gupta et al. themselves note that the GLOBE (House et al. 1999) data they employ was "not originally intended" for the development of a novel construct (2004, p. 257), let alone the creation and validation of a new scale. In addition, their methodology in doing so was highly unorthodox. A first step saw five behaviors, deemed necessary for entrepreneurial leaders drawn from the existing concepts of TL, team-building, and value-based leadership (Gupta et al. 2004). As stated (Renko et al. 2015, p. 60), these five behaviors indeed appear significantly indebted to TL (e.g. "The articulation of a compelling vision"). In a number of further steps, five specific EL "roles" were established: framing the challenge, absorbing uncertainty, path-clearing, building commitment and specifying limits (Gupta et al. 2004, p. 247). Thereafter, the authors selected from 112 attributes of "outstanding leadership" contained in the GLOBE data-set a total of 19 that they "expected to load" onto the five previously established roles of EL (Gupta et al. 2004, p. 249). However, though the following factor analysis yielded results deemed acceptable, and the subdimensions did indeed inter-correlate to an acceptable degree, the authors warn that "the fit indices for the confirmatory factor analysis at individual levels of analysis deteriorated substantially" (Gupta et al. 2004, p. 251). Furthermore, external validity was established only within the GLOBE data-set, by correlating EL with several Hofstede cultural dimensions deemed relevant to entrepreneurship, but only at the level of entire societies (Shane et al. 1995). Such claims of ecological validity have been sharply criticized, with regard to the GLOBE studies as a whole (Graen 2006). The above shows numerous diversions from standard practice of scale development, which normatively entails the creation of an item pool, either from solid conceptual foundations or from specific, related, previously validated scales; the administration of these items to multiple unique samples of respondents; and progressive exploratory and confirmatory factor analyses of these unique responses (DeVellis and Thorpe 2021). Leadership styles that were elucidated in accordance with this process include, among others, ethical leadership (Kalshoven et al. 2011), servant leadership (Van Dierendonck and Nuijten 2011), and authentic leadership

(Walumbwa et al. 2008). Scale development for leadership-related constructs also follows this process, as seen in publications operationalizing Machiavellianism in leaders (Dahling et al. 2009) or leader-member-exchange (Liden and Maslyn 1998), among others.

However, Gupta et al.'s measure (2004) is employed as a questionnaire by numerous researchers with only minor adaptation (e.g. Huang et al. 2014), demonstrating that this long and laborious process of explicit scale creation and validation has been curtailed (see e.g. Boateng et al. 2018; Hinkin 1995). In addition to being criticized for its similarity to TL (Renko et al. 2015), this scale should thus be viewed with caution with respect to validity. This issue is of central importance, as it may help to explain the large number of publications studying EL without recourse to either this measure or those derived from it (see Category IV in *Results*). Returning to the criticism leveled by Renko et al. (2015), that Gupta et al. (2004) overly relied on TL, it must be noted that the critics appear to fall prey to the same issue. Their ENTRELEAD scale is the most widely used questionnaire measure of a distinct EL style after Gupta et al. (2004), though this ratio is shifting as most authors now use ENTRELEAD (e.g. Dabić et al. 2021; Niemann et al. 2022). As detailed in the *Results* section, several items on the ENTRELEAD scale closely resemble items used to assess TL. Table 5 shows the ENTRELEAD scale (Renko et al. 2015) side by side with a shortened measure for TL by Carless et al. (2000). This same measure was used alongside ENTRELEAD to assess TL in two of the papers in the sample.

The last three items of each scale (Table 5) vary considerably. Aside from these, numerous items show strong similarities in meaning and formulation; the short length of each scale necessitates the assumption of considerable issues of conflation. Furthermore, both the Gupta and Renko publications discuss the differences between EL and TL, and both list non-EL leadership behaviors. However, these lists differ on numerous points. For example, Gupta et al. (2004, p. 250) consider EL as encompassing an “Unusual ability to persuade others of his/her viewpoint”. This is

Table 5 TL (Carless et al. 2000) and EL (Renko et al. 2015) scales, grouped according to similarity of item

