Jussi Tanskanen

High-quality leader-member exchange relationship as a key to employee work engagement

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Tiivistelmä

Työntekijät eivät kohtaa nykyisiä työn haasteita yksin. Korkeatasoiset kahdenväliset esihenkilö-alaissuhteet (LMX) voivat mahdollistaa työntekijöiden työn imun kokemuksen, joka tarkoittaa myönteistä työhyvinvoinnin ja motivaation tilaa. Väitöskirjan ja sen kolmen erillisen tutkimuksen tavoitteena on validoida mittaustyökaluja sekä tutkia resurssien säilyttämisen (COR), työn vaatimusten ja voimavarojen (JD-R) ja ponnistusten ja palkkioiden epäsuhdan (ERI) teorioihin nojautuen: 1) miten psykologinen hyvinvointi siirtyy esihenkilöiltä heidän alaisilleen LMX-suhteiden kautta, 2) kuinka työn imu välittää LMX-suhteiden ja valmentavan johtamisen vaikutukset työntekijöiden suoriutumiseen ja 3) toimivatko työntekijöiden ponnistukset ja palkkiot selittävänä mekanismina LMX-suhteiden ja työn imun ulottuvuuksien välisissä riippuvuuksissa.

Väitöskirja perustuu laajaan tutkimusaineistoon (N=1701), joka on kerätty useasta suomalaisesta organisaatiosta ja joka edustaa erilaisia suorittavan ja asiantuntijatyön ammatteja. Aineistoa analysoitiin konfirmatorisella faktorianalyysillä sekä monitasoisilla polkumalleilla.

Väitöskirjan tulokset korostavat esihenkilön kyynistymisen haitallista vaikutusta LMX-suhteisiin ja sitä kautta alaisten kyynistymiseen sekä heikompaan omistautumiseen. Tämän lisäksi tehty analyysi indikoi, että LMX-suhteilla olisi suurempi vaikutus työntekijän työn imuun ja henkilökohtaiseen suoriutumiseen siinä missä valmentava johtaminen olisi vahvemmin yhteydessä yksikkötason suoriutumiseen. Tutkimus myös osoittaa, että työntekijöiden kokemat ponnistelut ja palkkiot välittävät LMX-suhteiden vaikutusta työn imuun.

Väitöskirja tuottaa uutta tietoa johtamiskirjallisuuteen, etenkin LMX-suhteisiin ja työn imuun liittyen, ja sillä on sekä teoreettisia että käytännön seurauksia. Tulokset korostavat korkealaatuisten LMX-suhteiden tärkeyttä työntekijöiden kannalta, sillä ne vaikuttavat niin heidän kokemaansa työn imuun kuin heidän suoriutumiseensakin. LMX-suhteiden kehittämisen ja ylläpitämisen tukeminen mahdollistaa organisaatioille työntekijöiden työhyvinvoinnin, motivaation sekä suoriutumisen kehittämisen kestävällä tavalla.

Asiasanat: kahdenväliset esihenkilö-alaissuhteet (LMX), työn imu, tarmokkuus, omistautuminen, uppoutuminen, kyynistyminen, valmentava johtaminen, suoriutuminen, ponnistukset, palkkiot, resurssien säilyttämisen teoria (COR), työn vaatimusten ja voimavarojen malli (JD-R), ponnistusten ja palkkioiden epäsuhdan teoria (ERI).

Abstract

Employees do not face the challenges of contemporary work alone. A high-quality dyadic leader-member exchange (LMX) relationship with their supervisor can enable employees to experience work engagement, which reflects positive well-being and motivation. The aim of this dissertation and its three empirical studies is to validate assessment tools and utilize conservation of resources (COR), job demands-resources (JD-R), and effort-reward imbalance (ERI) theories to examine: 1) the crossover of psychological well-being from supervisors to their subordinates via LMX, 2) whether work engagement mediates the effect of LMX and managerial coaching on employee performance, and 3) effort and reward as an explanatory mechanism connecting LMX to work engagement dimensions.

The dissertation studies are based on a large sample (N=1701) collected from several Finnish organisations, and representing different blue- and white-collar occupations. The data was analysed with confirmatory factor analysis and multilevel path models.

The results of the dissertation highlight the adverse effect of supervisor cynicism on LMX relationships, and through that on subordinates' higher cynicism and lower dedication. In addition, the analysis carried out suggests that LMX has a stronger relationship to work engagement and individual performance, whereas behavioral leadership in the form of managerial coaching seems to be more strongly connected to unit-level performance. Moreover, the results indicate that employees' perceived effort and reward mediate the relationship between LMX and work engagement.

The dissertation contributes to the management literature, in particular to the fields of LMX and work engagement, and has both theoretical and practical implications. The results underline the importance of high-quality LMX relationships as an asset for employees, enabling their work engagement and good performance at work. Investing in the development and maintenance of high-quality LMX relationships enables organizations to enhance employee well-being, motivation and performance in a sustainable way.

Keywords: leader-member exchange (LMX), work engagement, vigor, dedication, absorption, cynicism, managerial coaching, performance, effort, reward, conservation of resources (COR) theory, job demands-resources (JD-R) theory, effort.

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The making of this doctoral dissertation has been a long and eventful journey, marked by numerous disruptions. Over the last decade, the dissertation has largely been completed alongside several other research projects. However, I would like to think that these kinds of disruptions along the PhD journey have had a positive overall influence. This process has not only been about producing a dissertation, but rather about becoming a professional researcher, which has demanded learning critical research skills, embracing tacit knowledge, and maturing as a scholar. The journey has not, unfortunately, been all fun and games. Serious illnesses have overshadowed the past years. This disruption, without any compensating gains, has slowed me down. Yet, I am glad and thankful that I have been able to keep on working and to complete this dissertation.

I am grateful for many other things as well. First and foremost, I would like to express my deepest gratitude to my supervisor, Professor Liisa Mäkelä, who has been an integral and irreplaceable part of this entire PhD process, even before formally began. In addition to co-authoring two of the studies, Liisa has provided enormous amount of support, guidance, friendship, and cheerful moments throughout the years. I am truly grateful for all the opportunities and responsibilities she has given me, which have enabled me to work on this dissertation and grow as a researcher. Our social exchange relationship has remained at a high level throughout all these years, and this has sparked me to personally experience the positive state of work engagement while working with this PhD project as well as other research.

I would also like to express my appreciation to Professor Riitta Viitala, who offered valuable guidance particularly during the critical first steps of the PhD process and contributed as a co-author in one of the studies. I warmly thank Professor Helen De Cieri for her educational and insightful collaboration on one of the studies included in this dissertation. Additionally, I would like to extend my gratitude to the external pre-examiners of this dissertation, Professor Olli-Pekka Kauppila and Professor Taru Feldt. They provided insightful and constructive feedback that greatly helped refine and finalize the dissertation. I would especially like to thank Professor Olli-Pekka Kauppila for also serving as the opponent in my public defense.

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Jyväskylä, 17th February 2026 Jussi Tanskanen

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Abbreviations

AI	Artificial intelligence
ASV	Average shared variance
AVE	Average variance extracted
CFA	Confirmatory factor analysis
CFI	Comparative fit index
CI	Confidence interval
CMV	Common method variance
COR	Conservation of resources
ERI	Effort-reward imbalance
HTMT	Heterotrait-monotrait ratio of correlations
JD-R	Job demands-resource
LMX	Leader-member exchange
LMX-7	Leader-member exchange 7 questionnaire
LMX-MDM	Multidimensional measure of leader-member exchange
LMX-UVA	University of Vaasa leader-member exchange scale
MLR	Robust maximum likelihood
MSEM	Multilevel structural equation model
MSV	Maximum shared variance
RMSEA	Root mean square error of approximation
SD	Standard deviation
SRMR	Standardized root mean squared residual
TLI	Tucker–Lewis index
VDL	Vertical dyad linkage

Statement on using generative AI

A generative AI application (Microsoft 365 Copilot, version number: bizchat.20260210.47.1) was used to proofread a few short text fragments.

Publications

[1] Mäkelä, L., Tanskanen, J., & De Cieri, H. (2021). Do relationships matter? Investigating the link between supervisor and subordinate dedication and cynicism via the quality of leader-member exchange. *Journal of Leadership & Organizational Studies, 28(1), 76-90*. https://doi.org/10.1177/1548051820967010. CC BY 4.0.

[2] Tanskanen, J., Mäkelä, L., & Viitala, R. (2019). Linking managerial coaching and leader-member exchange on work engagement and performance. *Journal of Happiness Studies, 20(4), 1217-1240*. https://doi.org/10.1177/1548051820967010. Reproduced with permission from Springer Nature.

[3] Tanskanen, J. (2025). Effort and reward as a mechanism linking leader-member exchange with work engagement. *Cogent Business & Management,* 12(1), 2443807. https://doi.org/10.1080/23311975.2024.2443807. CC BY 4.0.

1 INTRODUCTION

1.1 Background

Many aspects of work have improved for employees in recent decades. For example, in general the variability of tasks has increased and work environments have become safer (e.g. Aroles et al., 2021; Green, 2006). However, at the same time working has become more strained as job stability has decreased, and the perception of work pressure and flexible work arrangements including mobility, retraining and de-standardization have increased (Green et al., 2022; Siegrist & Li, 2016; Siltala, 2007). Furthermore, there are many new challenges and expectations (e.g. remote and hybrid work, AI and other technological advancements, the intensification of work) for employees in the modern working life, which has become increasingly complex, hectic and stressful. Employees are expected to take responsibility and commit to delivering high-quality performance, while managing their own constant professional development, and demonstrating proactive behaviour and collaboration skills in changing working environments (Bakker & Schaufeli, 2008; Leiter & Bakker, 2010). Consequently, these constantly intensifying challenges and job demands have raised concerns regarding employee well-being and motivation.

Some decades ago, it was usual to examine employee ill-being (as polar to well-being) by focusing on stress and burnout. But with the rise of the positive psychology movement, the positive side of employee well-being has started to gain more attention (Bakker & Schaufeli, 2008). Work engagement is currently the most popular positive measure of work-related well-being and motivation as it addresses the contemporary requirements of work (Bakker et al., 2014; Leiter & Bakker, 2010). Work engagement is defined as a truly positive, motivational, persistent and active work-related state of mind, that is characterized by vigor, dedication, and absorption (Schaufeli et al., 2002). Work engagement is an opposite but distinct concept from burnout that can be thought to manifest as employee exhaustion, cynicism towards the meaning of work, and as a sense of inadequacy at work (Bakker et al., 2014; Maslach et al., 2001; Salmela-Aro et al., 2011). Employee work engagement has been connected to numerous personal and organizational positive outcomes, and as work engagement is a motivational state, it has a specific and positive impact on employee job performance (Christian et al., 2011; Mazzetti et al., 2023). This dissertation addresses work-related well-being mainly through work engagement, but also from the perspective of cynicism.

Employees do not face the traditional and current challenges of work alone, and supervisors and their leadership can be a remarkable asset that enables positive employee well-being and motivation in work (e.g. Breevaart et al., 2015; Dulebohn et al., 2012; Garg & Dhar, 2017). Furthermore, the role of supervisors has become even more important in the era of remote and hybrid work (Urrila et al., 2025). Supervisors can influence employees by motivating and enabling them to work efficiently towards organizational goals, which is the core of the leadership process (Bass & Bass, 2009). Leadership can be broadly understood as an intentional influencing process, which is related to a supervisor's (i.e. leader) characteristics and behaviours, employee/subordinate (i.e. followers) perceptions, the interaction process between supervisors and employees, the work context, and positive outcomes (Day & Antonakis, 2012; Tummers & Bakker, 2021). Thus, leadership is vital for organizational effective functioning, and important for employee well-being and performance (Day & Antonakis, 2012; Tummers & Bakker, 2021).

Day and Antonakis (2012) have distinguished nine separate schools in leadership research: trait, behavioral, contingency, contextual, sceptics, relational, new leadership, information-processing and biological/evolutionary schools. New leadership (also labelled as the neo-charismatic) school includes concepts such as transformational and charismatic leadership (Bass, 1985; Burns, 1978), and has been the most active school in leadership research over several recent decades (Dinh et al., 2014; Gardner et al., 2020). Overall, the majority of contemporary perspectives to leadership such as transformative (Bass, 1985), servant (Greenleaf, 1977; van Dierendonck, 2011), authentic leadership (Luthans & Avolio, 2003), and managerial coaching (Ellinger et al. 2003, 2008), have tended to concentrate on individual leaders and how their behaviours influence on the attitudes, motivation and performance of followers and teams (Bauer & Erdogan, 2015; Graen & Uhl-Bien, 1995). For instance, managerial coaching refers to supervisor behaviour that supports and prompts individuals and teams to develop and improve their competencies, self-directed behaviour and performance, and to set, attain and understand work related goals (Bond & Seneque, 2013; Ellinger et al., 2003, 2008). The concept of managerial coaching is suitable for examining supervisors' leadership behaviour at the lower organizational levels, whereas it has been suggested that for example transformational leadership behaviours are more relevant at higher organizational levels (Alvesson & Kärreman, 2016).

However, leadership does not operate only within the domain of leaders, and other perspectives such as the followers and the relationships between leader and follower are equally important and should be integrated into leadership research, so as to complement other leadership constructs (Day, 2012; Gerstner & Day, 1997; Graen & Uhl-Bien, 1995; Scandura & Meuser, 2022). In support of this, it is further noted that

the interest towards a relational approach to leadership has remained relatively high in leadership research since its formation in the 1970s (Day & Antonakis, 2012; Dinh et al., 2014; Gardner et al., 2020).

