

Interrelations between enhanced emotional intelligence, leadership self-efficacy and task-oriented leadership behaviour—a leadership coaching study

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39

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Abstract

Purpose – The purpose of this paper is to investigate interrelations between enhanced emotional intelligence, leadership self-efficacy and task-oriented leadership behaviour following participation in leadership coaching.

Design/methodology/approach – Organisational leaders (coachees) ($N = 70$) and their subordinates ($N = 175$) completed online questionnaires pre- and post-coaching. To account for pre-coaching scores, construct latent change scores were assessed using partial least squares structural equation modelling (PLS-SEM).

Findings – Results indicate a positive association between enhanced emotional intelligence and leadership self-efficacy, however, little support was found for leadership self-efficacy as a mediator explaining an association between enhanced emotional intelligence and task-oriented leadership behaviour.

Practical implications – Organisations aiming to improve leader performance through enhancing emotional intelligence and leadership self-efficacy may find value in leadership coaching due to the intervention's positive effect on these constructs, and the positive association observed between developmental changes in these constructs.

Originality/value – Research on the interrelation between emotional intelligence and leadership self-efficacy is scarce. This study extends the literature by investigating the interrelation between developmental changes between these constructs brought about by leadership coaching using latent change scores and PLS-SEM. The study also assesses whether enhanced leadership self-efficacy mediates an association between enhanced emotional intelligence and task-oriented leadership behaviour building on the literature explaining coaching's effect mechanisms.

Keywords Coaching, Emotional intelligence, Self-efficacy, Leader development, Task behaviour, Latent change scores

Paper type Research paper

Significant evidence demonstrates the importance of leadership in organisations (Rosenbach *et al.*, 2018), however, scholars such as Derue and Myers (2014) argue that the leader development literature had not yielded the insights needed to address a growing leadership talent crisis. Whilst leadership coaching is considered among the top five leader development best practices (Maltbia *et al.*, 2014), scholars suggest the practice is ahead of its scientific



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understanding (Athanasopoulou and Dopson, 2018) with more studies needed to assess its efficacy and effect mechanisms (Bozer and Jones, 2018).

Responding to these calls and acknowledging significant literature associating several leadership behaviours and leadership self-efficacy with leadership effectiveness (Hannah *et al.*, 2008; Judge and Piccolo, 2004; Stajkovic and Luthans, 1998; Yukl *et al.*, 2002), and a growing body of literature associating emotional intelligence with leadership effectiveness (Dulewicz and Higgs, 2004; Zaccaro *et al.*, 2018), we investigate interrelations between these constructs following coaching. Specifically, informed by self-efficacy theory (Bandura, 1977) and an emerging number of studies associating emotional intelligence and self-efficacy (e.g. Harper, 2016), we investigate interrelations between enhanced emotional intelligence, leadership self-efficacy and task-oriented leadership behaviour following participation in leadership coaching as depicted in Figure 1.

Theoretical background and development of hypotheses

Leadership coaching

Drawing on the coaching literature (e.g. Athanasopoulou and Dopson, 2018; Jones *et al.*, 2016), we define leadership coaching as a one-on-one tailored learning and developmental intervention for organisational leaders that uses a collaborative, reflective, goal-focused relationship to develop and maintain positive change in personal development and leadership behaviour leading to the achievement of professional outcomes.

Unlike classroom-style leadership training which has been criticised for low learning transfer to the workplace (Boyce *et al.*, 2010), leadership coaches are described as “thinking partners” (Stout-Rostron, 2014) or “change agents” (Spence *et al.*, 2019), who facilitate desired and deep-level “inner” change to achieve sustained improvements in leader performance. This is evident in recent literature (e.g. Spence *et al.*, 2019; Taylor *et al.*, 2019) associating leadership coaching with adult learning and development theories such as intentional change theory (ICT: Boyatzis, 2008) and transformative learning theory (Mezirow, 1997). For example, Taylor *et al.* (2019) argued that leadership coaching informed by ICT, assists a person to experience “discoveries” when comparing, for example, their ideal and real self, leading to increased feelings of autonomy, relatedness, and competence and therefore motivation to change as informed by self-determination theory (Deci and Ryan, 2000). Similarly, Spence *et al.* (2019) argued that leadership coaching assists coachees (the leader being coached) to transform their beliefs and habits of thinking through the coach encouraging “practices” facilitating transformative learning such as the use of dialogue, critical reflection and awareness raising.