Measure of TL by Carless et al. 2000	Measure of EL by Renko et al. 2015
<ul style="list-style-type: none"> ● Encourages thinking about problems in new ways and questions assumptions 	<ul style="list-style-type: none"> ● Has creative solutions to problems ● Challenges and pushes me to act in a more innovative way ● Wants me to challenge the current ways we do business
<ul style="list-style-type: none"> ● Is clear about his/her values and practices what he/she preaches ● Instils pride and respect in others and inspires me by being highly competent ● Communicates a clear and positive vision of the future 	<ul style="list-style-type: none"> ● Demonstrates passion for his/her work
<ul style="list-style-type: none"> ● Treats staff as individuals, supports and encourages their development ● Gives encouragement and recognition to staff ● Fosters trust, involvement and cooperation among team members 	<ul style="list-style-type: none"> ● Has a vision of the future of our business ● Often comes up with radical improvement ideas for the products/services we are selling ● Often comes up with ideas of completely new products/services that we could sell ● Takes risks

reminiscent of charisma and charismatic leadership, which Renko et al. explicitly state is not a requirement for EL (2015, p. 57). Finally, the remaining items found on the ENTRELEAD scale (“Often comes up with radical improvement ideas for the products/services we are selling”, “Often comes up with ideas of completely new products/services that we could sell”, “Takes risks”) are in no direct way related to mainstream definitions of leadership, such as “a process whereby an individual influences a group of individuals to achieve a common goal” (Northouse 2018, p. 43). This raises two main points. First, previous research has sought to unite aspects of strategic entrepreneurship with EL (Covin and Slevin 2002; Ireland et al. 2003). While this conceptual heritage is discussed by Renko et al. (2015), works from within mainstream leadership science which have responded to the limitations of such an approach, and suggested potential remedial steps, are not mentioned (e.g. Antonakis and Autio 2012).

Second, leadership research has shown eminent success in focusing on proximal, clearly definable behaviors salient in leader-follower interactions (Derue et al. 2011). This approach, if anything, is gathering momentum rather than being overtaken by other paradigms (e.g. Hemshorn de Sanchez et al. 2022). Aspects relevant to the leadership of venture instead of followers, such as opportunity recognition (Emami et al. 2022) or risk-taking, could represent interference in determining a leadership style in this manner. Until the role of leadership in entrepreneurship is clearer, any extraneous aspects should therefore be examined under the aegis of their respective conceptualizations; opportunity recognition and risk taking both have little to do with the leading of employees, and both have produced extensive, theoretically coherent research of their own (e.g. Angelsberger et al. 2017; Grégoire et al. 2010; Palich and Bagby 1995). For example, behaviors which encourage employees to take risks are a component of the style of leadership known as empowering (Cheong et al. 2019). However, this stands apart from a leader’s own tendency towards risk-taking, the measurement of which, in any case, can be accomplished with far greater subtlety and accuracy than through asking “Do you take risks?” (an item of ENTRELEAD, Renko et al. 2015; see in contrast Lejuez et al. 2002). A potential role-modeling effect may well be worth exploring (Newman et al. 2018), but this should be done in its own right, perhaps by examining leader perceptions as a mediating factor between leaders’ and followers’ displays of risk, instead of as an afterthought on leadership questionnaires. The same holds true for opportunity recognition. While some argue that such a distinction is not of primary importance (Leitch and Volery 2017), this overlooks the fact that many researchers seek to use conceptualizations of EL as they would, for example, the Multifactor Leadership Questionnaire (Antonakis 2001): as a concretely quantifiable, questionnaire-measured, exogenous variable. This includes Cai et al. (2019), who explicitly state that “recently, scholars have consistently proposed the treatment of EL as a specific leadership style” (Cai et al. 2019, p. 205). Similarly, Newman et al. (2018) and Paudel (2019) use EL in this manner, as do numerous further studies of EL not included in the present sample, such as by Dabić et al. (2021) or Mehmood et al. (2021b). In summary, it may be observed that the ENTRELEAD scale also suffers from certain issues of discriminant validity and overlap. This might serve to explain why, though the most frequently used of the three measures of EL, it

was nevertheless disregarded in the many recent studies of EL which used scales of TL (see Sect. 4.4- *Studies using transformational in lieu of EL*).