This dissertation concentrates on a relationship-based approach to leadership, and adopts the leader-member exchange (LMX) theory. The foundation for LMX theory is that the supervisor has a unique dyadic relationship with each subordinate, which varies regarding the quality of their exchanges (Dansereau et al., 1975; Graen & Scandura, 1987; Liden et al., 1997). Numerous individual, interpersonal, and contextual factors such as personality and the abilities or well-being of supervisors and subordinates can predict the development and quality of the LMX relationship (Dienesch & Liden, 1986; Dulebohn et al., 2012). The quality of the LMX relationship influences the attitudes and behaviours of both supervisors and employees, and high-quality LMX relationships are positively connected to a wide array of outcomes such as employee well-being, motivation and performance (Decuypere & Schaufeli, 2020; Dulebohn et al., 2012; Tummers & Bakker, 2021). Even though this dissertation focuses on LMX, it also examines concept of managerial coaching besides LMX to complement different leadership perspectives (see Day, 2012). This enables the investigation of the distinct effects of behavioural and relationship-based leadership approaches, as well as their relative importance regarding examined outcomes.

The effects of leadership on employee well-being, motivation and performance are often explored from the perspective of resources. In general, resources refer to things people value or which can help them to reach their goals (Halbesleben et al., 2014; Hobfoll et al., 2018). In the work context, resources could be physical, psychological, social or organizational, and they help to achieve work goals, stimulate learning and development, and can mitigate the effects of job demands (e.g. amount of work, time pressure) (Bakker & Demerouti, 2007). Typical job resources are, for example, leadership, social support, autonomy, feedback, job security, and career opportunities (Bakker & Demerouti, 2007; Halbesleben et al., 2014; Hobfoll et al., 2018).

Leadership itself can be a valuable resource as it can directly stimulate employees and help them to achieve their work goals. But in addition, supervisors and their leadership can also generate other valuable resources for employees, which likewise help them to reach their goals (Tummers & Bakker, 2021). Work and organizational psychology has both utilized and produced a wide array of theories and models to explain how resources at work enhance employees' well-being and motivation at work. For example, the conservation of resources (COR) theory states that humans strive and are fundamentally motivated to obtain, retain, protect, and foster different resources, and that the conservation and acquisition of new resources determines

human well-being (Hobfoll, 1989; Hobfoll et al., 2018). There are also theories that are specifically designed to be applied to organizational settings. For example, effort-reward imbalance (ERI) theory (Siegrist, 1996) focuses on specific job characteristics (effort and reward), whereas the job demands-resource (JD-R) theory (Bakker & Demerouti, 2007; Demerouti et al., 2001) offers a general theory by dividing all job characteristics into categories of job demands and resources. The basic tenet of all of these models is that job demands/efforts predict strain specifically if they are not matched with adequate job resources, and job resources are connected to positive well-being, work engagement, and through that to performance.
This dissertation focuses on the relationship between LMX and work engagement across three distinct studies, adopting the theoretical frameworks of COR, JD-R and ERI theories that suit the specific research questions and objectives. Specifically, the dissertation validates an updated measurement scale for LMX, examines supervisor psychological well-being (cynicism and dedication) as an antecedent of LMX relationship quality, investigates how LMX and managerial coaching affect work engagement (and through that performance), and explores the explanatory mechanism connecting LMX to work engagement. Thus, in addition to closely examining the connection between LMX and work engagement, the dissertation contributes to the literature by presenting an updated LMX measurement scale, examining supervisor well-being as an antecedent of LMX, exploring performance as an outcome of work engagement, and investigating LMX and managerial coaching in parallel analysis. In practice, this dissertation examines the relationship between LMX and work engagement from a broader perspective by investigating a process in which supervisor psychological well-being is connected to LMX quality, which in turn influences employee work engagement through experienced effort and reward, and is further linker to employee performance.

1.2 Definitions of key concepts

Work engagement reflects positive work-related well-being and motivation, which manifests itself through three dimensions: vigor, dedication, and absorption (Schaufeli et al., 2002). **Vigor** refers to high levels of energy and mental resilience, **dedication** is about the employee's genuine and strong involvement in work, whereas **absorption** is a pervasive and persistent state of mind where one is completely occupied by one's own work (Schaufeli et al., 2002; Spreitzer et al., 2010). Work engagement is an opposite yet distinct concept to burnout, which is characterized by exhaustion, cynicism, and a sense of inadequacy at work (Bakker et al., 2014; Maslach et al., 2001; Salmela-Aro et al., 2011). As an interpersonal dimension of burnout, **cynicism** refers to a lost sense of meaningfulness in work, and

a disinterested attitude towards work and the people one works with (Maslach et al., 2001).

Leader-member exchange (LMX) is labelled as a relational or relationship-based approach to leadership (e.g. Day & Antonakis, 2012; Graen & Uhl-Bein, 1995). LMX theory (Dansereau et al., 1975; Graen & Uhl-Bein, 1995; Liden et al., 1997) states that the unique dyadic relationships between supervisors and each of their subordinates vary regarding the quality of the exchanges between parties. LMX relationship quality influences the attitudes and behaviours of both supervisors and subordinates.

Managerial coaching is a leadership behaviour that supports and prompts individuals and teams to set and reach work related goals, and to develop and improve their competencies, self-directed behaviour, and performance (Bond & Seneque, 2013; Ellinger et al., 2003, 2008).

Conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll et al., 2018) is a general theory regarding well-being and motivation that is widely utilized in organizational contexts. COR theory argues that the main motivator for people is to obtain, retain, protect, and foster different resources that are things people value or which help them to reach their goals (Halbesleben et al., 2014; Hobfoll, 1989; 2001; Hobfoll et al., 2018). Furthermore, COR theory states that the conservation and acquisition of these resources is critical to human well-being (Hobfoll, 1989; Hobfoll et al., 2018). COR is discussed in greater detail in Chapter 2.1.

Job demands-resource (JD-R) theory (Bakker & Demerouti, 2007; Demerouti et al., 2001) focuses on describing work-related strain and motivation. The main premise of JD-R theory is that every occupation and work environment has their own distinct straining and motivating job characteristics, which can be divided into two broad categories of job demands and job resources (Bakker & Demerouti, 2007; Demerouti et al., 2001). Job demands are aspects of the job that require physical or psychological effort and which strain employees, whereas job resources are defined as job characteristics that are functional in achieving work goals, stimulating personal growth and development, and which reduce job demands and their negative effects (Bakker & Demerouti, 2007). Job resources enhance work engagement and **good performance,** which refers to employees' actions the contribute to the goals of the organization (Campbell & Wiernik, 2015). This dissertation examines performance at the individual and unit-level. Chapter 2.2. offers a more in-depth elaboration or JD-R theory.

Effort-reward imbalance (ERI) theory (Siegrist, 1996) explains employees' work well-being based on the balance of their perceived effort and reward. ERI theory defines **effort** as job demands and other required obligations posed by the job,

whereas **reward** refers to gained money, esteem, and career opportunities (Siegrist et al., 2004). ERI theory states that if the effort invested by the employee is not matched with adequate reward, then negative emotions and poor well-being are provoked (Siegrist, 1996). ERI is discussed more in Chapter 2.3.

1.3 Aims and contributions of the study

Previous research has established connections between leadership and various dimensions of work-related well-being (e.g. Chughtai et al., 2015; Harms et al., 2017; Kuoppala et al., 2008; Nielsen & Munir, 2009). Arnold Bakker (2011) stated in his review regarding work engagement that only little is known regarding the effect of supervisors on employee work engagement, and that more research is needed. However, several leadership constructs such as transformational leadership (Breevaart & Bakker, 2018; Perko et al., 2016) and servant leadership (De Clercq et al., 2014) have since been repeatedly and positively associated with work engagement. More importantly, during the last decade, leader-member exchange (LMX) relationships have also been positively associated with work engagement (e.g. Aggarwal et al., 2020; Breevaart et al., 2015; Radstaak & Hennes, 2017). Generally, in scientific research, once the connection or causal relationship between two concepts has been established, the research focus typically shifts to exploring, for example moderating factors, concepts that function as mediators, or mechanisms explaining the relationship. Therefore, although the relationship between LMX and work engagement has been examined in several previous studies, reasonable research tasks and critical knowledge gaps regarding their association still remain. The research gaps relevant to this dissertation are presented next, followed by a detailed description of how this dissertation has produced novel knowledge to address these gaps.

First, the most popular LMX measurement scales (LMX-7, LMX-MDM) have faced criticism on several grounds (e.g. Bernerth et al., 2007; Gottfredson et al., 2020; Liden et al., 2015), and therefore, more suitable scales are needed to better reflect the phenomena. Second, even though LMX literature has recognised several supervisor characteristics as being antecedent of LMX relationship quality, supervisor well-being is not explicitly identified as predictor of LMX in theoretical discussions, meta-analyses, or reviews (see e.g. Day & Miscenko, 2015; Dulebohn et al., 2012; Gerstner & Day, 1997; Liao & Hui, 2021; Liden et al., 1997). Thus, more research is needed to estimate the effect that supervisor well-being has on their ability to form and maintain high-quality LMX relationships. Third, even though prior LMX research has examined the positive and negative well-being outcomes of LMX relationships (e.g. Breevaart et al., 2015; Gregersen et al., 2016; Harms et al., 2017), studies have usually

focused only on either positive or negative well-being indicators, and not both simultaneously. Fourth, the role of LMX as a mediating factor in the crossover process of psychological well-being from supervisor to subordinate has remained almost completely unexplored, with exception of the study of Gutermann et al. (2017) examining the crossover of work engagement.

Fifth, the calls of Day (2012) and Gerstner and Day (1997) to better ingrate and study LMX with other leadership constructs have not been fulfilled (Meuser et al., 2016; Scandura & Meuser, 2022). Sixth, despise a strong theoretical background, there is relatively limited research focusing on the mechanisms explaining the connection between LMX and performance (Martin et al., 2016). Seventh, almost every previous study examining the relationship between LMX and work engagement has utilized unidimensional work engagement measures, and therefore research on how LMX effects on work engagement dimensions such as vigor, dedication and absorption is still lacking. Eighth, even though some explanations as to why LMX positively affects on work engagement have been theorized and empirically tested (e.g. Breevaart et al., 2015; Radstaak & Hennes, 2017), the essential mechanisms linking LMX to work engagement have not yet been presented (Mao & Tian, 2022). These research gaps and how they are addressed in this dissertation are now further elaborated.

The empirical assessment of LMX has been criticized in several LMX reviews (e.g. Gottfredson et al., 2020; Liden et al., 2015). The main concern addressing the most popular previous LMX scales is that they rarely measure exchanges or reciprocity in an adequate manner (Dulebohn et al., 2012; Gottfredson et al., 2020; Liden et al., 2015). LMX scales also have some other theoretical and practical problematic issues which are discussed in more detail in Chapter 3.3. Study 2 of this dissertation presents and validates a LMX-UVA measurement scale for LMX relationship quality that updates previously presented scales based on presented criticism. This LMX-UVA scale is utilized in all of studies of the presented dissertation.

LMX theory (Dienesch & Liden, 1986; Gerstner & Day, 1997; Liden et al., 1997) and previous empirical research (see Dulebohn et al., 2012) has recognised several supervisor and subordinate characteristics, interpersonal relationships, and contextual factors as antecedent of the quality of LMX relationships. Supervisor well-being is not usually explicitly identified as an antecedent of LMX (e.g. Dulebohn et al., 2012; Gerstner & Day, 1997; Liden et al., 1997). However, based on the conservation of resources (COR) theory (Hobfoll, 1989; Hobfoll et al., 2018), it is possible to argue that the well-being of the supervisor influences the amount of resources the supervisor is able to spend on developing and maintaining LMX relationships, which generally requires a considerate amount of resources such as time and effort (Erdogan & Bauer, 2014).

Thus, Study 1 of the dissertation contributes to the LMX literature by examining whether the psychological well-being of the supervisor measured as cynicism and dedication affects the quality of LMX relationships, and through that, the cynicism and dedication of subordinates (see Figure 1). Cynicism is an interpersonal dimension of burnout, which refers to a disinterested attitude towards work and the people one works with, and to a lost of sense of meaningfulness in one's work (Maslach et al., 2001). Dedication offers a positive contrast to cynicism. It considers the motivational and emotional dimensions of work engagement, referring to feelings or a sense of enthusiasm, significance, involvement, pride, challenge, and inspiration at work (Bakker, 2011; Schaufeli & Bakker, 2003).

Positive and negative well-being indicators likely correlate to a reasonable degree within persons, and therefore examining both positive and negative well-being indicators simultaneously provides a more comprehensive and accurate understanding about the overall well-being antecedents and outcomes of LMX relationships. This simultaneous analysis of positive and negative well-being indicators as antecedents and outcomes of LMX relationships has been lacking in previous research. In addition, even though there is empirical evidence that well-being can transfer from one person to another (Bakker & Demerouti, 2009; Chen et al., 2015; Westman, 2001) via several mechanisms, examinations of well-being crossovers between supervisors and subordinates have remained scarce (e.g. Rofcanin et al., 2018; Ten Brummelhuis et al., 2014; Wirtz et al., 2017). Furthermore, only one other study (Gutermann et al., 2017) has examined LMX as a mediator in a crossover process of well-being from supervisor to subordinates, and it focuses only on how supervisor work engagement is transferred to subordinate work engagement. Study 1 of this dissertation simultaneously analyses positive and negative crossover between supervisor and subordinates in terms of dedication and cynicism.