Supporting coaching’s efficacy, several meta-analyses indicate coaching is associated with enhanced affective, cognitive, skill-based and individual leader-level outcomes (Grover and Furnham, 2016; Jones *et al.*, 2016; Theeboom *et al.*, 2014). Relating to the constructs of interest in our study, coaching has been positively associated with leadership self-efficacy (Bozer and Jones, 2018; Grant, 2013; Ladegard and Gjerde, 2014), positive leadership behaviour (Athanasopoulou and Dopson, 2018; Grover and Furnham, 2016; MacKie, 2014), emotional intelligence (Bharwaney, 2006) and its sub-components such as increased self-awareness (Leonard-Cross, 2010) and self-regulation (Yeow, 2011).



Note(s): Δ = “developmental changes in”

Figure 1.
Conceptual model

Emotional intelligence (EI)

Whilst the role of emotions in the workplace is not new (George, 2000), research into emotional intelligence (EI) did not begin until the 1970s with psychologists Jack Mayer and Peter Salovey observing that smart people often made very poor decisions, suggesting conventional measures of intelligence fell short. They went on to classify EI as a distinct intelligence defining it as the brain's ability to process emotional information (Salovey and Mayer, 1990). Daniel Goleman broadened this definition defining it as “*the abilities to recognize and regulate emotions in ourselves and in others*” (Cherniss and Goleman, 2001, p. 14), attributing a large component of personal and professional success to four main EI competencies, that is, two relating to personal competence (i.e. self-awareness and self-management) and two relating to social competence (i.e. social awareness and relations management).

Although EI as a construct is not without its scholarly critics (Antonakis *et al.*, 2009) with several conceptualisations of the construct evolving over the years (Dasborough *et al.*, 2021; Meisler, 2014), a growing body of evidence supports the validity of leaders' EI and its association with leader performance and leadership effectiveness (Dasborough *et al.*, 2021; Dulewicz and Higgs, 2000; Kotze and Venter, 2011; Zaccaro *et al.*, 2018). For example, EI has been associated with transactional and transformational leadership (Harms and Crede, 2010; Maamari and Majdalani, 2017), leadership behaviour preferences (Li *et al.*, 2016), empowering leadership (Alotaibi *et al.*, 2020), receptivity towards organisational change (Tsaousis *et al.*, 2004), and is considered relevant in leading virtual teams through crises such as the coronavirus disease (COVID-19) pandemic (Bavik *et al.*, 2021; Mysirlaki and Paraskeva, 2020).

There is also evidence indicating EI can be learned and developed (Dulewicz and Higgs, 2004), particularly if the learning is self-directed rather than through classroom-style teaching (Cherniss and Goleman, 2001). Coaching is considered to facilitate self-directed learning (Stout-Rostron, 2014) with an emerging number of studies associating leadership coaching with enhanced EI (e.g. Schaap and Dippenaar, 2017).

Leadership self-efficacy

Wood and Bandura (1989) asserted that for a person to be successful at completing a task, they not only need the required skills but also need to have a resilient self-belief in their capability to complete the task. This is supported by a significant volume of research indicating that self-efficacy plays an important role in predicting workplace performance (Stajkovic and Luthans, 1998). However, Bandura (1982) asserted that, unlike personality traits, self-efficacy is a situation-specific construct that can be encouraged and developed. In this study, our focus is on leadership self-efficacy (LSE), which Hannah *et al.* (2008) defined as “*a specific form of efficacy associated with the level of confidence in the knowledge, skills, and abilities associated with leading others*” (p. 669).

Several studies have associated LSE with leadership performance (e.g. Hannah *et al.*, 2008), and a growing number of studies indicate LSE can be enhanced through leadership coaching (e.g. Ladegard and Gjerde, 2014). For example, Grant (2013) found coaching enhanced LSE ($t(1,30) = 2.353, p < 0.05$) and suggested this occurred through the coachee “*setting personally valued goals and purposely working towards these*” (p. 4) whilst having a confidential and supportive relationship with the coach.

Task-oriented leadership behaviour

Significant literature exists on leadership behaviour, with several well-known models referenced in the literature such as Halpin and Winer's (1957) two-factor model of leadership behaviour, Tannenbaum and Schmidt's (1958) leadership continuum model, and Blake and Mouton's (1964) managerial grid model. In Halpin and Winer (1957) model, for example, the

authors suggested leadership behaviour could be categorised into two independent meta-categories, that is, consideration behaviours focussing on people such as showing concern and appreciation of followers, and initiation of structure behaviours focussing on tasks such as setting goals and organising work.

More recently and following an analysis of 50 years of leadership behaviour research, Yukl *et al.* (2002) found strong support for a three-factor model of leadership behaviour and labelled these as task-, relations- and change-oriented behaviours. In this model, behaviours associated with planning, clarifying objectives and expectations, and monitoring performance, are termed task-oriented leadership behaviours, whereas behaviours associated with consulting team members and encouraging innovative thinking are termed relations- and change-oriented, respectively. Of these three behaviour categories, Derue *et al.* (2011) found task-oriented leadership behaviour explained the most variance in leadership performance.