Finally, results show that the most recent measure of EL by Bagheri and Harrison (2020) demonstrates the greatest divergence from scales of TL. As detailed above, this extensive questionnaire offers numerous items clearly distinct from TL, though several items continue to linger that seem highly indebted to it. In this, they strongly resemble the creation of the conceptualization by Gupta et al. (2004), whose theoretical foundation Bagheri and Harrison (2020) acknowledge as the basis for their own measure. Here, however, a number of issues emerge. The authors argue for the value of Gupta et al.'s (2004) scale as a basis, asserting that it is the most widely used scale of EL, and implicitly argue for its acceptance by scholars. However, this assertion seems incongruous. First, numerous scholars have presented strongly opposing views (e.g. Harrison et al. 2018; Leitch et al. 2013; Leitch and Volery 2017), among them one of the two authors in recent publications (Harrison et al. 2016, 2020), who suggested that the underlying data-set was no longer relevant and had limited potential (Clark et al. 2019). Second, of the studies included in the recent meta-analysis by Lee et al. (2020), all four employed the ENTRELEAD scale (Renko et al. 2015), with two of these authored by the other author of the new measure (Bagheri 2017; Bagheri and Akbari 2018). At least one more recent publication by this author also used ENTRELEAD (Bagheri et al. 2022), as have an increasing number of others (e.g. Hensellek et al. 2023; Hoang et al. 2022; Lin and Yi 2022; Malibari and Bajaba 2022; Strobl et al. 2022). Gupta et al.'s conceptualization (2004) is thus by no means unanimously adopted which, particularly in light of the inherent conceptual and methodological issues discussed above, makes its use as the basis for a novel measure problematic. A further issue complicates the adoption of this novel scale: the lack of a coherent analysis of divergent validity via a nomological network. As stated in the *Results* section, while the scale is less dependent on TL, it nevertheless incorporates items typical of both this and other, established leadership styles. Previous work has pointed to the futility of introducing novel leadership styles that show high overlap with extant conceptualizations (Deng et al. 2022; see also Banks et al. 2016 and Hoch et al. 2018). Furthermore, and mirroring the issues surrounding ENTRELEAD, those items not representative of extant leadership styles largely fail to conform to a classical, theoretical appreciation of leadership as an influence process between leader and follower. The authors specifically state in the introduction to their paper that most previous measures of EL failed to focus on the "critical aspects of the construct such as risk taking, innovation ... opportunity recognition" (Bagheri and Harrison 2020, p. 660). This issue gains momentum from recognition of numerous results demonstrating the benefits of authentic (Jensen and Luthans 2006), autonomous (Felix et al. 2018), charismatic (Men et al. 2021), empowering (Cheong et al. 2019), transactional (Ma and Jiang 2018) and shared leadership (Zhou et al. 2015) in entrepreneurship. Finally, whereas Bagheri and Harrison's eight-dimensional model provided "acceptable" model fit (2020, p. 670), this was not true of any proposed model which considered EL as a single-factor construct (p. 669), mirroring the measure by Gupta et al. (2004). This stands in contrast to most established leadership styles, which will often undergo combination into one overall variable measuring how strongly a certain style such as TL is expressed (Hughes et al. 2018). It is therefore uncertain whether this

proposed, unified concept of EL shows an advantage in practice compared to the utilization of existing measures of leadership, risk taking behavior, and so forth. In other words, does it in fact capture one distinct, coherent entrepreneurial style of leadership?

In response to RQ2, therefore, a number of points may be observed. First, regarding the content of their items, current questionnaire measures of EL overlap significantly with TL. Second, there is a paucity of statistical analyses of discriminant validity, hampering the identification and dimensional elucidation of EL into TL and non-TL aspects. Third, non-overlapping items do not conform to a theoretical paradigm in which leadership is a leader-follower influence process. Finally, several of the scales display issues with scale development and validation, calling into question their use.