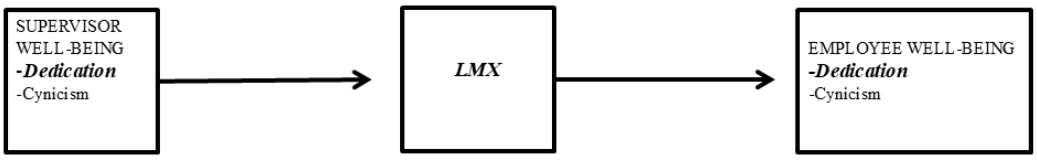

Figure 1. Conceptual model of Study 1

Aside from more suitable measurement instruments, the LMX literature has made several calls for the need to ingrate LMX with other leadership constructs (Day, 2012; Gerstner & Day, 1997; Scandura & Meuser, 2022). Unfortunately, this has not happened in the majority of empirical studies (Meuser et al., 2016; Scandura &

Meuser, 2022). Specifically, it has been suggested that behavioural leadership constructs should be paired with LMX to extend analysis beyond a leader-centric approach (Day, 2012; Gerstner & Day, 1997). The previous studies have examined LMX together with other leadership constructs in several different ways. Some studies have examined LMX as a mediating factor between leadership constructs and performance. For example, a meta-analysis of Gottfredson and Aguinis (2017) connected leader contingent reward behaviour and transformative leadership to follower performance through LMX. In addition to being a mediator in previous studies, LMX has also served as a moderator in the spirit of a situational or contingency approach to leadership, and for example, LMX has been found to moderate the relationship between transformational leadership and performance (e.g. Piccolo & Colquitt, 2006). Furthermore, LMX has also been combined with other leadership constructs as a parallel construct. For instance, Burch and Guarana (2014) examined LMX and transformative leadership simultaneously as parallel predictors of work engagement, organizational citizenship behaviour, and turnover.

Study 2 of the dissertation is grounded on JD-R theory (Bakker & Demerouti, 2007; Demerouti et al., 2001) and investigates the parallel connections of LMX and managerial coaching on individual and unit-level performance, and whether work engagement mediates these associations (see Figure 2). Managerial coaching is a leadership behaviour where the supervisor encourages and supports employees and teams to set and reach goals, to improve competencies, and to strengthen self-directed behaviour and performance (Bond & Seneque 2013; Ellinger et al. 2003, 2008). Managerial coaching also fits leadership behaviour examinations at lower organizational levels, whereas for example the concept of transformational leadership has been criticized as being heroic and perhaps even too grandiose for analyses other than at the highest organizational levels (Alvesson & Kärreman, 2016).

Managerial coaching has been connected to enhanced performance both at the individual (Wheeler, 2011) and unit-level (Agarwal et al., 2009), whereas LMX has been linked to individual level performance (Dulebohn et al., 2012; Mazur, 2012). However, these analyses have been conducted mainly separately, even though the relational perspective to leadership in the form of LMX would complement the viewpoints offered by managerial coaching. The simultaneous and parallel investigation of LMX and managerial coaching reveals their relative importance regarding their associations with work engagement, and through that their impact on performance. The simultaneous examination of LMX and managerial coaching can also reveal distinguishing mechanisms that the constructs exert on individual and unit-level performance. This kind of examination has been used in previous studies where different leadership constructs have been analysed simultaneously, as they

have been argued to have different exploratory mechanisms, for example on work engagement (see e.g. Perko et al., 2016; Van Dierendonck et al., 2014).

As LMX (Breevaart et al., 2015; Garg & Dhar, 2017) and typical managerial coaching behaviours (Christian et al., 2011) have been connected to work engagement, and work engagement has been connected to good performance (Mazzetti et al., 2023, Neuber et al., 2022), it is likely that work engagement mediates the connections of LMX and managerial coaching on individual and unit performance levels. Thus, the aim of Study 2 is to provide knowledge on the underlying, complex processes of how leadership influences performance.

Figure 2. Conceptual model of Study 2

Previous LMX studies have almost entirely examined work engagement as unidimensional phenomena combining the information of three dimensions of vigor, dedication and absorption into a single measure. However, previous research has indicated that in general, vigor, dedication and absorption have partly different antecedents (Bakker et al., 2007; Mauno et al., 2007), and therefore it is also possible that LMX influences different dimensions differently. Thus, Study 3 examines the association of LMX on vigor, dedication and absorption instead of a unidimensional work engagement construct, which offers a more profound understanding of the aspects engaging employees.

A large proportion of previous empirical studies connecting LMX to work engagement have utilized work engagement merely as a mediating factor, as the primary interested has focused on other positive organizational outcomes such as performance (e.g. Breevaart et al., 2015; Garg & Dhar, 2017). Therefore, there remains a particular need for studies focusing more directly on the association between LMX and work engagement, and what might explain this positive relationship. Currently, the mechanism linking high-quality LMX relationships with increased employee work engagement has been declared as essentially unresolved (Mao & Tian, 2022). Although different explanatory mechanisms have been theorized to explain the association between LMX and work engagement, few pathways have been empirically tested (e.g. Breevaart et al., 2015; Radstaak & Hennes, 2017). Based on LMX and Effort Reward-Imbalance (ERI) theory (Siegrist, 1996), Study 3

investigates whether employee effort and reward act as one pathway connecting LMX and the work engagement dimensions of vigor, dedication, and absorption. In ERI theory, effort refers to job demands and the obligations that are required from employees, and rewards to money, esteem and career opportunities that employees expect to gain in reciprocal exchange for their invested effort.

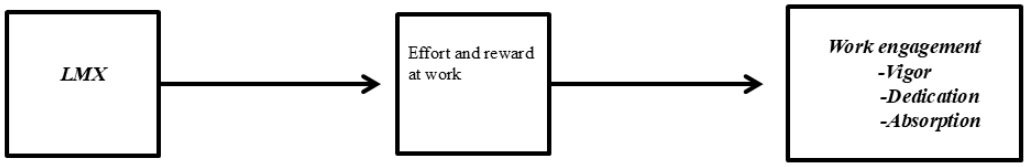

Figure 3. Conceptual model of Study 3

The three distinct studies of the dissertation (see Table 1) as a whole positions the relationship between LMX and work engagement to a broader context by exploring the antecedents, outcomes and mediating factors of LMX and work engagement. In addition, the dissertation validates a new updated measurement tool for LMX. Figure 4 represents a conceptual and theoretical model of all of the relationships examined in the dissertation.

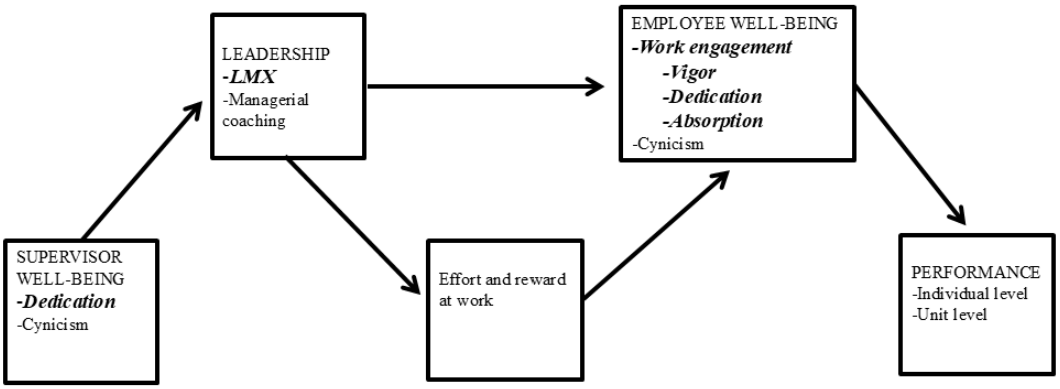

Figure 4. Conceptual model of the dissertation

Table 1. Description of the dissertation studies

	Study 1	Study 2	Study 3
Title	Do relationships matter? Investigating the link between supervisor and subordinate dedication and cynicism via the quality of leader-member exchange.	Linking managerial coaching and leader-member exchange on work engagement and performance.	Effort and reward as a mechanism linking leader-member exchange with work engagement.
Aim of the study	The study examines whether the psychological well-being (cynicism and dedication) of a supervisor influences on the LMX relationship, and through that on employee psychological well-being (cynicism and dedication).	First, the study presents and validates measurement scales. Second, the scales are utilized in investigating the associations of LMX and managerial coaching on work engagement, and through that on individual and unit-level performance.	The study examines whether employees' perceived effort and reward at work mediate the relationship between LMX and three dimensions of work engagement.
Theoretical grounding	Conservation of resources theory (COR) (Hobfoll, 1989; 2001; Hobfoll et al., 2018)	Job demands-resources theory (JD-R) (Bakker & Demerouti, 2007; Demerouti et al., 2001)	Effort-reward imbalance theory (ERI) (Siegrist, 1996; Siegrist et al., 1986)
Data	Employees (n=971) matched with their supervisor (n=104). Sample from communal day-care, insurance, logistics, retail and finance organizations.	Measurement validation was conducted with samples from logistic and financial organizations (total n=655). Study hypotheses were tested with samples (n=879) from communal day-care, insurance, retail, and several small and medium-sized organizations.	Samples (n=1701) from communal day-care, insurance, logistics, retail, finance, and several small and medium-sized organizations.
Methodology	Multilevel structural equation model (MSEM) Mediation analysis.	Multilevel structural equation model (MSEM) Mediation analysis.	Path model with complex survey data procedure. Moderated mediation analysis.

As a summary, this dissertation 1) presents and validates an updated LMX scale, 2) examines how supervisor well-being predicts LMX, 3) simultaneously explores

positive and negative psychological well-being outcomes (cynicism and dedication) of LMX relationships, 4) investigates whether LMX mediates the association between supervisor and employee psychological well-being, 5 & 6) examines how LMX and managerial coaching are associated with work engagement, and through that on performance at both individual and unit-level, 7) explores the relationships between LMX and the dimensions of work engagement: vigor, dedication and absorption, and 8) examines the concept of employee effort and reward as an explanatory mechanism linking LMX and work engagement dimensions.

The three separate studies of the dissertation are described in Table 1. Study 1 is co-authored with Liisa Mäkelä and Helen De Cieri, and Study 2 with Liisa Mäkelä and Riitta Viitala. Study 3 was written solely by the author. In all studies, the author participated in defining research design, managed the data, conducted the analyses, and contributed to writing and editing the articles. In studies 1 and 2, the author of this dissertation participated in writing the introduction and discussion sections with the other authors, and took main responsibility regarding the executing and reporting of empirical analysis and methodology.

1.4 Structure of the dissertation

The dissertation presents an introduction to the three theories of work well-being that are utilized in the dissertation, followed by a discussion on the theoretical perspectives and earlier research of work engagement and leader-member exchange. Conservation of resources theory (COR), job demands-resources theory (JD-R) and effort-reward imbalance theory (ERI) are utilized in this study to understand the connections between the main study concepts.

The empirical part of the dissertation starts with a discussion regarding the methodology of the study. First, the scientific premises are discussed, followed be the presentation of the datasets and measures utilized in the studies. In addition, the analytical strategies of each of the three studies are presented. Next, the main results of the studies are introduced. The Discussion chapter summarizes the main findings, and presents the theoretical and practical contributions of the dissertation, and critically discusses the identified limitations of the included studies. The three studies of the dissertation are presented in the appendix.

2 WORK RELATED WELL-BEING THEORIES

The distinct research questions in each of the three studies in this dissertation require different theoretical backgrounds. This chapter provides a review of three theories that are utilized in the dissertation, in order to understand the connections between well-being, LMX, work engagement, and performance. These theories have their origin as stress theories, but have evolved to describe well-being in more general terms. The conservation of resources (COR) theory is a general theory of well-being, whereas the job demands-resources (JD-R) and the effort-reward imbalance (ERI) theories focus particularly on the well-being and motivation of employees in work-related settings. Different resources, defined as things people value or help them achieve their goals (Halbesleben et al., 2014; Hobfoll et al., 2018), are critical to all three theories.

2.1 Conservation of resources (COR) theory

The conservation of resources (COR) theory (Hobfoll, 1989; 2001; Hobfoll et al., 2018) was introduced as a general stress theory, but at its core it is a theory of motivation, and has become one of the most influential theories of motivation, stress and psychological well-being in organizational contexts (Chen et al., 2015). The basis assumption of COR is that people strive and are motivated to obtain, retain, protect, and foster resources, which are defined as the things people value or which can help them to attain their goals (Halbesleben et al., 2014; Hobfoll, 1989; Hobfoll et al., 2018). This broad definition of resources enables almost everything to be seen as a resource, which has been one of the main criticisms of the COR theory (Halbesleben et al., 2014). Though, COR theory (Hobfoll, 1989; Hobfoll et al., 2018) posits that object, condition, personal, and energy resources are the most important. However, it should be noticed that resources are context-dependent, meaning that in some circumstances, constructs or job characteristics that usually act as a resource can also have an opposite function (Hobfoll et al., 2018).

COR also proposes that resources do not exist in isolation of each other, and that they tend to come in packages (resource caravans). In addition, surroundings such as organizational settings can either foster or limit the accumulation and sustenance of resources (Hobfoll et al., 2018). Furthermore, COR theory has been advanced with the dimension of resource exchange based on the crossover model, which enables researchers to analyse how experiences, emotions and resources are transferred, for example in dyads, teams and organizations (Chen et al., 2015; Hobfoll et al., 2018).

The main argument of COR is that humans are prone to protect their current resources (conservation) and acquire new resources (acquisition) (Halbesleben et al.,

2014). These processes occur via four principles (Hobfoll, 2001; Hobfoll et al., 2018). First, the principal of primacy of resource loss means that losing a resource is more salient than gaining that particular resource, and it also affects people more rapidly. According to COR, the state of stress and strain is caused by the loss of resources. The second principle suggests that people protect themselves from resource loss, recover from resources loss, and gain more resources by directly and indirectly investing resources. The third principle proposes that when resources are lost, gaining resources becomes more valuable, and the fourth principle states that when resources are exhausted, a defensive mode is activated to protect oneself. This state can be aggressive, and even turn to be irrational.