Whilst the literature on coaching's effect on these behaviour categories is still developing, coaching has been associated with task-oriented behaviours such as goal setting and attainment, and task-achievement focus (Blackman, 2007; Grant, 2013; Smither *et al.*, 2003).

Hypothesis development

Our hypotheses are centred within self-efficacy theory (Bandura, 1977), and our focus is on the interrelations between participants' enhanced EI, LSE and task-oriented leadership behaviour following participation in leadership coaching.

Interrelation between enhanced EI and leadership self-efficacy

We argue that there is a positive association between enhanced EI and LSE following participation in leadership coaching. Our hypothesis draws on self-efficacy theory (Bandura, 1977), which suggests a person's judgement of their efficacy (self-efficacy) is influenced by information from four sources, namely performance accomplishments ("I do"), vicarious experiences ("I see"), verbal persuasion ("I hear") and emotional arousal ("I feel").

We argue that as leaders increase their ability to recognise and manage one's own and others' emotions, that is, EI (Cherniss and Goleman, 2001), through coaches encouraging their coachees (coached leaders) to apply their learnings in the workplace (Stout-Rostron, 2014) such as observing, managing and applying emotions to assist their leadership effectiveness, coachees are likely to experience small leadership successes (performance accomplishments). Further, the coachees are more likely to observe and model the EI of others such as how others remain calm under pressure or how they tap their emotions to influence others (vicarious experiences). Informed by self-efficacy theory, these performance accomplishments and vicarious experiences are likely to lead to a leader's enhanced belief in their ability to recognise and use emotions to enhance their leadership. This, and that EI is associated with several skills that are critical to managerial performance such as managing social cues, navigating political networks and working under stressful conditions (Rode *et al.*, 2017), and EI's association with leadership effectiveness (Kotze and Venter, 2011; Li *et al.*, 2016) suggest increases in EI are likely to be associated with increases in a leader's confidence in their ability to lead, i.e. LSE.

Further, we argue that as a leader increases their EI, the leader is likely to become more aware of and more ably manage their own and others' emotions leading to improved stress management and social confidence in their leadership role (Ramesar *et al.*, 2009), resulting in increased LSE through Bandura's fourth source of self-efficacy, emotional and physiological information. This effect, along with the leader's performance accomplishments and vicarious experiences from their enhanced EI as detailed earlier, we argue, is likely to lead to increased LSE.

Supporting our assertion, research indicates a positive relationship between EI, particularly the intrapersonal components of EI and self-efficacy (e.g. Fabio and Palazzeschi, 2008; Harper, 2016; Ramchunder and Martins, 2014; Sarkhosh and Rezaee, 2014). Whilst these studies did not assess the relationship between developmental changes in these constructs which is the focus of our study, they do provide some support for our hypothesis.

In summary, we hypothesise:

H1. Enhanced emotional intelligence is positively associated with enhanced LSE

Interrelation between enhanced leadership self-efficacy and task-oriented leadership behaviour

Bandura and Locke (2003) suggest that self-efficacy influences whether people think in self-enhancing or self-debilitating ways, their motivation and effort to pursue action and their perseverance when faced with challenges and plays an important role in predicting behaviour. Similarly, as coaching's purpose is to help coachees learn and develop (Athanasopoulou and Dopson, 2018), coachees are likely to exhibit "mastery-oriented" behaviours such as increasing their effort, persistence and viewing challenges as opportunities (Dweck and Leggett, 1988). Therefore, as a leader increases their LSE through coaching, they are likely to be more motivated and apply more effort to achieve team objectives such as by setting clearer expectations and more closely monitoring their team's progress. These behaviours are reflective of task-oriented leadership behaviour such as team planning, clarifying objectives and monitoring performance (Yukl, 2012).

Further, as leaders increase their LSE, they are more likely to persevere when faced with difficult leadership challenges and have higher analytical and self-enhancing thinking (Bandura and Locke, 2003). This study and studies indicating those with high LSE are more likely to set priorities, provide clear and timely decisions, and proactively manage performance (Anderson *et al.*, 2008), indicate increases in LSE are likely to be associated with increases in task-oriented leadership behaviour.

Supporting our assertions, following development interventions, several studies have found positive associations between enhanced leader self-efficacy and positive leadership behaviour (e.g. Mason *et al.*, 2014). We therefore hypothesise:

H2. Enhanced LSE is positively associated with enhanced task-oriented leadership behaviour.