5.3 RQ3 (practice)

Finally, RQ3 remains of whether the overlap between TL and EL was reflected at the level of empirical researchers examining it. The relationship between the conceptual foundations of these papers and the FRLT will also be discussed. Two groups of articles from the sample offer a substrate for discussion. First, there are the quantitative and qualitative papers that explicitly used TL in lieu of EL; second, there were the few papers which quantitatively examined both EL and TL. The former group in particular appears only loosely connected to theoretical and operational conceptualizations of EL that claim it as a unique style. Overall, Category IV in particular shows the prevalence, only partially acknowledged by some (e.g. Harrison et al. 2020), of TL in the study of leadership within the field of entrepreneurship. Moreover, all these papers implicitly align with the FRLT's conceptualization of leadership as an influence process between leader and follower. 11 papers within Category IV, all published after the appearance of the first measure explicitly designed for EL (Gupta et al. 2004), choose to use TL as *locum tenens* for EL. Xu and Jin (2022) touch on articles engaged in debating the constitution of EL (e.g. Leitch and Volery 2017), yet skirt entirely any acknowledgement of preexisting measures thereof, instead pointing to the "considerable body of research" which has demonstrated the effectiveness of TL as EL (Xu and Jin 2022, p. 280). A further publication which regards the entrepreneur as a leader by default employs what it deems the most prominent theoretical paradigm in leadership: TL (Ensley et al. 2006). It should however be noted that this publication appeared a mere two years after the first concrete measure for entrepreneurship (Gupta et al. 2004). At this point, EL was only marginally established as a field in its own right, and the authors' research was on "the leadership of entrepreneurs" (Ensley et al. 2006, p. 246). However, Ng and Kee (2018) also use TL with reference to the body of previous research demonstrating its positive effects, as do five further publications of the 11 in this category (Baldegger and Gast 2016; Bamiatzi et al. 2015; Ensley et al. 2006; Hensel and Visser 2018; Ng et al. 2019). While the precise application of TL therein varies, the common thread is an implicit recognition of its utility as a measure in the context of EL. Some authors consciously argue for it. For example, one contribution embraces the dipolar nature of TL and transactional leadership to chart the evolution of leadership requirements

in a maturing entrepreneurial venture (Baldegger and Gast 2016). As mentioned in the *Results* section, these authors specifically dismiss extant measures of EL, due to their inclusion of aspects deemed unrelated to leadership. Others however arrive at TL by default, in itself an interesting commentary on the acceptance of EL-scales (e.g. Ng and Kee 2018).

Noteworthy too is that this association of EL and TL extends beyond the Western sphere into work examining EL in Ghana and Nigeria (Kimbu et al. 2021) as well as in China (Wang et al. 2012). While acknowledging the existence of a measure for EL (Gupta et al. 2004), these authors deem its conceptual development to be at an “embryonic stage,” and thus decide to follow in what they view as standard practice, drawing on mainstream leadership literature (Wang et al. 2012, p. 507). Representing scholars from both the fields of leadership (e.g. Baldegger and Gast 2016) and entrepreneurship (Verma and Kumar 2021), these publications offer strong support to the notion that, at the level of empirical research practice, EL and TL appear indistinguishable. This trend stands in marked contrast to the previously detailed assertions of the wide adoption of EL scales in the study of EL (Bagheri and Harrison 2020). Moreover, it opens up the question of why a swathe of recent reviews on EL skirt the central role TL has in measuring it in practice (e.g. Clark et al. 2019; Leitch and Volery 2017). Even so, most authors in the sample examined do not go so far as to claim that EL and TL are identical. However, the study examining Russian EL style inductively found that most entrepreneurs applied a style “consistent with the characteristics of transformational leadership” (McCarthy et al. 2010, p. 55). This offers firm credence to the relevance of TL within entrepreneurship, as well as intimating further the inherent, construct-level overlap between TL and EL (McCarthy et al. 2010).

This certainly provides a partial answer to RQ3 by demonstrating that empirical practice often considers TL and EL synonymous, confirming previous research which finds TL to be used as EL “routinely” (Reid et al. 2018, p. 152). However, a final portion of the sample remains to be discussed: those results which quantitatively examined TL and EL together. A caveat is the publication by Paudel (2018), which instead successfully replicated results linking TL with innovation using a measure of EL (Renko et al. 2015). This result may well be explained by Paudel’s use of the ENTRELEAD scale, and the similarity with TL regarding item content discussed above. With these similarities in mind, an examination of the meta-analysis by Lee et al. (2020) may be illuminating. As stated above, it found significant correlations between innovation and EL as well as TL, with EL outperforming TL as a predictor. Central to answering the RQs of the present review, however, is their finding a relationship of $\rho=0.93$ between EL and TL (Lee et al. 2020), even though EL was examined across only four samples, two of which are included in the present review. While the scale used in one publication could not be ascertained, at least three used ENTRELEAD; the high correlation between EL and TL, as demonstrated at an item level in Table 5, is therefore confirmed in statistical analysis. The two samples included here, also found in Lee et al. (2020), are those by Cai et al. (2019) who measured creativity, and Newman et al. (2018), who measured innovation. Upon closer examination, these two studies paint a picture whose contrast could not be stronger, even though both employed the ENTRELEAD scale alongside the same, shortened