COR theory also describes several consequences stemming from the resource investment process (Hobfoll et al., 2018). First, those who have more resources are better protected from resource loss, and are likely to gain even more resources compared to those with originally fewer resources. Furthermore, resources are lost and gained in spirals, where the loss of resources leads to further loss, and gaining resources leads to even more gains in the future. However, it should be noticed that a negative process of continually losing resources is more powerful and rapid than a positive gain process. The final corollary of COR theory predicts that losing resources leads to protective behaviour to secure remaining resources (Halbesleben et al., 2014; Hobfoll et al., 2018).

In a work related organizational context, essential resources can include, for example, job security, autonomy, rewards, skills, personal traits such as self-efficacy, and social support (Halbesleben et al., 2014; Hobfoll et al., 2018). In work related studies, the loss of resources has been mainly utilized when examining stress, burnout and other strain among employees (Halbesleben et al., 2014), but the current trend in COR research in the organizational context has concentrated on positive motivational outcomes such as work engagement and performance (Chen et al., 2015; Hobfoll et al., 2018).

Perspectives of leadership have been examined in several ways using COR. For example, COR can be utilized in examinations of what resources a supervisor should direct through employees, and in what circumstances or how resources crossover from the supervisor to subordinates. For instance, the study of Li et al. (2021) is grounded in COR theory and indicates a positive association between supervisor developmental feedback and employee task performance. In addition, McLarty et al. (2021) draw on COR and state that supervisors can both induce resource draining hindrance job demands (e.g. role ambiguity, role conflict, and daily work-related hassles) in subordinates, but also be a source of different positive resources through LMX relationships which help subordinates to cope with the hindrance job demands.

Thus, the leadership process and support from the supervisor have value in their own right, but can also help employees to maintain and generate resource reservoirs (Hobfoll, 2001; Hobfoll et al., 2018). Obtaining resources from a supervisor or from the organization in general allows employees to reinvest resources, for example through making more effort. Moreover, supervisor resources such as well-being enhance supervisor resource accumulation, which cross over to subordinates for example through LMX relationships (Hobfoll et al., 2018). Based on COR theory, Hobfoll et al. (2018) summarize that resource exchange at team and organizational levels may be critical for creating and sustaining engaged and resilient teams and organizations.

COR theory is utilized in Study 1 where it is suggested that the cynicism and dedication of supervisors influences the amount of resources they can invest in developing and maintaining LMX relationships, which in turn influences the resources of subordinates, and through that their cynicism and dedication. Thus, supervisor well-being crosses over to subordinates' well-being through LMX relationships.

2.2 Job demands-resources (JD-R) theory

JD-R theory is based partly on COR, and has been developed to particularly examine work-related strain and motivation (Bakker & Demerouti, 2007). The fundamental idea of JD-R theory is that every occupation and work environment has their own distinct motivating factors, as well as risk factors for strain (Bakker & Demerouti, 2007; Demerouti et al., 2001). Even though these critical job characteristics regarding work well-being and motivation vary between sectors and occupational settings, they can always be divided into two categories; job demands and resources (Bakker & Demerouti, 2007; Demerouti et al., 2001). In the theory, job demands refer to those physical, psychological, social, or organizational aspects of the job that require physical or psychological effort. Job resources are defined as the physical, psychological, social, or organizational aspects of a job that are functional in achieving work goals, stimulate personal growth, learning and development, or reduce job demands and their associated physiological and psychological costs (Bakker & Demerouti, 2007).

Typical examples of job demands include high workload, time pressure, role conflict, and different emotional and psychological demands of the job. Job characteristics such as good leadership, autonomy, social support from supervisor and colleagues, and feedback usually act as job resources. However, it should be emphasized that critical job demands and resources vary between occupations, and this flexibility

regarding job characteristics makes the JD-R theory suitable for various work settings. This is a definite strength of JD-R, as many other work well-being theories (e.g. job demands-dontrol theory, job characteristics theory, or effort-reward imbalance theory) restrict themselves to certain and specific job demands and resources (Schaufeli & Taris, 2014).

Another key aspect of JD-R is that job demands and job resources initiate two rather separate work well-being processes (Bakker & Demerouti, 2007; 2017; Schaufeli, & Bakker, 2004). In a *health impairment process*, chronic job demands provoke stress, exhaust employees' resources, and deplete their energy, leading for instance to burnout, ill health and poor performance. But in counter to this negative process, job resources start a positive *motivational process* that leads to work engagement, and through that to excellent performance, which is often explained through conservation of resources (Hobfoll, 1989) or self-determination (Deci & Ryan, 2000) theories (Bakker & Demerouti, 2007; Van den Broeck et al., 2008).

It is a strength of the JD-R theory to be able to examine positive and negative work well-being simultaneously. Even though job demands and job resources impact work well-being mainly through their own processes, JD-R theory suggests that job resources can intervene in the health impairment process, and job demands influence the motivational process (Bakker & Demerouti, 2007; 2017). More precisely, JD-R theory assumes that a high level of job resources *buffer* the negative effect of job demands relating to strain, and based on COR theory, the *boost* hypothesis states that job resources gain their strongest motivational potential in challenging situations, i.e. when job demands are high.

Later from its initial appearance, JD-R theory has been complemented with additional elements such as personal demands (e.g. workaholism) and resources (e.g. optimism, self-efficacy), and job crafting and self-undermining (Bakker & Demerouti, 2017). JD-R theory has also been expanded to cover, for example, multilevel perspectives (Bakker & Demerouti, 2018), a separation of challenge and hindrance demands (Crawford et al., 2010; Van den Broeck et al., 2010), and an accumulation of job demands (Geisler et al., 2019; van Woerkom et al., 2016).

The main arguments of JD-R theory have been supported with overwhelming empirical evidence. Studies have continuously connected job demands with burnout and job resources with work engagement and performance, supporting a dual process (see for review Bakker & Demerouti, 2007; for a meta-analysis Christian et al., 2011; Lesener et al., 2019). Regarding the buffer and boost interaction effects of job demands and resources, while there is evidence to support the hypotheses (e.g. Bakker et al., 2005; 2010; Hakanen et al., 2005; Xanthopoulou et al., 2007), there are also contradictory empirical findings (e.g. Hu et al., 2011).

The main criticism of JD-R theory is aimed at the general nature of the theory and a lack of inner explanatory mechanisms (Schaufeli & Taris, 2014). Depending on context, almost anything can be seen as a job demand or resource. This kind of flexibility of the theory is a strength, but also a weakness, as empirical findings might be hard to generalize (Schaufeli & Taris, 2014). Furthermore, JD-R theory is a descriptive theory and requires other psychological theories (e.g. COR theory) to explain underlying processes, for example why job resources have motivational potential (Schaufeli & Taris, 2014).

Leadership has been incorporated into JD-R theory in different ways. The review of Tummers and Bakker (2021) indicates that in empirical JD-R based studies, leadership has most often been conceptualized as a job resource, yet in some cases as a job demand. However, Tummers and Bakker (2021) suggest that leadership should be considered as a distinct construct for JD-R theory. Thus, it would be more fruitful to think of leadership as a factor influencing job resources and demands, rather than a job resource or demand per se.

JD-R theory is utilized in Study 2 where LMX and managerial coaching are regarded as constructs that initiate a motivational path and positively connected with work engagement, and through that impact on employee performance at the individual and unit-level.

2.3 Effort-reward imbalance theory (ERI)

Besides JD-R, which is rather general theory, there are other more specific theories explaining work related well-being that often focus on certain job characteristics, offering more precise argumentation. One of these theories is the effort-reward imbalance theory (ERI), which focuses on the perceived effort and reward experienced by employees as predictors of work related well-being (Siegrist, 1996; Siegrist et al., 1986). ERI theory is utilized in Study 3, examining the mediating effects of effort and reward in the relationship between LMX and work engagement dimensions. ERI theory regards *effort* as job demands and obligations that are required from the employee, and which include workload, time pressure, and responsibilities at work, whereas *reward* includes money (salary and bonuses), esteem (recognition and respect), and career opportunities including job security (Feldt et al., 2013; Siegrist et al., 2004). From an ERI perspective, employees invest time and energy by making effort, and they expect reward in exchange (Siegrist, 1996). The ERI theory relies on personal evaluations of the amount of effort and reward at work, rather than an objective assessment of any effort made and reward received (Siegrist et al., 2004). As the ERI theory is rooted in social exchange theory

(Gouldner, 1960), the interest lies in the perceived levels of effort and reward, and whether their balance is interpreted as fair in relation to the principle of social reciprocity.

ERI theory specifically concentrates on the perceived balance between effort and reward acquired at work. Even though the ERI theory states that effort and reward have separate effects on work-related well-being, the main argument is that the combined effect (i.e. interaction or a balance of effort and reward) is crucial and it explains well-being over and above the separate effects (Siegrist & Li, 2016; van Vegchel et al., 2005). Any imbalance where high effort is not matched with high reward is seen as detrimental. This kind of failure in reciprocity is likely to provoke negative emotions and sustained stress responses, which have adverse long-term effects on health (Siegrist, 1996; Siegrist & Li, 2016). Moreover, the ERI theory posits that overcommitted employees (i.e. those whose personal pattern of coping in demanding situations is characterized by excessive engagement and a need for control) experience a heightened stress response when facing negative imbalances between effort and reward (Siegrist, 1996; Siegrist & Li, 2016). However, the concept of overcommitment is mostly utilized in empirical studies focusing on employee personality and, as it cannot be influenced by leadership, it is not included in the study.

The ERI theory has its origins in medical sociology, and was originally developed to examine strain reactions to cardiovascular outcomes, which were of particular focus in early empirical research (van Vegchel et al., 2005). However, ERI theory has recently been utilized in research focusing on psychological and job-related well-being, and motivational outcomes such as work engagement (e.g. Kinnunen et al., 2008; Li et al., 2023; Wolter et al., 2021).

The majority of empirical studies examining ERI support the hypotheses of the theory (Siegrist & Li, 2016; van Vegchel et al., 2005). However, it should be noted that critique has emerged regarding the examination of imbalance between effort and reward in empirical studies (e.g. Allisey et al., 2012; Gorgievski et al., 2019; Preckel et al., 2007). Most empirical studies have not actually investigated whether the imbalance/interaction of effort and reward explains outcomes beyond their separate additive effects as the ERI theory assumes. Those few studies that have examined this imbalance/interaction more closely have almost coincidentally indicated findings against the original ERI postulation regarding the imbalance/interaction effect of effort and reward (see Gorgievski et al., 2019; Kunz, 2019; Preckel et al., 2007; Tse et al., 2007).

The role of leadership has been very limited in the ERI literature, although supervisors have a possibility to influence the effort faced by employees and the

rewards they gain. Besides organizations in general, supervisors have their own positional power and are able to reward their subordinates, for example by offering them recognition, appreciation, developmental feedback, and helping them to advance their careers (Siegrist, 2012). In previous research, transformational leadership has been related with low effort, high reward, and a positive balance between effort and reward (i.e. more reward than effort) (Keisu et al., 2018; Weiß & Süß, 2016). Thus, there is evidence that supervisors can affect the levels of their employees' effort and reward. Furthermore, it is possible that leadership influences the effects of effort and reward, and also their balance. For example, in a study by Santa Maria et al. (2021), health-oriented leadership buffered the adverse impact of effort on burnout. Study 3 utilizes ERI theory in the examination of whether employees' effort, reward and their balance mediate the relationship between LMX and work engagement dimensions of vigor, dedication, and absorption.

3 WORK ENGAGEMENT

There have been times when the research on work well-being has mostly focused on work ill-being – for example in terms of stress and burnout. However, well-being is not just a lack of ill-being, and since the late 1990s the positive psychology paradigm (e.g. Seligman & Csikszentmihalyi, 2000) has produced constructs that genuinely reflect work well-being (Bakker & Schaufeli, 2008; Bakker et al., 2008). Since the early 2000s the concept of work engagement has gained popularity, and has risen to become one of the main measures of positive work-related well-being and motivation (Schaufeli, 2013).

Engagement in a work context has been conceptualized in numerous ways (Shuck, 2011). First of all, the terms *employee engagement* and *work engagement* are often used interchangeably. Although the term *work engagement* is more specific and more popular in academic literature, *employee engagement* refers to slightly more broad phenomena and is more popular in business and consultant literature (Schaufeli, 2013; Schaufeli & Salanova, 2011). While the first scholarly research and definition of engagement was published by William Kahn in 1990, the work engagement definition of Schaufeli et al. (2002) has become the most established and widespread definition used in academic literature, and is also used in this dissertation. A comprehensive description of different perspectives on work/employee engagement can be found from the work of Schaufeli (2013) and Shuck (2011).

Schaufeli et al. (2002) define work engagement as a positive, motivational fulfilling work-related state of mind, that is persistent and active, and manifests itself through three dimensions of vigor, dedication, and absorption. Vigor refers to high level of energy and mental resilience while working, especially when confronted with difficult situations at work. Dedication implies a person's genuine and strong involvement in work, including feelings of pride, significance, enthusiasm, challenge, and inspiration (Schaufeli et al. 2002; Spreitzer et al., 2010). Vigor and dedication are thought to be the core components of work engagement (Bakker et al., 2011). Being absorbed in work is a state of being where one is completely occupied by one's own work, and has difficulties detaching oneself from it. When one is absorbed in work, time passes by quickly. The term "flow" (Csikszentmihalyi, 1990) is closely related to absorption but refers to a short-term "peak", whereas absorption to a more pervasive and persistent state of mind (Schaufeli et al., 2002).