Leadership self-efficacy's mediating role

Mediation explains the mechanism where an antecedent variable affects a mediating variable which then affects a dependent variable (Nitzl *et al.*, 2016). In our study, and informed by self-efficacy theory (Bandura, 1977), we argue that following participation in coaching, enhanced EI (antecedent variable) is associated with enhanced LSE (mediating variable) which in turn is associated with enhanced task-oriented leadership behaviour (dependent variable). We also argue that EI's effect on task-oriented leadership behaviour is indirect only, that is, enhanced LSE acts as a full mediator (Nitzl *et al.*, 2016) between enhanced EI and task-oriented leadership behaviour.

Supporting our hypothesis, the literature suggests coaching facilitates increased self-awareness (Armstrong *et al.*, 2007; Wales, 2002; Wasylyshyn, 2003) through the coaching utilising techniques such as critical reflection (Stout-Rostron, 2014). We argue this is likely to lead to coachees increasing awareness of their own and others' emotions (EI). This, and coaches facilitating the development of learning agendas and supporting coachees to practise

(Taylor *et al.*, 2019) and reflect on the application of their improved EI in the workplace, is likely to lead to increased LSE through sources of self-efficacy such as performance accomplishments (Bandura, 1977). This increase in LSE is likely to lead to enhanced analytical and self-enhancing thinking (Bandura and Locke, 2003) with leaders more likely to set priorities, provide clear and timely decisions, and proactively manage performance (Anderson *et al.*, 2008) reflecting task-oriented leadership behaviours (Yukl *et al.*, 2002).

This sequence of effects is reflected in coaching frameworks such as Whitmore's (2002) popular GROW model (Goals, Reality, Options, Will). To illustrate, in the early stages of the coaching process, coaching facilitates coachees to gain an improved understanding and perspective of their "Reality" which is likely to increase a coachee's awareness of their emotions and the impacts they have on others (EI). Following an improved understanding of their "Reality", informed by ICT (Boyatzis, 2008) which suggests sustained leadership development occurs through a cycle of nonlinear and discontinuous experiences, the leader is likely to experience discontinuity between their goals and reality, and therefore an increase in motivation and a sense of urgency to change and develop.

Coaches then facilitate coachees to move into solutions-focus by assisting coachees to develop realistic "Options" to achieve their professional "Goals" through techniques such as asking open-ended questions and challenging the coachee's assumptions in a constructive way (Stout-Rostron, 2014). This is followed by the coach facilitating the coachee to develop structured actions and implement these to help them achieve their desired leadership objective(s) as represented as "Will" in the GROW model. These latter two stages are likely to lead to coachees having a higher belief in their ability to achieve leadership objectives (LSE). This increase in LSE and coaching facilitating a coachee's increased clarity of their goals and the development of structured action plans to achieve these goals (Whitmore, 2002), is likely to lead to enhanced task-oriented leadership behaviours such as the coachee providing improved clarity for others and proactively managing performance (Anderson *et al.*, 2008).

Further, due to coaching facilitating "deep" or "double or triple loop" learning where underlying assumptions, values and beliefs are questioned, the coachee's learning and development are likely to be sustained over the long term (Hargrove, 2008; Spence *et al.*, 2019; Witherspoon, 2014).

We therefore hypothesise:

H3. Enhanced LSE mediates a positive association between enhanced emotional intelligence and task-oriented leadership behaviour.

Method

Participants and procedures

A within-subjects pretest-posttest design (Sekaran and Bougie, 2013) was adopted to test our hypotheses. In total, 70 organisational leaders (coachees) and their subordinates ($N = 175$) predominately from Australia volunteered to participate in the study and returned complete pre- and post-coaching questionnaires. Of the 70 leaders, 36 were females, 34 males, were on average 44 years old (range: 28–66 years), and 21% classified themselves as front line supervisors, 59% as middle managers and 20% as senior or executive managers. EI and LSE questionnaires were completed by the coachees, however task-oriented leadership behaviour was assessed by the coachees' subordinates to reduce common method bias (Podsakoff *et al.*, 2003).

Following the completion of pre-coaching questionnaires, coachees received on average six 60–90 min one-on-one leadership coaching sessions funded by their organisation over an average of four months. Coaching sessions were delivered by full-time accredited leadership coaches external to the coachees' organisations, had on average 14.2 years of leadership

coaching experience and identified the primary goal from their leadership coaching to be developmental (46%), skill development (30%), performance improvement (11%) or other (13%).

Measures

Emotional intelligence. This construct was assessed with the Genos Emotional Intelligence Inventory–Concise (GEII) developed by Palmer *et al.* (2009). The GEII measures seven components of EI and consists of a 31 item 5-point Likert questionnaire (1 = *almost never*, 5 = *almost always*) with items such as “I am aware of how my feelings influence the decisions I make at work”. EI was operationalised as a reflective-formative second-order construct as the components are considered distinct (Palmer *et al.*, 2009). (Cronbach’s alpha; pre = 0.890, post = 0.918).