instrument for TL by Carless et al. (2000; see Table 5). As detailed in *Results*, Cai et al. (2019) found strong positive effects between EL and various aspects of creativity. Simultaneously, they found no correlation between EL and TL, remarkable given the visible item-level content shared by these two scales (see Table 5 above). However, any elucidation of item-level correlations is lacking which might precisely reveal whence these wildly diverging correlations between two such similar measures stem, as is any substantive discussion (see Cai et al. 2019, p. 212-4). This is regrettable, as it is these that would offer valuable insights into the precise mechanism through which EL offers such substantial gains over TL in the prediction of creativity, an area in which TL has repeatedly proven itself in the past (Gumusluoglu and Ilsev 2009; Jung et al. 2003; Shin and Zhou 2003). Both this publication and that by Newman et al. (2018) adduce Bandura's social cognitive theory (1986) to conceptualize the transposition of behaviors such as risk taking from leaders to followers. Within this tripartite agentic distinction made by Bandura (2001), the definition of agent refers to "producers as well as products of social systems," reminiscent of the definition of an entrepreneur as issued by Gartner et al. (1992). The question posed in the introduction thus reemerges. Is it currently possible to measure EL without measuring TL? One last set of results may illuminate the answer.

Using the two exact same questionnaire measures and a larger sample, Newman et al. (2018) find wildly differing results from Cai et al. (2019). Specifically, they confirmed the predictive effect of EL on innovation, but found a similar effect for TL. Their results present themselves far more in line both with the overlap visible in Table 5 between EL and TL, and the authors' own argumentation, who acknowledge both the similarities between EL and TL, and the predictive effects of TL on creativity. Such a strong contrast with the results of Cai et al. (2019) cautions patience for further findings. The divergent results in this case may rest on the difference between creativity and innovation, even though the two are intrinsically related (Anderson et al. 2014). However, the value of TL for both creativity and innovation, considered "inseparable" from entrepreneurship (Gilad 1984, p. 151) is not only empirically established (Gumusluoglu and Ilsev 2009), but clear causal paths for this effect have also been traced and elaborated upon theoretically (Jung et al. 2003). By eliciting high motivation and increasing followers' self-esteem and self-worth, transformational leaders increase spontaneous acts of innovation (Mumford et al. 2002). Individual consideration serves as a reward, while intellectual stimulation specifically fosters novel and creative thinking (Sosik et al. 1998). However, more vital than the conflicting findings regarding creativity and innovation is the following. Newman et al. (2018) find a strong correlation between TL and EL ($r = .81, p < .05$), suggesting that recent studies using ENTRELEAD may have measured TL, rather than some distinctly unique style of EL (e.g. Dabić et al. 2021; Mehmood et al. 2021a; Mehmood et al. 2021b; Niemann et al. 2022; Pauceanu et al. 2021). The relationship found by Newman et al. (2018) between the ENTRELEAD scale and Carless et al.'s (2000) measure of TL clearly indicates an almost complete lack of divergent validity at the instrument level ($r = .81, p < .05$; Newman et al. 2018), particularly given that the result is confirmed in meta-analysis ($\rho = 0.93$; $SD\rho = 0.04$; Lee et al. 2020).

With respect to Question 3, the present analysis thus finds that, in practice, TL and EL are poorly separated. Numerous authors consider TL as representing EL, and

many authors use TL by default when measuring EL, acknowledging the conceptualization of leadership inherent to the FRLT. Meanwhile, statistical results directly comparing the two may be termed inconclusive at best (Cai et al. 2019). At worst, results cast serious doubt on the discriminant validity of currently available measures of EL versus TL (Newman et al. 2018; Lee et al. 2020).