Work engagement is described as state of high pleasure and arousal, and is considered as a truly positive measure of work-related well-being, in contrast to negative factors such as burnout and stress (Bakker et al., 2014). However, although there are scholars that view burnout and work engagement as endpoints of a single

continuum (Maslach & Leiter, 1997), the more popular standpoint relies on the work engagement definition of Schaufeli et al. (2002) which views work engagement as a distinct, though negatively positioned, concept from burnout. Work engagement should also be differentiated from constructs such as organizational commitment, workaholism, and job satisfaction (Schaufeli, 2013). For example, job satisfaction does not hold similar activation levels compared to work engagement, and Christian et al. (2011) remind that work engagement is formed as a result of active working, whereas job satisfaction refers to an evaluative description of job conditions and characteristics.

3.1 Antecedents of work engagement

Research on work engagement antecedents has been mainly rooted in JD-R theory (e.g. Bakker et al., 2007; Breevaart et al., 2015; Mauno et al., 2007), but also for example in COR (e.g. Hakanen et al., 2008) and ERI (e.g. Kinnunen et al., 2008; Li et al., 2023; Wolter et al., 2021) theories. Several different job resources and rewards have consistently been found to enhance work engagement (Lesener et al., 2020; Mazzetti et al., 2023). Job resources have been categorized in previous literature in several different ways. Lesener et al. (2020) identified group-, leader-, and organizational-level resources, and Mazzetti et al. (2023) divided resources into social, personal, job, leadership, and developmental resources. In both meta-analyses (Lesener et al., 2020; Mazzetti et al., 2023), all types of resources were positively associated with work engagement, and developmental (e.g. learning opportunities), leadership, and personal resources (e.g. resilience, proactivity) had the strongest connections. Job demands that require effort have not usually been seen as significant predictors of work engagement (Lesener et al., 2019), but there are, however, contradictory findings (see e.g. Christian et al., 2011; Van den Broeck et al., 2010).

3.2 Outcomes of work engagement

Work engagement has been connected with a wide range of positive consequences for employees themselves, also and for the organization. Even though most studies have examined motivational outcomes of work engagement, there is some evidence that work engagement is associated with better employee health and well-being (Mazzetti et al., 2023). Work engagement has been connected for example with job and life satisfaction (Caesens et al., 2014; Hakanen & Schaufeli, 2012), less perceived stress (Caesens et al., 2014) and depressive symptoms (Hakanen & Schaufeli, 2012; Hallberg & Schaufeli, 2006), fewer sleep disturbances (Hallberg & Schaufeli, 2006),

less absenteeism (Neuber et al., 2022), and fewer somatic complaints (Hallberg & Schaufeli, 2006).

Although work engagement is in general connected with positive personal and organizational outcomes, it is possible that overengagement can have some detrimental effects as well (Bakker et al., 2011; George, 2011; Shimazu et al., 2018). It is true that work engagement concept shares similarities to workaholism but engaged employees do not have a compulsive drive that is typical for workaholics (Taris et al., 2010). The distinction between work engagement and workaholism is also confirmed in empirical analyses (see Taris et al., 2010). However, the absorption dimension of work engagement has been identified as the one potentially having a dark side (Bakker et al., 2011). Shimazu et al. (2018) suggests that work engagement can have detrimental effects because excessive amount of time and effort put in the work can lead to increased job demands over time, work-family conflict, and insufficient recovery. In addition, engaged employees' constant arousal can result in sustained activation with negative side-effects. Some previous studies have empirically connected work engagement for example with work-family conflict (Halbesleben et al., 2009), working overtime (Beckers et al., 2004), increased job demands over time (Sonnentag et al., 2010), and short-term psychological distress (Shiamazu et al., 2018). Sonnentag (2011) suggests three possibilities for the dark side of work engagement. First, although the consequences of high work engagement are generally positive, it may have detrimental effects on some specific outcomes, such as life outside of work. Second, work engagement could have an inverted U-shaped curvilinear relationship with certain outcomes. In this type of the too-much-of-a-good-thing effect (Pierce & Aguinis, 2011), the positive effects of work engagement turn negative once work engagement reaches a very high level. Third, it is possible that the positive and negative effects of work engagement are conditional on some moderating factors (e.g. level of psychological detachment).

Even though the idea of a dark side of work engagement is compelling, and there is some empirical evidence supporting this argument, the evidence regarding work engagement outcomes remains predominantly positive. For example, according to meta-analysis by Mazzetti et al. (2023) the empirical evidence indicates that, in addition to positive organizational outcomes, work engagement is positively related to aspects of life outside of work, including better health, lower psychological distress, and higher life satisfaction. Furthermore, several empirical studies have also found positive spillover effects of work engagement on family life (e.g. Culbertson et al., 2012; Mache et al., 2016; Rastogi & Chaudhary, 2018).

3.2.1 High-level performance as an outcome of work engagement

In general, work performance refers to the actions employees make that directly contribute to the goals of the organization (Campbell & Wiernik, 2015). Thus, the high level performance of employees is important for organizations, but also for the employees themselves (Sonnentag & Frese, 2002). Organizations need highly performing employees to be able to provide the products or services they offer, and to gain a competitive advantage in the market. For employees, high level performance and accomplishing tasks can be satisfying and enhance feelings of mastery and pride, and is likely to be rewarded for example through recognition, bonuses and favourable career development. Work performance is a latent construct which has multiple different dimensions, which are typically divided into task performance and contextual performance, which include behaviours that support the functioning of the team or organization, and other extra-role behaviours (Campbell & Wiernik, 2015; Koopmans et al., (2011). Furthermore, performance can differ at the individual, unit- and organizational-levels (Sonnentag & Frese, 2002). For example, the high task performance of every individual in a work unit does not necessary lead to good unit-level performance, if every employee only focuses on their own individual tasks and neglects shared goals.

Work engagement is strongly connected to high level performance. According to JD-R theory, work engagement is situated on the motivational pathway, and should therefore predict good performance and other positive organizational outcomes. This is supported by numerous studies. For example, high level work engagement predicts commitment and low turnover intentions (Mazzetti et al. 2023). Moreover, work engagement has been positively associated with factors that enhance good performance, such as active learning (Bakker et al., 2012), proactive behaviour (Salanova & Schaufeli, 2008), personal initiative (Hakanen et al., 2008), creativity (Bakker et al., 2020), and innovativeness (Kwon & Kim, 2020). Therefore, it is not surprising that several meta-analyses strongly support the positive association of work engagement with task and extra-role performance (Christian et al., 2011; Mazzetti et al., 2023, Neuber et al., 2022). In addition, work engagement has been associated with supervisor and colleague rated performance (Halbesleben & Wheeler 2008), customer satisfaction (Salanova et al., 2005) and financial returns (Xanthopoulou et al., 2009). Based on JD-R theory, Study 2 investigates LMX and managerial coaching as job resources which initiate a motivational path leading to good individual and unit-level performance via enhanced work engagement. The pathway from LMX to performance through work engagement has also been verified in previous studies (e.g. Breevaart et al., 2015; Li et al., 2012).

4 LEADER-MEMBER EXCHANGE (LMX)

Leader-member exchange (LMX) theory focuses on the importance of the relationship between a leader and followers (Graen & Uhl-Bein, 1995). Thus, LMX is often defined as a relational (e.g. Day & Antonakis, 2012) or relationship-based approach to leadership (Graen & Uhl-Bein, 1995). There is no clear, exhaustive or established conceptual definition for LMX as the theory has developed over the years around several different theoretical underpinnings (Gerstner & Day, 1997; Gottfredson et al., 2020). However, in general, LMX theory (Dansereau et al., 1975; Graen & Uhl-Bein, 1995; Liden et al., 1997) suggests that each employee has a unique dyadic relationship with their supervisor, which varies in regard to the quality of the exchanges between the supervisor and employee. The quality of the LMX relationship further influences the attitudes and behaviours of both partners of the dyad.

LMX theory explains how different LMX relationships are formed, and how they influence subordinates. The historical development of LMX literature and theory is documented in multiple sources (e.g. Day & Miscenko, 2015; Gottfredson et al., 2020; Graen & Uhl-Bein, 1995; Liden et al., 1997). Literature on LMX originates from the 1970s when it was first discussed as a vertical dyad linkage (VDL) theory (Dansereau et al., 1975). VDL challenged the then current average leadership style paradigm by suggesting that supervisors do not use the same leadership style with everyone, but rather develop a unique relationship with each subordinate (Dansereau et al., 1975; Graen & Uhl-Bien, 1995). VDL was founded in role theory, stating that an employee's informal role defining process is impacted by the exchanges they have with their supervisor (Dienesch & Liden, 1986; Gottfredson et al., 2020; Graen & Scandura, 1987). Later on, Dienesch and Liden (1986) specified and clarified phenomena related to VLD and role theory, and relabelled them to form the LMX theory (Gottfredson et al., 2020).

Graen and Scandura (1987) describe the role defining process with three phases: role taking, role making, and role routinization. The process starts with several role-taking episodes where the supervisor tests the skills and motivation of the subordinate by assigning different tasks and evaluating the subordinate's behaviours and reactions. In the following role making phase, the LMX relationship develops through a series of social exchanges where valued resources are exchanged between the supervisor and subordinate (Graen & Scandura, 1987). In this process, behaviours in dyadic relationships start to normalize, and in the role routinization phase they interlock and become predictable (Graen & Scandura, 1987). Gottfredson et al. (2020) summarize that according to VDL, differentiated unique relationships between supervisor and subordinates are dependent on the testing and negotiation exchanges between the two parties, and also the abilities, time and motivation of both

parties to participate in exchanges. Thus, it is also the supervisor's resource constraints, such as available time, that influence the ability to form high quality LMX relationships, which leads to a differentiation of LMX relationships (Gottfredson et al., 2020; Graen & Uhl-Bien, 1995). A significant amount of LMX research has focused on the so called 'in-group and out-group', which stems from these differentiated LMX relationships.

The seminal paper of Dienesch and Liden (1986) was also the first study to connect social exchange theory to LMX theory, which became the dominant perspective of LMX theory (Gottfredson et al., 2020; Graen & Uhl-Bein, 1995; Liden et al., 1997). Social exchange theory explains why supervisors and subordinates reciprocate, or at least feel the pressure to reciprocate, the benefits and resources gained from the other party (Gottfredson et al., 2020). It is the norm of reciprocity in social exchanges (Gouldner, 1960) that obligates supervisors and subordinates to repay the acquired resources. Although most LMX scholars refer to LMX theory as defined by Dienesch and Liden (1986), Gottfredson et al. (2020) have identified a third stage of LMX theory development that describes LMX strictly as a relational concept. This perspective emphasizes subordinates' perceptions regarding the quality of the relationship between the supervisor and subordinates (Schriesheim et al., 1999). In this perspective, the main focus of LMX theory is no longer on the supervisor and subordinate, but rather on the relationship between them (Graen & Uhl-Bein, 1995; Schriesheim et al., 1999). Later, LMX theory has since been complemented for example by focusing on LMX differentiation within teams (Day & Miscenko, 2015).

Based on LMX theory, dyadic LMX relationships develop during a process where a supervisor exchanges valued resources with subordinates (Dienesch & Liden, 1986; Graen & Scandura, 1987; Liden et al., 1997). In these exchanges, supervisors can give several different direct and indirect resources such as autonomy, attention, approval, encouragement, information, social support, and more interesting and challenging tasks (Graen & Scandura 1987; Graen & Uhl-Bein 1995; Liden et al.,1997). Supervisors can also offer different rewards such as approval, salary increases, and career progression to subordinates (Graen & Scandura, 1987; Graen & Uhl-Bein, 1995; Liden et al., 1997). Subordinates can further reciprocate, for example by making extra effort, taking greater responsibility, or by committing to the leader and to the organization (Liden et al., 1997; Wilson et al., 2010). These exchanges continue and stabilize as the LMX relationship becomes more routine.

The exchanges in low-quality LMX relationships are rather material and tend to focus mainly on the formal job description (Liden et al., 1997). In contrast, high-quality LMX relationships include social exchange as well, which fosters mutual trust, affect, loyalty, respect, and a degree of obligation between supervisor and subordinate

(Graen & Uhl-Bein, 1995; Liden et al., 1997). Thus, the exchange of valued resources differs in terms of quantity and quality, dependent on the LMX relationship.

4.1 Antecedents of LMX

In their model of LMX development, Dienesch and Liden (1986) propose that unique individual characteristics of supervisors and subordinates (e.g. attitudes, appearance, abilities, personality, age, background) can have a strong impact on LMX developmental processes. Furthermore, reviews of Liden et al. (1997) and Martin et al. (2010), and the meta-analysis of Dulebohn et al. (2012) add aspects of interpersonal relationship and contextual factors besides supervisor and subordinate characteristics as predictors of LMX relationship quality.

Meta-analytical evidence supports that subordinates' competence, some personality traits (agreeableness, conscientiousness, and extraversion), the locus of control, and positive and negative affectivity influence the quality of the LMX relationship (Dulebohn et al., 2012). Out of the interpersonal relationship factors, actual and perceived similarity (regarding e.g. demographics, personality, values), subordinate affect/liking for the supervisor, integration, subordinate self-promoting influence tactics, and the supervisor's trust in the subordinate have been related to LMX quality (Dulebohn et al., 2012; Martin et al., 2010). Besides organizational characteristics such as organizational policies and culture, there are contextual factors such as the supervisor's power and workload, and the number of subordinates that a supervisor leads that likely affect the LMX relationships, with some empirical support (Liden et al., 1997; Martin et al., 2010).