Leadership self-efficacy. This construct was assessed with the Leader Efficacy Questionnaire (LEQ) developed by Hannah and Avolio (2013) and measures three components of LSE using a 22 item 11-point Likert questionnaire (0 = *not at all confident*, 100 = *totally confident*). The LEQ was completed by the coachees and includes items such as “As a leader, I can motivate myself to take charge of groups”. LSE was operationalised as a reflective-formative second-order construct as the components are considered distinct (Hannah *et al.*, 2012). (Cronbach’s alpha; pre = 0.904, post = 0.927).

Task-oriented leadership behaviour. This construct was assessed with four reflective items from Yukl’s (2012) Managerial Practises Survey (MPS) to measure task-oriented leadership behaviours such as “Please describe how much your supervisor uses each managerial practice or leadership behaviour. Clarifying: explains task assignments and member responsibilities; sets specific goals and deadlines for important tasks; explains priorities for different objectives; explains rules, policies, and standard procedures”. Whilst the title of the survey refers to “managerial practises”, the instrument is designed to assess three meta-categories of leadership behaviour, that is, task-, relations- and change-oriented leadership behaviours (Yukl *et al.*, 2002). Each item in the MPS uses a five-point Likert scale (1 = *not at all*, 5 = *to a very great extent*), with data provided by the coachee’s subordinates as they were considered most likely to observe the coachee’s behaviours. (Cronbach’s alpha; pre = 0.843, post = 0.855).

Control variables. Informed by coaching literature (e.g. Cox *et al.*, 2014; Van Oosten *et al.*, 2019) and underpinning learning theories such as social learning theory (Bandura, 1977) and experiential learning theory (Kolb and Kolb, 2005), several controls were included to account for their potential effects, that is, the number of coaching sessions, coaching duration, coach–coachee relationship and the coachee’s developmental readiness. The coach–coachee relationship was measured by the coach at time 2 with the single five-point Likert scale item, “How would you rate your working relationship with the coachee during the coaching? (e.g. rapport, openness, trust, support)” (1 = *very poor*, 5 = *very good*). The coachee’s developmental readiness was assessed by the coach at time 2 with the single five-point Likert scale item “How would you rate the developmental readiness of the coachee at the beginning of the coaching program? (e.g. their motivation and ability to develop)” (1 = *very poor*, 5 = *very good*).

Analytical method

The analyses proceeded in several phases. First, following preliminary analyses, mean differences between pre- and post-coaching construct scores were assessed using IBM SPSS v25. Second, following assessments for test-retest reliability, inter-rater agreement and common source bias as described below, our latent measurement models, structural model and hypotheses were assessed using partial least squares structural equation modelling

(PLS-SEM) software SmartPLS 3.2.8 (Ringle *et al.*, 2015) and analysis recommendations by Sarstedt *et al.* (2017). PLS-SEM was used due to the predictive nature of the study, and its capacity to assess latent hierarchical constructs and relationships between these simultaneously (Hair *et al.*, 2011). Due to concerns over using raw gain scores in structural model analyses such as regression to the mean effects (Cronbach and Furby, 1970), and to account for pre-coaching scores, latent changes scores (LCS: Ferrer and Mcardle, 2010) were used to assess our model and the PLS-SEM two-stage approach adopted due to the study's hierarchical constructs (Becker *et al.*, 2012).

To assess test-retest reliability, following recommendations by Hertzog and Nesselroade (2003), intra-class correlations coefficients were calculated (ICC(3,k): Koo and Li, 2016). Results were 0.768 for emotional intelligence, 0.841 for LSE and 0.840 for task-oriented leadership behaviour, indicating good test-retest reliability (Koo and Li, 2016).

As task-oriented leadership behaviour was assessed by the coachees' subordinates, data were aggregated to the coachee level following an assessment of inter-rater agreement James *et al.* (1993). ($r_{wg(i)} = 0.82$ pre-coaching and 0.84 post-coaching).

To check for common source bias as EI and LSE were assessed by the coachees, the Harman's single-factor test (Podsakoff *et al.*, 2003) and a full collinearity test of the first-order constructs was undertaken. Harman's single-factor test indicted the largest factor accounted for 38.6% of the variance of the model and the highest inner variance inflation factor was 2.388 indicating common method bias is unlikely to be present.

Results

Preliminary analysis

Results of paired *t*-tests indicate all construct means increased following coaching (EI $t(69) = 6.88, p < 0.001$, Cohen's $d = 0.82$; LSE $t(69) = 8.38, p < 0.001$, Cohen's $d = 1.01$; task-oriented leadership behaviour $t(174) = 4.60, p < 0.001$, Cohen's $d = 0.32$). Correlations between task-oriented leadership behaviour and the first-order components of EI and LSE are summarised in Table 1, with the largest correlations observed between SE(a) (leader action efficacy) and the first-order components EIao (emotional awareness of others) and EImo (emotional management of others).