6 Conclusion

The present review examined the relationship between TL and EL across a sample of 25 articles and over various levels of analysis. A number of key findings can be stated in answer to the RQs posed in the *Introduction*. RQ1 concerned the conceptual overlap and distinction between EL and TL. We found a cluster of conceptual work advocating EL as a form or paradigm of leadership distinct from TL; differences here include for example the incorporation of strategically oriented behaviors such as opportunity recognition (Harrison et al. 2020; Leitch and Volery 2017). However, we also find that work hailing from the wider leadership literature fails to appreciate this distinction in numerous instances, with most authors considering EL and TL as overlapping both conceptually (Kimbu et al. 2021; Lyons et al. 2020) and at the level of concrete, defined constructs (Fries et al. 2021; McCarthy et al. 2010). The analysis suggests a need for greater mutual fertilization of concepts and methods between the field of EL and leadership studies as a contributing factor. RQ2 examined the overlap of currently available measures of EL and TL, with two key findings to report. First, the three available scales of EL contain items at odds with the widely used understanding of leadership as an interpersonal influence process directed towards the achievement of shared goals. Aspects of EL such as opportunity recognition fall outside this conceptual paradigm, an issue considered problematic by researchers in the field (e.g. Baldegger and Gast 2016). Those items that do conform to the interpersonal understanding of leadership demonstrate a high degree of overlap with TL. For example, items of the ENTRELEAD that measure interpersonal leadership are practically indistinguishable from items from TL scales. Second, all three scales suffer to varying degrees from issues of validation and model fit. The most recent contribution appears least afflicted, representing a valuable step towards an operational definition of EL (Bagheri and Harrison 2020). Testing for discriminant validity versus TL is however lacking, while overlap in item content is notable. Finally, RQ3 sought an answer to the role of TL in measuring EL, and the testimony of available quantitative results examining both EL and TL. In response, it is found that many researchers continue to use TL to measure EL for various reasons (e.g. Lyons et al. 2020; Ng et al. 2019). Available EL scales have thus failed to gain overarching acceptance as measures of EL. Moreover, quantitative examinations have failed to show a definitive degree of discriminant validity between EL and TL, with some results indicating almost complete overlap (Newman et al. 2018; Lee et al. 2020).

Our study offers a first critical, up-to-date examination of the overlap between TL and the fragmented scholarship surrounding EL. We draw firm conclusions based on the examination of conceptual developments, research practice, and previous empirical findings. In summary, the present contribution thus creates a road map for those

measuring and studying EL, and points out several significant issues and discursive paradigms the researcher should be aware of. Moreover, we embed the nascent literature on EL within the broader, more accepted theoretical framework of the FRLT. This lays a path towards an increased exploration of EL by mainstream leadership research and, in particular, an increase in scholarly communication and exchange. The limitations of the present study, the implications of the findings and suggestions for future research are offered below.

6.1 Limitations

The present contribution claimed to clarify the interplay between EL and TL, seeking to curb the catachresis plaguing EL research. However, this paper is subject to a number of limitations. First and most importantly, the scope of the review was not exhaustive. The present SLR followed a structured and literature-based approach. Despite this, it is impossible to guarantee that all relevant articles were included in the databases chosen. As stated in Sect. 2.1, only articles that explicitly mentioned TL and EL were examined. For a more comprehensive picture, this pool could be expanded along two dimensions. First, research could be included that explicitly examines TL within organizations that are emphasizing entrepreneurial action, such as those in the process of spinning off sub-units, acquiring startups, or engaging in corporate venturing. In short, this could identify organizational contexts in which leadership is examined that falls under a broad definition of EL, but where the specific term is not used. Conversely, all papers could be included which explicitly examine EL, and from these only those that examine leadership behaviors typical of TL without explicitly employing the term. A second limitation lies in the comparative brevity with which some of the articles were necessarily treated for the sake of space. The statistical results in Cai et al. (2019), Newman et al. (2018), and Lee et al. (2020) would for example permit a far more in-depth discussion with respect to RQ3. Finally, several review articles with interesting insights fell outside the bounds of this sample because they were either thematically off-point, not found in any of the databases examined (e.g. Clark and Harrison 2019; Clark et al. 2019), or the impact factor of the publishing journal was below 1 (Harrison et al. 2016).

6.2 Implications

The current study contributes by offering theoretical implications in three areas of literature where gaps were observed. First, we have provided an important contribution to the wider, fragmented discourse on entrepreneurial leaders. We offer a road map by showing that research past (e.g. Ensley et al. 2006; Wang et al. 2012) and present (e.g. Ng et al. 2019; Verma and Kumar 2021) employ TL as a valid adjunct to measuring EL, and by demonstrating that the use of current measures of EL (Bagheri and Harrison 2020; Gupta et al. 2004; Renko et al. 2015) is plagued by issues. Specifically, their use guarantees neither measurement of EL, as opposed to TL, nor measurement of leadership behaviors, as accepted under the widely acclaimed FRLT paradigm. Further, two of three available EL questionnaires failed to provide conclusive, statistical evidence for a unified construct of EL (Bagheri and Harrison 2020; Gupta et