LMX theory suggests that supervisors have more control over how LMX relationships develop, and specifically that supervisors' perceptions and evaluations of subordinates are crucial determinants of supervisor behaviour (Liden et al., 1997). There has been less empirical research regarding the effects of supervisor characteristics on LMX compared to subordinate characteristics (Martin et al., 2010). However, several different supervisor characteristics such as positional power, leader expectations of follower success, and leader extraversion and agreeableness have been positively connected with LMX relationship quality (Dulebohn et al., 2012; Martin et al., 2010).

Neither the reviews (Gerstner & Day, 1997; Martin et al., 2010; Nahrgang & Seo, 2015; Liden et al., 1997) nor the meta-analysis (Dulebohn et al., 2012) have directly identified the well-being of the supervisor as a potential antecedent of LMX relationship quality. However, according to COR theory, well-being (e.g. cynicism, dedication) influences the amount of resources supervisors have, and it takes a

considerable amount of resources for supervisors to develop and maintain high-quality LMX relationships (Erdogan & Bauer, 2014). Thus, based on COR theory it is likely that supervisors suffering from cynicism do not have adequate resources to invest in developing and maintaining high-quality LMX relationships with subordinates. The study of Maslach et al. (2001) found that cynicism is associated with being disinterested in coworkers and distancing oneself from social relationships with them. In addition, previous research indicates that negative and cynical leaders are less supportive to their subordinates (Rubin et al., 2009). Thus, a high level of supervisor cynicism likely hinders the supervisor's resources and their ability for example to be interested in subordinates´ work, or give support, recognition and feedback, which are crucial for building and maintaining LMX relationships. But contrary to cynicism, a supervisor's dedication is likely to positively affect the LMX relationship, as supervisors with high levels of dedication will have more resources (e.g. a positive mind-set, strong involvement) they can invest in relationship building (Halbesleben et al., 2014). The effects of supervisor cynicism and dedication on LMX are examined in Study 1.

4.2 Outcomes of LMX

LMX relationships shape the attitudes, perceptions, and behaviours of the employees (Dulebohn et al., 2012; Gerstner & Day, 1997; Liden et al., 1997). The positive outcomes of high-quality LMX relationships are well studied. Meta-analyses (Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007) have associated high-quality LMX relationships with positive outcomes such as job satisfaction, satisfaction with the leader, satisfaction with salary, good performance and performance evaluations, organizational citizenship behaviours, commitment, and low-level turnover intentions. Furthermore, high level LMX has been persistently connected with employee well-being indicators such as low levels of stress and burnout (Furunes et al., 2015; Gregersen et al., 2016; Harms et al., 2017; Thomas & Lankau, 2009). In addition, LMX is connected with work engagement (e.g. Breevaart et al. 2015; Garg & Dhar 2017; Mao & Tian 2022; Wagner & Koob 2022).

4.2.1 Work engagement as an outcome of LMX

Previous research has related different leadership behaviours such as transformative leadership and servant leadership with work engagement (e.g. Breevaart et al., 2018; De Clercq et al., 2014), and during the last decade several studies have also connected LMX positively with work engagement (e.g. Breevaart et al., 2015; Garg & Dhar, 2017; Mao & Tian, 2022; Wagner & Koob, 2022). However, these studies have mainly

focused on the unidimensional work engagement measure, and the effects of LMX on work engagement dimensions (vigor, dedication, absorption) has been lacking.

LMX relationships can be associated with work engagement and performance utilization, for instance COR, JD-R or ERI theories. A high-quality LMX relationship can be seen as a job resource in itself with positive consequences, and also as a construct affecting job resources and demands (Tummers & Bakker, 2021). Thus, according to JD-R theory, LMX can initiate a motivational path leading to work engagement, and through that to good performance. Few recent empirical studies have identified factors that at least partly mediate the relationship between LMX and work engagement. These mediating factors have been social resources (Breevaart et al., 2015; Radstaak & Hennes, 2017), challenging job demands (Radstaak & Hennes, 2017), reduced role overload and increased job security (Altinay et al., 2019), psychological empowerment (Aggarwal et al., 2020), psychological safety (Mao & Tian, 2022), and team atmosphere (Wagner & Koob, 2022). However, the mechanism linking LMX to work engagement has been described as essentially being unresolved (Mao & Tian, 2022).

4.2.2 Effort and reward as a mechanism connecting LMX to work engagement

Study 3 proposes that effort made and reward gained are one mechanism connecting LMX to work engagement. Employee effort and reward are a critical part of the social exchange between supervisor and subordinates. The quality of the LMX relationship is related to the amount of effort made and the reward earned by the employee (Liden et al., 1997). LMX theory states that in high-quality LMX relationships, employees feel obliged to reciprocate the gained resources by engaging in extra and undetermined work activities, which require committing themselves and investing extra time and energy in work, which demands more physical and mental effort (Liden et al., 1997). In empirical studies, LMX has been positively related to work intensity, time pressure, and physical workload (Jiang et al., 2014; Lu & Sun, 2017). Besides more effort, LMX relationships also generate different rewards for subordinates. In exchange for the extra effort made by subordinates, supervisors can provide attention, appreciation, salary increases, improved career prospects, and developmental opportunities (Breevaart et al., 2015; Graen & Scandura, 1987; Liden et al., 1997). High-quality LMX relationships have been connected for example with generally higher reward, recognition, and better satisfaction with salary and performance evaluations (Dulebohn et al., 2012; Graen & Uhl-Bein, 1995; Karanika-Murray et al., 2015).

Based on effort-reward imbalance (ERI) theory, effort and reward are connected with employee well-being (Siegrist 1996) and can therefore mediate the effect of LMX on

work engagement. ERI theory states that effort has a negative effect on well-being (Siegrist 1996), and therefore also on work engagement. However, effort can also be interpreted as a challenge job demand with positive effects on work engagement (Crawford et al., 2010). In empirical studies, the relationship between effort/job demands on work engagement has usually been nonsignificant (see e.g. Hyvönen et al., 2010; Lesener et al., 2019; Wolter et al., 2021), but there is also evidence for both negative (e.g. Li et al., 2023) and positive (e.g. Inoue et al., 2013) relationships. The commonly found nonsignificant association between effort and the general unidimensional work engagement construct could be explained with the possibility that effort can have opposite effects on different work engagement dimensions, which thus cancel each other out regarding the overall work engagement.

Indeed, there are some correlation findings negatively connecting effort, particularly to vigor and dedication (Pöysä et al., 2022). Excessive effort can drain the energy and vigor of employees, which leads to disengagement (Spreitzer et al., 2010). However, effort should have a positive effect on absorption. Based on challenge demand literature (Crawford et al., 2010) and research on flow (Bakker, 2005) which closely parallels absorption, it is likely that absorption emerges in challenging situations where time and energy needs to be invested. The positive association between effort and absorption is further supported in several empirical studies (e.g. Kinnunen et al., 2008; Koyuncu et al., 2006; Mauno et al., 2007).

Furthermore, according to the ERI theory there is positive connection between reward and well-being (Siegrist, 1996). There is plenty of empirical evidence connecting recognition, appreciation, job security, feedback, and learning opportunities with work engagement (Breevaart et al., 2015; Crawford et al., 2010; Hulkko-Nyman et al., 2012; Mazzetti et al., 2023; Mauno et al., 2007). Employees can reciprocate the gained reward by way of vigorous, dedicated, and absorbed working (Saks 2006). But the majority of more detailed examinations of work engagement dimensions have revealed that rewards are positively connected specifically to vigor and dedication (Bakker et al., 2007; Hulkko-Nyman et al., 2012; Mauno et al., 2007; Wang et al., 2017).

The main argument of ERI theory is that it is not the separate effects of effort and reward, but rather their match that counts. Thus, if a level of effort is not reciprocated with a matching level of reward, stress and negative emotions emerge which negatively affect on health and employee well-being (Siegrist, 1996; Siegrist & Li, 2016). The empirical studies investigating the effect of effort-reward imbalance on work engagement have produced mixed results. There are studies indicating a negative connection between effort-reward ratio and work engagement, meaning that greater effort invested compared to gained rewards is associated with lower

levels of work engagement (Ge et al., 2021; Hyvönen et al., 2010; Wolter et al., 2021). However, there are also studies suggesting that there is no imbalance effect of effort and reward on work engagement (Feldt et al., 2013; Inoue et al., 2013). It should also be noted that the majority of studies examining effort-reward imbalance do not actually analyse the significance of the imbalance effect. In fact, the few studies that have investigated this main argument of ERI theory have usually indicated that imbalance/interaction of effort and reward has not explained outcomes beyond the separate effects of effort and reward (see e.g. Gorgievski et al., 2019; Kunz, 2019). Based on LMX theory and ERI theory, Study 3 investigates whether effort and reward partly mediate the effect of LMX on work engagement dimensions, and whether the imbalance effect of effort and reward on work engagement gains empirical support.

4.3 Criticism of LMX

LMX literature has faced serious criticism over the years, concentrating for example on the lack of a clear conceptual definition, measurement issues, and an unclear nomological net (Gerstner & Day, 1997; Gottfredson et al., 2020). First of all, LMX research has defined LMX in numerous ways (Gottfredson et al., 2020), and some authors have based their construct definitions on the differentiation of relationships or exchanges, some on the relationship or exchange quality, and some on a combination of these aspects. Furthermore, it has been usual to list qualities of high-quality LMX relationships such as affect, trust, respect and obligation while defining LMX, but these qualities have also been examined as predictors, correlates, and outcomes of LMX (Gottfredson et al., 2020). However, it is also recognised that the nomological net has also been unclear regarding behavioral leadership constructs (e.g. transactional and transformative leadership).

The assessment of LMX has raised concerns in the literature (e.g. Gottfredson et al. 2020; Liden et al., 2015). Several different measurement scales for LMX have been developed over the past decades (see e.g. Graen & Uhl-Bein, 1995; Liden et al., 1997), but the leader-member exchange 7 questionnaire (LMX-7) (Scandura & Graen, 1984; Graen & Uhl-Bein, 1995) and the multidimensional measure of leader-member exchange (LMX-MDM) (Liden & Maslyn, 1998) have been the most popular scales (Dulebohn et al., 2012; Liden et al., 2015; Martin et al., 2016). Nonetheless, these popular existing LMX scales have been criticized on several grounds, and the most critical concerns relate to opinions that LMX scales rarely measure exchanges or reciprocity adequately enough, which is problematic as they lie at the very core of modern LMX theory (Dulebohn et al., 2012; Gottfredson et al., 2020; Liden et al., 2015). Furthermore, researchers have identified some overlap between LMX and behaviour of leader or leadership style measurement scales (Joseph et al., 2011).

There are also some other problematic issues that can cause both theoretical and practical problems in data collection. For instance, some of the existing scales cannot be used in a similar format for both parties of the dyad. Furthermore, the response options of the original LMX-7 scale are not in a similar format for all of the questions. Study 2 of this dissertation validates the University of Vaasa leader-member exchange scale (LMX-UVA) for LMX that is based on previous scales, updates them in line with the presented criticism, and measures LMX from several distinct theoretical standpoints. The LMX-UVA scale is utilized in all of studies of the presented dissertation.

5 METHODOLOGY

5.1 Scientific premises

Scientific research is grounded on different research paradigms, which differ in terms of ontological, epistemological and methodological assumptions (Easterby-Smith et al., 2021). Ontology examines the nature of reality, whereas epistemology is about how to derive knowledge from the reality, and what are the sources and limitations of that knowledge (Easterby-Smith et al., 2021). There are several distinct ontological positions that can be situated on a continuum regarding the nature of reality (Burrell & Morgan, 1979; Easterby-Smith et al., 2021). Realism is one endpoint of this ontological continuum, with a perspective that physical and social worlds are objective and external realities. Thus, reality exist independently of any human observations made out of it. Nominalism positions the other endpoint, and refers to the ontological view that reality is created inside of human mind, and therefore does not exist independent of human perception. Regarding epistemology, there are two contrasting underpinnings: positivism and social constructionism (Burrell & Morgan, 1979; Easterby-Smith et al., 2021). Positivism relates to realism and holds that knowledge can be acquired from the external reality, and this should be done with objective measures and analytical methods; whereas in the viewpoint of constructionism, knowledge must be subjectively experienced (Burrell & Morgan, 1979).

It is argued that researchers should understand the philosophical underpinnings of their research because methodological choices and the study design of scientific research are grounded on ontological and epistemological assumptions (Easterby-Smith et al., 2021). Understanding the assumptions of research paradigms helps to ensure, for example, that research questions are reasonable, and that the criteria for evidence is sufficient (Park et al., 2020). In social sciences, the positivist paradigm was dominant until the mid 20th century when it began to be challenged in reaction to its limited success (Creswell & Creswell, 2017; Easterby-Smith et al., 2021). In the challenging paradigm of social constructionism, nominalist ontology combines with a constructionist epistemology suggesting a qualitative rather than quantitative approach to data collection and analysis (Easterby-Smith et al., 2021). Besides these two broad paradigms there have emerged several different “third way” positions such as critical realism or post-positivism, which combine positivist and constructionist approaches (Creswell & Creswell, 2017; Easterby-Smith et al., 2021). In practice, positivist research in social sciences is often based on these less strong versions of positivism, which accept that reality can only be assessed indirectly (Easterby-Smith et al., 2021). Furthermore, less strong forms of positivism reject for

example the ideal of seeking certainty that does not tolerate any exceptions to generalizations and embrace more subtle approximations of the truth (Creswell & Creswell, 2017; Crook & Garrat, 2005).