Measurement models

For the reflective measurement models, all items are statistically significant ($p < 0.05$), however, items with low loadings were removed. As presented in Table 1, the average variance extracted (AVE) values are greater than 0.50 indicating adequate convergent validity, and composite reliability ρ_c Jöreskog (1971) values greater than 0.70 and less than 0.95 indicating adequate internal consistency. Following the Fornell-Larcker test (Fornell and Larcker, 1981), all square roots of AVE for each construct are greater than correlations involving the constructs, and the highest Heterotrait-Heteromethod correlation (HTMT: Henseler *et al.*, 2015) is less than 0.90 (i.e. 0.831) indicating adequate discriminant validity. For the second-order formative constructs EI and LSE, all indicator weights are statistically significant ($p < 0.001$), and the highest variance inflation factor (VIF) is 2.388 indicating collinearity is not present.

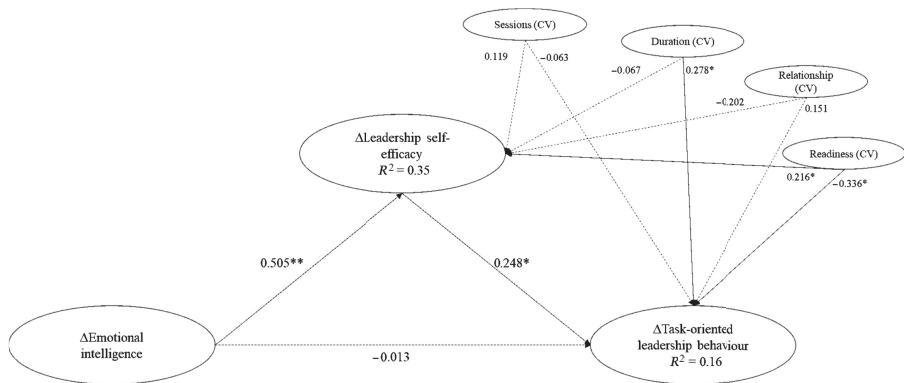
Structural model assessment

Potential collinearity between the predictor constructs was assessed, and as the VIF value is 1.122, collinearity is unlikely to be present. Next, the model's predictive quality was assessed through variance explained (see R^2 in Figure 2) and cross-validated predictive relevance Stone-Geisser Q^2 (Geisser, 1974; Stone, 1974). Q^2 values were calculated utilising the

	ρ_c	AVE	LT	E(sa)	E(ex)	E(eao)	E(r)	E(sm)	E(mo)	E(sc)	SE(a)	SE(m)	SE(s)
LT	0.846	0.649	1										
E(sa)	0.836	0.719	-0.095	1									
E(ex)	0.805	0.674	-0.150	0.193	1								
E(eao)	0.861	0.608	0.109	0.421**	0.382**	1							
E(r)	0.796	0.568	0.097	0.403**	0.440**	0.493**	1						
E(sm)	0.894	0.809	0.062	0.193	0.538**	0.549**	0.480**	1					
E(mo)	0.799	0.571	0.049	0.323**	0.434**	0.545**	0.449**	0.458**	1				
E(sc)	0.775	0.534	0.252*	0.392**	0.448**	0.388**	0.442**	0.494**	0.425**	1			
SE(a)	0.895	0.550	0.187	0.297*	0.407**	0.473**	0.402**	0.380**	0.473**	0.400**	1		
SE(m)	0.801	0.505	0.101	0.246*	0.345**	0.206	0.118	0.262*	0.260*	0.280*	0.367**	1	
SE(s)	0.885	0.524	0.123	0.291*	0.444**	0.237	0.324**	0.393**	0.443**	0.393**	0.687**	0.413**	1

Note(s): Eao, Eex, Emo, Er, Esa, Esc, Esm = first-order latent change score reflective constructs for emotional intelligence; SEa, SEm, Ser = first-order latent change score reflective constructs for leadership self-efficacy, LT = latent change score construct for task-oriented leadership behaviour; ρ_c = composite reliability; AVE = average variance extracted; Correlations are Pearson's r coefficients; * $p < 0.05$, ** $p < 0.01$

Table 1. Internal consistency reliability, convergent validity and bivariate correlations for first-order constructs



Note(s): Δ = “change in” represented by latent change scores; Results on paths are standardised β weights; * $p < 0.05$, ** $p < 0.01$. Solid lines represent statistically significant paths and dotted lines represent non-significant paths ($\alpha = 0.05$); CV = control variable. R^2 = variance explained (coefficient of determination)

Figure 2.
Results of PLS
estimation

blindfolding sample re-use technique (Hair *et al.*, 2017) and are greater than zero (i.e. 0.273 for LSE and 0.020 for task-oriented leadership behaviour) indicating the model has adequate predictive relevance. Finally, model fit was assessed using standardised root mean square residual (SRMR) (Sarstedt *et al.*, 2017) and is below the recommended cut-off value of 0.08 (i.e. 0.013) indicating adequate model fit.