al. 2004). The recent inclusion of additional leadership concepts such as empowering or self-leadership (Harrison and Bagheri 2020; cf. Cheong et al. 2019; Houghton et al. 2003) fails to ameliorate the lack of cross-validation and dedicated sampling for discriminant validity, and our findings thus contribute by demonstrating that measurement of EL should be accompanied by, at minimum, a proven questionnaire measure of TL (e.g. Multifactor Leadership Questionnaire, Bass and Avolio 1997). Such combined use would permit meta-analysis of its divergent validity and enable further refinement or dimensional reduction. Moreover, we find an increasing number of studies employing the ENTRELEAD scale (Renko et al. 2015), most by entrepreneurship researchers, whose familiarity with leadership literature may be limited (e.g. Dabić et al. 2021; Mehmood et al. 2021a; Mehmood et al. 2021b; Pauceanu et al. 2021). Our contribution is therefore a demonstration to these researchers of the issues with EL-measures noted above.

We further contribute to the ongoing discourse by drawing together previous research to show that TL provides four concrete, theoretically elucidated sub-dimensions that are suitable for further analysis of EL outcomes (e.g. Hensel and Visser 2018; Lee et al. 2020), and that TL has the ability to transcend cultural boundaries (Crede et al. 2019). This has been specifically demonstrated for entrepreneurial leaders in various cultures (Kimbu et al. 2021; Wang et al. 2012). The FRLT additionally provides an equally validated, alternative style, transactional leadership, which is effective in many other contexts. Finally, it delineates a concrete, ineffective, negative leadership style: laissez-faire (Antonakis 2001). Our study also contributes by outlining that non-TL items on current measures of EL largely reflect non-leadership aspects, such as opportunity recognition, and suggest their measurement via dedicated instruments. For example, entrepreneurial opportunity recognition has recently been measured by examining both perceived proficiency in recognizing opportunities, as well as by gauging the actual number of opportunities exploited (Maran et al. 2021).

Second, we contribute to the literature by contextualizing the work of a core community of EL researchers (e.g. Harrison et al. 2016; Leitch and Volery 2017), which claims a high degree of authority and centrality in EL matters. By examining it from the perspective of leadership research, our study offers more insights into the practice of EL research as currently found around the world. Despite claims that EL is a distinct and valid construct, the present study finds that EL, as an operationalized set of behaviors that portray the leader-follower influence process, has yet to be established. Our work therefore contributes directly to the debate by offering as a primary goal the differentiation of EL from other extant, mainstream styles of leadership, such as transformational (Bass 1985), empowering (Cheong et al. 2019), and authentic leadership (Jensen and Luthans 2006). While Bagheri and Harrison's (2020) recent measure of EL has taken great strides in this direction, we contribute by demonstrating how this and other measures diverge from accepted norms of scale development, and by suggesting the outline of a process of scale development and validation to remedy this. In addition, our study contributes by clearly connecting the currently confused picture of EL-TL measurement, both in terms of research practice and conflicting statistical results, with this non-normative history of development of EL scales. We further offer a modest contribution to this process by pointing to previous literature reviews which

could serve as groundwork for ongoing development, and which have determined traits such as tenacity, a need for power and control, charisma, flexibility and an internal locus of control to be related to EL (e.g. Harrison et al. 2016). However, the authors caution that the leadership literature itself has observed an overproliferation of leadership styles, and empirical testing has repeatedly revealed purportedly new leadership styles such as authentic or empowering as overlapping significantly with TL (Deng et al. 2022).

Third, the present study provides a modest contribution to the leadership literature. We carry on and strengthen work by Fries et al. (2021) and Ried et al. (2018), which sought to examine EL as one of numerous styles. The present review details several areas of distinction and overlap between EL and other, established styles of leadership. Furthermore, we offer additional support to the recent findings which indicate that a proliferation of leadership styles may often fail to provide extra value beyond TL (Deng et al. 2022; cf. Shaffer et al. 2016). Overall, we provide value by couching the current, fragmented literature on EL more clearly in the terminology of mainstream leadership research, thus hopefully opening the door for a renewed “assault” on the delineation of EL’s fundamental building blocks.