This dissertation study and its methodological choices are rooted in the positivist research paradigm. The main focus of positivist research in social sciences includes a utilization of operationalized measurements, identifying causal relationships or regularities, trying to generalize findings, and testing theory driven hypothesis to build scientific knowledge (Burrell & Morgan, 1979; Easterby-Smith et al., 2021; Park et al., 2020). Within the positivist paradigm, research is often based on a quantitative approach with large sample sizes, which is the case in this dissertation.

5.2 Sample

The study sample (N=1701) was collected between 2011 and 2012 within LÄIKE-project (Mäkelä et al., 2013) from multiple Finnish organizations: a communal day-care organization (n=364), an insurance company (n=334), a logistics organization (n=488), a retail company (n=175), a finance organization (n=211), and several small and medium-sized organizations (n=129). The combined sample ensures a broad representation of different blue- and white-collar jobs, and the large sample size enables the estimation of complex statistical models and enhances the statistical power in estimation.

The data was collected with paper and online questionnaires. The paper questionnaire was used when employees did not use a computer in their daily work tasks, and they were delivered by a member of the research team while attending a meeting where employees had time to fill in the survey. If a meeting was unable to be arranged, paper questionnaires were returned with prepaid return envelopes directly to the research team. A link to the online questionnaires were sent to the supervisors or an organization's contact person, who then delivered the invitations to employees, which prevents the calculation of the response rate. Responding to the survey required employees to evaluate the behaviour of their supervisors, and therefore complete anonymity and confidentiality for the respondents was emphasized and assured.

The majority of respondents (68%) in the combined sample were female, which well represents the gender distribution of the overall Finnish service sector (Statistics Finland, 2010). The age of the respondents varied between 18 and 66, with an average of 42.0 years (SD=12.0). The average tenure with the current employer was 11.0 years (SD=11.1). Almost one-third (29%) of the respondents had a higher-level education, and a majority (81%) held a permanent work contract. Overall, the

respondents had worked with their current supervisor for a relatively short period of time: 40% for less than one year, 28% for 1 to 2 years, 24% for 3 to 7 years and only 8% for over seven years. 10% of the respondents held a supervisory position.

5.3 Measures

Novel measures for LMX, managerial coaching, and individual and unit level performance were developed in the LÄIKE research project at the University of Vaasa, and validated in Study 2 (see section 4.2.1). All of the items can be found in the Appendix of Study 2. To assess work engagement, cynicism, effort and reward, validated and established scales were utilized.

Because of some problems inherent in the existing LMX scales (see chapter 3.3), the LÄIKE project decided to update existing scales and create a new unidimensional LMX-UVA scale. The items for the scale were generated by reviewing LMX literature and earlier measurement instruments, and by analysing a wide set of interviews of both subordinates and supervisors. Each item was developed to indicate some kind of tangible or intangible exchange between parties. Furthermore, items were worded such that both leaders and members can use the scale to evaluate their LMX relationships. The LMX-UVA consist of nine items such as '*We trust each other*' and '*If needed, we are ready to support each other's viewpoints on work issues*'. The 7-point Likert scale was anchored with *fully disagree* (1) and *fully agree* (7). The internal consistency of the scale was excellent (Cronbach's α=.97).

No established measure for *managerial coaching* has yet to be published in the research literature. A review of managerial coaching scales (Hagen & Peterson, 2014) indicated that only a few scales that had been utilized in studies had a specific theoretical background and were validated. The managerial coaching scale developed by the LÄIKE research project asks employees to evaluate their leader's activity in seven different types of coaching behaviour. Five items focused on a leader's coaching behaviours at the group-level, and two items concerns the individual subordinate level. The items were selected from an earlier multi-methodological study (Viitala, 2004) that identified 29 relevant items for managerial coaching based on interviews and large quantitative data. The seven items (e.g. '*My manager ensures that everyone is capable of doing their tasks*' and '*I receive encouraging feedback for my work*') were chosen from a previous questionnaire based on their strong intercorrelations and strong relevance affirmed by previous research on managerial coaching (see e.g. Berg & Karlsen 2007). The responses were recorded on a 7-point Likert scale anchored with *strongly disagree* (1) and *strongly agree* (7). The internal consistency of the scale was excellent (Cronbach's α= .95).

Effort and *reward* were measured with the Finnish version (Kinnunen et al., 2008) of the ERI questionnaire (Siegrist et al., 2004). Five items were utilized to measure effort (e.g. '*I have constant time pressure due to a heavy workload*'), and 11 items measured reward (e.g. '*I receive the respect I deserve from my superiors*'). Items were assessed with a 4-point Likert scale anchored with *fully disagree* (1) and *fully agree* (4). The internal consistency was good for effort (Cronbach's α=.70) and reward (α=.81).

Work engagement and its dimensions of *vigor*, *dedication* and *absorption* were measured with the validated Finnish version (Seppälä et al., 2009) of the nine-item Utrecht work engagement scale (Schaufeli et al., 2006). All dimensions were assessed with three items such as '*At work, I feel bursting with energy*' (vigor), '*I am enthusiastic about my job*' (dedication) and '*I am immersed in my work*' (absorption). The responses were assessed with a scale ranging from *never* (0) to *every day* (6). The internal consistencies of the unidimensional general work engagement scale (Cronbach's α= .94) and the scales of vigor, dedication and absorption were good (Cronbach's α= .85 to .90).

Cynicism toward the meaningfulness of work is one dimension of burnout, and was measured with a validated Finnish version of the five-item cynicism scale of the Bergen Burnout Inventory (Näätänen et al., 2003). Items of the scale included: '*I find it difficult to involve myself in my customers' or my other employees' problems*' and '*I feel that I have gradually less to give*'. Respondents were asked to rate their own cynicism using a 6-point Likert-type scale ranging from *completely disagree* (1) to *completely agree* (6). The reliability of the cynicism scale was good (Cronbach's α= .86).

Task performance and *performance of the unit* were evaluated with novel measurement tools. The respondents were asked to evaluate both their own individual performance and also the performance of their unit from the perspectives of goal attainment, quality, and competences (see e.g. Brudan, 2010; Sung & Choi, 2014). Self-rated measurement was chosen because when empirical data is gathered from different units from several different organizations, it is impossible to specify an objective and comparable measure for either individual or unit-level performance (Folan et al., 2007; Lebas, 1995). In addition, utilizing leader-ratings as a performance measure causes several practical problems in large data collections. Even though self-rated measurements have faced criticism (e.g. Pransky et al., 2006), they are common in performance research and have been shown to be consistent with performance ratings made by a superior (e.g. Jensen et al., 2007; Steel & Van Scotter, 2003). Individual performance was assessed with four items such as '*I always reach the goals of my job*' and '*My competence level is sufficient for accomplishing my current tasks*', and performance of the unit with five items including '*Our unit always reaches its*

quantitative goals' and '*Operation of our unit is high quality*'. Answers were recorded on a 7-point Likert scale anchored with *strongly disagree* (1) and *strongly agree* (7). The internal consistencies of the individual (Cronbach's α=.75) and unit level performance scales (Cronbach's α= .87) were good.

5.4 Data analyses

5.4.1 Analytic strategy of Study 1

Study 1 utilized samples from an insurance company, a communal day-care organization, a logistics organization, a retail company, and a finance organization. We were able to match the responses of 971 employees with their supervisors (n=104). First, the descriptive statistics were analysed. After that, the hypotheses were tested with multilevel structural equation modelling (MSEM), because the data was collected at both the work-unit (supervisor cynicism and dedication) and individual level (subordinate LMX, cynicism and dedication) (Preacher et al., 2010). As the data are nested within units, there is only variance between work-units regarding the supervisors' cynicism and dedication. Thus, the effect of supervisor cynicism and dedication on LMX can be examined only at the work-unit (between) level. This type of multilevel mediation model where predictor(s) are measured at the unit-level, and mediator and outcomes at the individual level, is called a 2-1-1 model. Unlike the standard multilevel modelling paradigm, the MSEM model strictly separates within- and between-level effects without bias (Preacher et al., 2010).

Within MSEM, there are two approaches to 2-1-1 mediations. Preacher et al. (2010) state that mediation can only flow through between-level, whereas within the cross-level mediation approach described by Pituch and Stapleton (2011; 2012; see also Krull & MacKinnon, 2001; Talloen et al., 2016; VanderWeele, 2010), a mediation process can flow through an individual-level mediator if it is theoretically plausible that the individual-level outcome is influenced by an individual-level mediator that reflects absolute, and not relative, scale value. This study satisfies these conditions for cross-level mediation as it is safe to assume that an employee's personal LMX quality impacts employee cynicism and dedication, and further that it is the absolute level of LMX rather than a relative position in the work-unit that is important. In this case, individual-level mediation is theoretically more interesting than between-level mediation. Therefore, the cross-level mediation is a more suitable approach for this study. Furthermore, the cross-level mediation approach has a huge power advantage over the cluster-level approach in finding indirect effects, as there is more information in estimating an individual cross-level indirect effect than a cluster-level

only indirect effect, because there are more observations at the individual-level rather than the unit-level (Pituch & Stapleton, 2012).

We followed the instructions of Pituch and Stapleton (2011) and estimated direct effects and cross-level mediation effects utilizing two separate models (Model 1 and Model 2). Model 1 focused on the effect of supervisor cynicism and dedication on LMX at the unit-level, while Model 2 estimated the relationship between LMX and employee cynicism and dedication at the individual level. Predictors were grand-mean centered and only fixed slopes were estimated. In addition, a contextual effect of LMX relationship quality on subordinate cynicism and dedication was analysed. Contextual effect is defined as the difference between individual-level (within) and unit-level (between) effects (Pituch & Stapleton, 2012). In this case, contextual effect measures whether the collective LMX of a work-unit contributes any additional effect beyond the effect of individual LMX. For example, a high average LMX level in the unit might lead to an extra increase in employee dedication beyond the individual LMX effect.

The analysis adjusted for possible confounders which might influence the connections between supervisor cynicism and dedication, LMX, and subordinate cynicism and dedication. Control variables included age, gender, organization, organizational tenure in years, tenure of the LMX relationship (1 = less than 1 year, 2 = 1–2 years, 3 = 2–7 years, 4 = more than 7 years), and the size of the work-unit using information reported by the supervisors (1 = under 13, 2 = 13–20, 3 = 21–40, 4 = over 40). The main study variables held only a few missing observations (n=1–15, less than 1.5% of the whole sample), but as organizational tenure (n=60), age (n=179), and gender (n=68) had more missing data, a full information maximum likelihood estimation was utilized in the analysis to handle the missing data. MSEM was estimated with Mplus 7.4 (Muthén & Muthén, 2015) software utilizing a robust maximum likelihood estimation. The confidence intervals for the cross-level indirect effects were estimated with the Monte Carlo method with 20,000 simulations, using the online tool developed by Selig and Preacher (2008).

5.4.2 Analytic strategy of Study 2

Study 2 included measurement validation and hypotheses testing. Samples from logistic (n=488) and financial organizations (n=211) which represented blue- and white-collar jobs were utilized in measurement validation, whereas samples from a communal day-care organization (n=364), an insurance company (n=334), small and medium-sized enterprises (n=129), and a retail company (n=175) were combined to examine the hypothesis. As supervisors (n=167) were omitted from the datasets, there were a total of 655 respondents in the final validation data and 879 respondents

in the hypothesis testing data. First, the measures for LMX, managerial coaching, and individual and unit level performance were validated utilizing confirmatory factor analysis (CFA). Scale items in the validation sample included only a few missing values (n=4–24), which amounted to only 0.6–3.7% of the total sample. Therefore, a list-wise-deletion of missing values was utilized in the measurement validation. The validation process started with an examination of factor structures, dimensionality, and the discriminant validity of the scales with a combined dual-organization sample. Then, a multi-group measurement model was estimated to analyse measurement invariance, which indicates whether measurements behave similarly in two different organizations.

The model fit of CFA models was examined with the chi-square test, and because it is sensitive to sample size, several other model fit indices with standard cut-off values for good model fit were also utilized (Hu & Bentler, 1999). For the root mean square error of approximation (RMSEA) and the standardized root mean squared residual (SRMR), < .08 indicates an adequate fit and < .05 a good fit, and for the comparative fit index (CFI) and the Tucker–Lewis index (TLI), > .90 indicates an adequate fit and > .95 a good fit. We followed the instructions of Chen (2007) to determine the level of measurement invariance by comparing changes in CFI, RMSR and RMSEA in different nested measurement invariance models (configural, metric, scalar, residual variance).

Moreover, regarding composite reliability, convergent validity and discriminant validity, the measures and threshold values of Hair et al. (2010) were utilized. Composite reliability over a .700 threshold indicates a good reliability. Convergent validity can be examined, for example, with the average variance extracted (AVE) measure, where values of a .500 threshold indicate convergent validity. To examine the discriminant validity of the measurements, the AVE was compared to maximum shared variance (MSV) and average shared variance (ASV), and heterotrait-monotrait ratio of correlations (HTMT) were calculated (e.g. Hair et al., 2010; Voorhees et al., 2016). Discriminant measure has a greater AVE than MSV or ASV. Regarding HTMT, a cutoff value of 0.85 has been suggested, and values under it indicate discriminant validity (Voorhees et al., 2016).

The hypotheses of the study were analysed with multilevel structural equation models (MSEM) because performance of the unit was analysed at the unit-level, and the data was clustered in the work units (Preacher et al., 2010). A violation of the assumption of independent observations leads to downward-biased standard errors of estimates if ordinary regression methods are utilized (Preacher et al., 2010). Three different MSEM models were estimated, which all were specified to have random intercepts and fixed slopes. As LMX and managerial coaching were correlated, they

were first analysed separately and then in the third model simultaneously. The unit-level analysis of performance was conducted with the performance of the unit measure, as averaging the individual performance of each employee in the unit does not usually adequately reflect the performance of the unit. Other connections were analysed only at the individual level.