Hypotheses testing

To test hypotheses one and two (H1 and H2), the strength, sign and significance of the path coefficients were evaluated using the non-parametric bootstrapping procedure in SmartPLS (5,000 samples, no-sign change option and two-tailed test), controlling for the four control variables. Our PLS-SEM analysis (refer to Table 1 and Figure 2) provides support for a positive relationship between changes in EI and LSE ($\beta = 0.505$, $t = 5.415$, $p < 0.001$) supporting H1. Similarly, support was found for H2 indicating a positive relationship between changes in LSE and changes in task-oriented leadership ($\beta = 0.248$, $t = 2.111$, $p = 0.035$).

Two of the control variables were found to have significant associations. That is, coaching duration was positively associated with enhanced task-oriented leadership behaviour ($\beta = 0.278$, $t = 2.303$, $p = 0.021$) and coachee developmental readiness was positively associated with increased LSE ($\beta = 0.216$, $t = 2.150$, $p = 0.032$) and negatively associated with increased task-oriented leadership behaviour ($\beta = -0.336$, $t = 2.202$, $p = 0.028$).

Acknowledging concerns with Baron and Kenny’s (1986) casual-steps approach for determining meditation effects such as concerns over low statistical power and not directly testing the significance of indirect effects (e.g. Preacher and Hayes, 2004), mediation predicted in H3 was tested using PLS SEM by assessing the bias-corrected bootstrap confidence intervals for the hypothesised indirect effect (Memon *et al.*, 2018; Nitzl *et al.*, 2016). Five thousand (5,000) bootstrap samples generated bias-corrected 95% confidence intervals for the indirect path [i.e. 0.013, 0.299] which do not straddle zero, providing some support for mediation (H3) as the interval does not straddle zero.

Discussion and theoretical contributions

The purpose of our study was to investigate interrelations between enhanced emotional intelligence, LSE and task-oriented leadership behaviour following participation in leadership coaching.

Acknowledging literature associating these constructs with leadership effectiveness, our study builds on the leader development and coaching literature by responding to calls to investigate coaching's effect mechanisms and extends the literature investigating the interrelation between EI and self-efficacy. Whilst causality cannot be assumed from our study, our results do provide some evidence for our conceptual model due to our pre-post quantitative design, the utilisation of two data sources and previously validated construct questionnaires, and latent change scores to address regression to the mean effects.

Hypothesis 1: The statistically significant interrelation between enhanced EI and LSE, and the large variance explained ($R^2 = 0.35$) and path effect size ($f^2 = 0.357$) observed in our study, supports our hypothesis that through coaching, a higher ability to identify and comprehend the importance of emotions and strategically use them, is associated with enhanced LSE such as the belief in their ability to manage social cues, navigate political networks and working under stressful conditions.

Our findings extend the literature associating EI and self-efficacy (Fabio and Palazzeschi, 2008; Harper, 2016; Sarkhosh and Rezaee, 2014) into the domain of "leadership" self-efficacy and provide preliminary evidence of an association between developmental changes in these constructs following participation in leadership coaching.

Hypothesis 2: Whilst a statistically significant association was observed between enhanced LSE and task-oriented leadership behaviour, the variance explained, and path effect size were small ($R^2 = 0.16$; $f^2 = 0.05$). Acknowledging previous studies that have associated LSE with workplace behaviour and performance (Hannah *et al.*, 2008), our result may reflect the limited temporal separation between pre- and post-coaching assessments (on average four months) which may have been insufficient for coachees to display and the subordinates to observe behaviours associated with task-oriented leadership. Further, ICT and transformative learning theory which inform coaching, suggest change is an iterative process and takes time to unfold (Spence *et al.*, 2019). Our results may also reflect the coaching literature indicating "inner" benefits from coaching such as increased self-awareness, clarity, confidence and motivation, precede "outer" benefits from coaching such as changes in leadership behaviour (e.g. Leedham, 2005). Future studies would therefore benefit from the inclusion of a third and longer time point to assess coaching's effect on distal outcomes such as leadership behaviour. This may also provide additional insights such as coachees' development trajectories and the sustainability of changes made.