Our study also contributes by providing several managerial implications. The holistic approach taken by EL research noted above, while hindering scale development, may be useful in obtaining a coherent and comprehensive understanding of EL in the field. However, considering the overlap of current definitions of EL with TL (e.g. Newman et al. 2018), the implication for managerial practice is clearly that TL is a suitable style in many contexts with entrepreneurial features. This is further inferred by the many studies that purport to examine EL using the ENTRELEAD scale, which find some positive effect of EL on a variety of outcomes (Dabić et al. 2021; Mehmood et al. 2021a, b). As stated in the *Discussion*, ENTRELEAD overlaps considerably with TL. Taken together with recent findings from the field of leadership, our study thus contributes to transfer and practice by underlining the value of TL versus novel models of leadership (Deng et al. 2022). Therefore, professionals in management and human resources may consider TL as representing a key leadership style for entrepreneurial ventures. With regard to policy implications, our findings contribute by suggesting that TL may be used as an adjunct to EL in the training of entrepreneurs. This concerns executive education, which has shown that entrepreneurship and an entrepreneurial mindset can be aided by educational means (e.g. Bachmann et al. 2021). Until a true, distinct leadership style of EL is found and widely accepted, therefore, the use of TL to cover the leadership aspect of entrepreneurship may be considered as representing best practice. The vision communication and charisma of the transformational leader has persistently been shown to encourage exceptional performance in employees (Ng 2017); their intellectual stimulation has proven vital in breaching the boundaries of convention, and delivering innovations of product, service or business model (e.g. Begum et al. 2022). The individual consideration awarded followers has repeatedly engendered job satisfaction, low turnover, and improved personal outcomes in the examined samples (e.g. Alwali and Alwali 2022). Our findings further contribute by suggesting that executive education and transfer make use of dedicated resources for non-leadership EL components, such as opportunity recognition, supplementary to TL.

6.3 Future research directions

The authors identify two main areas that could benefit from further inquiry. First, we encourage future research to create a clear definition differentiating EL “in” versus “of” (entrepreneurial ventures). The owner-entrepreneur who leads might show “leadership of” behaviors, but his subordinates within a startup who lead employees may only show “leadership in” behaviors. Separating these precedes the elucidation of a concrete, behavioral delineation of EL to capture the “leadership in” component (Antonakis and Autio 2012), in line with the dominant paradigm of leadership research, the FRLT (Bass and Avolio 1997). A wider understanding of EL, one that does not focus on leader-follower behaviors, may be termed a “leadership of” understanding. However, such an understanding of EL overlaps significantly with research into entrepreneurs and entrepreneurial orientation (Covin et al. 2020), given its inclusion of risk-taking (Renko et al. 2015) and opportunity recognition (e.g. Bagheri and Harrison 2020). Separating EL “in” versus “of” represents a necessary step which several authors have already taken (Ng and Kee 2018; Ng et al. 2019; Harrison et al. 2018) proposed a differentiation between internally and externally driven studies on EL. Similarly, Antonakis and Autio (2012) assigned extant leadership styles to phases of the entrepreneurial venture such as *Precreation*, *Start-up* and *Consolidation*. We suggest both as useful starting points for further examining and defining EL. Dismissing all non-behavioral aspects of EL could impede a full appreciation of entrepreneurship’s economic and social value (Antonakis and Autio 2012), while more carefully separating its dimensions could lead to a more granular appreciation of EL as a procedural phenomenon. Context is a crucial if often overlooked aspect in leadership (Liden and Antonakis 2009; Lowe and Gardner 2000), particularly in entrepreneurship. For example, when pre-founding, the entrepreneur by necessity must be a risk-taker and opportunity seeker; later, management and leadership often replace these attributes in terms of importance (Alvarez and Barney 2007; Gray et al. 2003). We suggest that future research should further engage with such differences (Baldegger and Gast 2016), in line with Cogliser and Brigham’s (2004) foundational definition of EL.

Second, moving beyond the “leadership in” versus “leadership of” issue, there is a drastic lack of substantive research on the concrete leader behaviors shown by female entrepreneurs. Although some studies do exist (e.g. Harrison et al. 2018; Yousafzai et al. 2015), they are far too few (Clark et al. 2019). A further aspect is that of “co-leadership.” While entrepreneurial ventures, in particular the modern, “techie” startup, often rely on teams of founders sharing leadership responsibilities at both the managerial and strategic levels (Ensley et al. 2006), no current conceptualization of EL directly addresses this interpersonal perspective, even though the paradigm of leader-member-exchange would lend itself to such an investigation (Leitch and Volery 2017). This reflects a wider issue, i.e. that conceptualizations of EL which take a less leader-centric approach may well be worth exploring, as mentioned by previous reviewers of the field (Leitch and Harrison 2018a).

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Data Availability Regarding the underlying data, the papers which form the sample underlying the present SLR are available from the databases stated in the manuscript.

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