Hypothesis 3: Little support was found for our mediation hypothesis. Whilst the bias-corrected bootstrap confidence intervals for the specific indirect effect do not straddle zero, the lower bound, i.e. 0.013 is close to zero and the mediation path effect size was negligible ($f^2 < 0.01$). As per our discussion regarding **Hypothesis 2**, this may reflect the limited temporal separation between pre- and post-coaching assessments resulting in insufficient time to enable the hypothesised mediation to "play out" (Cole and Maxwell, 2003) and coaching's effect mechanisms where outer benefits such as behaviour change are thought to follow inner benefits such as increased self-awareness (Leedham, 2005).

Two control variables were found to have significant associations with our dependent variables. Duration of the coaching was found to have a positive association with enhanced task-oriented leadership behaviour but not with enhanced LSE. This may suggest that our temporal separation was sufficient for changes in LSE to be recognised by the coachee, but insufficient for changes in task-oriented leadership behaviours to be displayed and observed by their subordinates, again suggesting a third and longer time point may provide additional insights. Coachee's developmental readiness was found to be positively associated with

increases in LSE and supports prior research (Cox *et al.*, 2014), however, was negatively associated with increases in task-oriented leadership behaviour. The latter was unexpected, and due to our sample size, we were unable to conduct a multi-group analysis to investigate this result further.

In summary, our study's primary contribution to the leader development and coaching literature is from our findings which suggest there is a positive relationship between changes in EI and LSE following participation in coaching. This builds on the leadership literature associating EI and self-efficacy and the literature investigating coaching's effect mechanisms.

Practical implications

Concerns have been raised on the efficacy of traditional organisationally led leadership development training such as their short-lived benefits and impact relative to their costs (Boyce *et al.*, 2010) and may explain the rise in the popularity of leader-led interventions such as leadership coaching (Maltbia *et al.*, 2014).

This study provides further support of coaching's efficacy through our quantitative findings and through linking coaching's processes as reflected in popular coaching frameworks such as Whitmore (2002) GROW model, to the "practises and discoveries" that facilitate ICT and transformative learning, leading to desired and lasting change. Therefore, organisations wanting to develop sustained and long-term change in their leaders may find value in interventions that are associated with ICT and transformative learning such as leadership coaching.

Further, our findings provide insights into coaching's effect mechanisms and support the validity of coaching frameworks that suggest coaching's "inner" benefits such as increasing self-awareness and self-efficacy, and leads to "outer" benefits such as improved task-oriented leadership behaviour.

Finally, whilst a growing body of evidence indicates that the ability to recognise and manage one's own and others' emotions (EI) is associated with leader performance (e.g. Alotaibi *et al.*, 2020; Van Oosten *et al.*, 2019), traditional leader development programs are argued to have little effect on the development of EI competencies (Boyatzis *et al.*, 2013). Therefore, coaching which has been associated with enhanced EI (Bharwaney, 2006) may assist organisations wanting to increase their leaders' EI. Further, our study suggests the benefits of enhanced EI may go beyond EI itself due to our findings that indicate enhanced EI is positively associated with enhanced LSE. This, and that EI has been associated with subjective well-being (Sánchez-Álvarez *et al.*, 2015), work engagement (Van Oosten *et al.*, 2019) and transformational leadership (Mandell and Pherwani, 2003), suggest coaching's positive effect on EI is an important one for leader development practitioners.

Limitations and future research

Our study had three main limitations. First, whilst latent change scores assist to assess interrelations between development changes over time (Ferrer and Mcardle, 2010), our study design did not incorporate a control group or further waves of data, therefore results may be prone to method bias such as experimental demand effects and socially desirable responses (Podsakoff *et al.*, 2003), and causality cannot be assumed. Whilst the researchers used several design elements recommended by Podsakoff *et al.* (2003) to reduce the potential for bias such as temporal separation between completion of pre- and post-questionnaires and the protection of respondent anonymity, future studies would benefit from the inclusion of control groups and a third wave of data. Further, whilst we have presented arguments supporting causality between enhanced EI and enhanced LSE, reverse causality or simultaneity cannot be ruled out due to our study's design.

Second, few restrictions were placed on the coaching intervention or participating coachees, therefore potential differences between the coaching provided by the coaches and the coachees may affect coaching outcomes. Whilst De Haan *et al.* (2011) suggest the coach's particular coaching framework is less important than factors common to all coaching, future coaching studies would benefit from further controls being applied on the coaching provided and participating coachees.

Third, whilst common method bias was not evident, future studies assessing the relationship between enhanced EI and LSE would benefit from measuring EI from an alternate source such as the coachee's supervisor or subordinates.

Finally, to enhance our understanding of the EI and LSE relationship, we recommend future research investigates this relationship using other types of development interventions and also ensures sample sizes that are sufficiently large to enable the associations between sub-components making up EI and LSE to be investigated.

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