The effects of gender, age, organization, organizational tenure, and the tenure of the LMX relationship (1 = less than 1 year, 2 = 1–2 years, 3 = 2–7 years, 4 = more than 7 years) were adjusted in the analysis. As control variables held missing values, full information maximum likelihood estimation was utilized in the hypothesis testing. CFA and MSEM were performed with Mplus 7.4 software (Muthén & Muthén, 2015) using a robust maximum likelihood (MLR) estimation. Because the indirect effects are not usually normally distributed, confidence intervals for indirect effects were estimated with the Monte Carlo method utilizing an interactive online tool by Selig and Preacher (2008) with 20,000 iterations.

5.4.3 Analytic strategy of Study 3

The analyses in Study 3 were performed with the whole sample. The measurement model was first examined with CFA, which supported the validity of the measurements. The study variables were first analysed at a descriptive and correlational level, and then the hypotheses were tested with a moderated mediation path model. Possible confounders of gender, age, tenure, LMX-tenure, supervisory position, and organization were adjusted for in the analysis as they have been connected with the study variables in previous studies (e.g. Garg & Dhar, 2017; Gerstner & Day, 1997; Hulkko-Nyman et al., 2012; Inoue et al., 2013).

Study 3 tested the imbalance effect of effort and reward with an interaction term approach (effort*reward), as it first allows the examination of the main effects of effort and reward, and then whether the interaction/balance of effort and reward has any explanatory power over and above the main effects (Allisey et al., 2012; Gorgievski et al., 2019). The interaction term between effort and reward was calculated utilizing centred variables. However, as the imbalance has been investigated as a ratio of effort and reward (effort/reward) in the majority of the ERI literature, a robustness check utilizing the ERI ratio was also performed. The ERI ratio was analysed within the model with main effects of effort and reward, and in the second model including only the ERI ratio, which is typical in the ERI literature. As is suggested, the logarithm of the ERI ratio was utilized in the analysis (Kinnunen et al., 2008; Siegrist et al., 2004).

MPlus 8.3 software (Muthén & Muthén, 2017) with robust maximum likelihood estimation was utilized in the estimation of the path models. All analyses were conducted with observed variables. Because data is clustered in work units, a complex survey data (COMPLEX) procedure was applied to adjust the standard errors of the estimates. The main study variables had only a few missing values (1.1–1.6%), but the control variables included more missing data. Accordingly, a full information maximum likelihood estimation was applied. The confidence intervals of the indirect effects and indexes of moderated mediation were calculated with a bias-corrected bootstrap procedure with 1000 iterations.

6 SUMMARY OF THE STUDIES

6.1 Study 1

For supervisors, forming and maintaining a large quantity of high-quality LMX relationships requires a fair amount of resources (Erdogan & Bauer, 2014). According to COR theory (Hobfoll, 1989; Hobfoll et al., 2018), the well-being of supervisors influences the amount of resources a supervisor can spent on LMX relationships. Moreover, a high-quality LMX relationship should maintain and generate resource reservoirs for employees that reflect as their well-being. Thus, it can be argued that well-being can crossover from supervisors to their subordinates through LMX relationships.

Study 1 examines whether the psychological well-being of supervisors affects their ability to form and maintain high-quality LMX relationships, and through that influences on the psychological well-being of subordinates. Psychological well-being was measured with cynicism and dedication, which are dimensions of burnout and work engagement. Thus, the study examines whether supervisor cynicism and dedication crossover (transfer) to subordinate cynicism and dedication through their LMX relationship. Cynicism is an interpersonal dimension of burnout, and can be defined as a disinterested attitude towards the people one works with and work in general, and losing interest and a sense of meaningfulness in one's work (Maslach et al., 2001). Cynicism has been contrasted with dedication, which is a motivational and emotional dimension of work engagement. Dedication refers to feelings of enthusiasm and significance, and sense of involvement, pride, challenge, and inspiration found at work (Bakker, 2011; Schaufeli & Bakker, 2003).

The results of the analysis (see Figure 5) indicate that supervisor cynicism was negatively (β=-0.34, p=.029) related with LMX relationships, but the effect of supervisor dedication on LMX was not significant (β=-0.08, p=.642). Moreover, the quality of LMX relationships was negatively connected with subordinate cynicism (β=-0.28, p<.001) and positively connected with subordinate dedication (β=0.27, p<.001) as predicted. The direct spillover effects from supervisor dedication and cynicism to subordinate dedication and cynicism were not significant in the analysed model with LMX as a mediator. However, LMX significantly mediated the effect of supervisor cynicism on subordinate cynicism (β=0.10, 95% CI: 0.01–0.19) and dedication (β=-0.09, 95% CI: −0.18– -0.01), whereas the indirect effects between supervisor dedication and subordinate cynicism and dedication via LMX were not significant. Thus, employees who had a cynical supervisor reported on average lower quality LMX relationships, which adversely reflected on their own levels of cynicism

and dedication. The study results indicated that only supervisor cynicism and not dedication was connected to LMX relationship quality, and through that, subordinate cynicism and dedication. This suggests that negative attitudes of supervisors could have a stronger influence on LMX relationship quality than their positive attitudes.

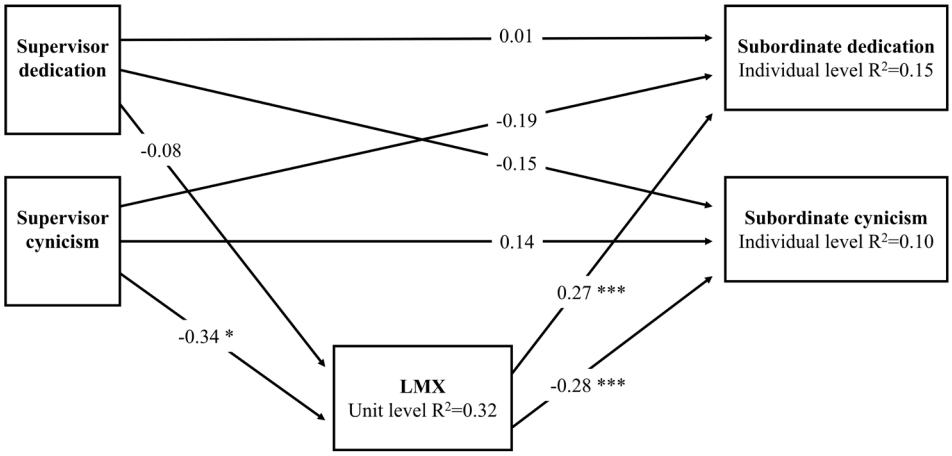

Figure 5. Standardized regression coefficients of Study 1

6.2 Study 2

Study 2 examines how LMX and managerial coaching are associated with work engagement, and partly through that with individual and unit-level performance. In addition, Study 2 validates new measurement scales for LMX, managerial coaching, and individual and unit-level performance. The study is based on JD-R theory (Bakker & Demerouti, 2007; Demerouti et al., 2001), with which it can be argued that high level LMX-relationships and managerial coaching act as resources themselves for employees, and generate more resources that will initiate a motivational path leading to high level performance through increased work engagement (Bakker & Demerouti, 2007; Tummers & Bakker, 2021).

The study first validates the measurement scales, and after that, a multilevel path model is utilized to examine the direct effects of LMX and managerial coaching on work engagement and performance, and the indirect effects between LMX and managerial coaching on performance through work engagement.

6.2.1 Results related to the validation of the new measurement scales

The factor structures of the study measurements were examined by estimating two different CFA models. First, a five-factor model where LMX, managerial coaching, work engagement, individual performance, and unit-level performance formed their own separate factors was compared to a three-factor model where the items of LMX and managerial coaching formed a unidimensional leadership factor and the performance items loaded on a single performance factor. The five-factor model had an acceptable fit to the data ($\chi2(517)=1801.64$, $p<.001$; RMSEA=.062; SRMR=.051; CFI=.910; TLI=.902), which was clearly better in comparison to the three-factor model in terms of $\chi2$-test and fit indices ($\chi2(7)=902.01$, $p<.001$; ΔRMSEA=−.020; ΔSRMR=−.014; ΔCFI=.050; ΔTLI=.073).

The five-factor model was further modified by releasing a total of five error covariances, which all related to items that were measuring a similar phenomenon. In the managerial coaching scale, the error covariance between '*My manager discusses our performance with us sufficiently*' and '*My manager ensures that everyone is capable of doing their tasks*' was estimated. In the work engagement scale, two error covariances were estimated between '*At work, I feel bursting with energy*' and '*At my job, I feel strong and vigorous*' which both reflect employee vigor, and between '*I am immersed in my work*' and '*I get carried away when I'm working*' which are related to absorption. In addition, two error covariances were estimated from the performance of the unit scale between '*The operation of our unit is high quality*' and '*There is a clear common agreement in our unit about the direction of the development of competence*', and between '*Our unit always reaches its quantitative goals*' and '*The performance of our unit is much better than the average in our organization*'. The model fit of the modified five-factor CFA model was good ($\chi2(512)=1207.73$, $p<.001$; RMSEA=.046; SRMR=.042; CFI=.951; TLI=.946), and significantly better compared to the model without modifications ($\chi2(5)=593.914$, $p<.001$; ΔRMSEA=−.016; ΔSRMR=−.009; ΔCFI=.041; ΔTLI=.044). However, the model fit did not improve substantially when more error covariances were released or items were omitted.

Standardized factor loadings of the constructs were generally high (>.700), although work engagement had two relatively low loadings (.630 and .579) and individual performance one (.576). The composite reliabilities (.790–.966) indicated a good reliability for all scales. The average variance extracted (AVE) varied between .488 and .760, and the AVE of only one scale, individual performance, was just below the .500 threshold. Discriminant validity was examined in several ways. For all measurements, AVE was higher than average shared variance (ASV) (.058–.330) and maximum shared variance (MSV) (.167–.780), except for LMX and managerial coaching where MSV was just a little higher. HTMT was also a little (.88) higher than

the .085 threshold for managerial coaching and LMX. HTMT values for the rest of the measurements were below the threshold. These results suggest that there might be some overlap between LMX and managerial coaching measurements. However, exploratory factor and confirmatory factor analyses clearly segregated LMX and managerial coaching constructs. Furthermore, in additional whole sample analyses, the AVE vs. MSV test also indicated discriminant validity.

Overall, the analysis indicated mainly adequate convergent and discriminant validity and reliability for the study constructs. However, it should be noticed that a high correlation (r=.883) of LMX and managerial coaching scales can cause problems if they are analysed simultaneously. The results regarding the measurement invariance between logistic and finance organizations indicated strong evidence for configural and metric invariance of the measurements, and partial support for scalar invariance. Residual variance invariance was not supported, but has proven to be a usual finding in empirical studies (Chen, 2007). Overall, the results supported strong measurement invariance. Thus, the measurement scales of LMX, managerial coaching, and performance acted fairly similarly among blue- and white-collar employees, which is critical regarding the usability of the featured scales.

6.2.2 Results of the examination of the study hypotheses

As the constructs of LMX and managerial coaching were highly correlated, analyses were first conducted separately for both leadership constructs, and then simultaneously. The model fit of all models were excellent. Each model explained work engagement (R^2=0.153–0.189) and performance of the unit (R^2=0.226–0.317) relatively well, but not individual performance (R^2=0.091–0.099), which suggests that the personalities of employees and other aspects of work contribute more to the rating of individual performance.

In the separate analyses, the results concerning LMX and managerial coaching were fairly similar (see Figures 6 and 7). Leadership constructs were associated positively with work engagement, and also had direct and indirect effects via work engagement on performance. Managerial coaching (individual level β=0.47; unit-level β=0.39) had a stronger connection on performance of the unit at the individual- and unit-levels compared to LMX (individual level β=0.36; unit-level β=0.30). However, LMX (β=0.37) had a slightly stronger association on work engagement than managerial coaching (β=0.32).

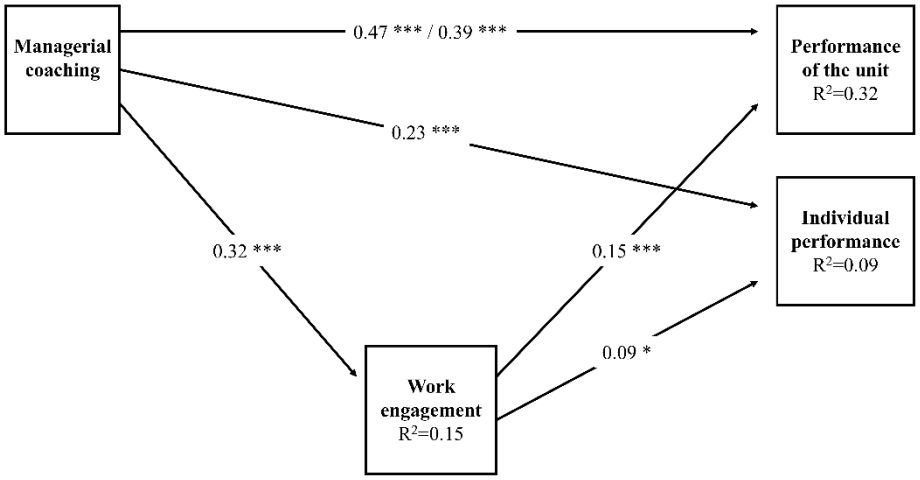

Figure 6. Standardized regression coefficients from a model with only managerial coaching as a predictor (within- / between-level effects)

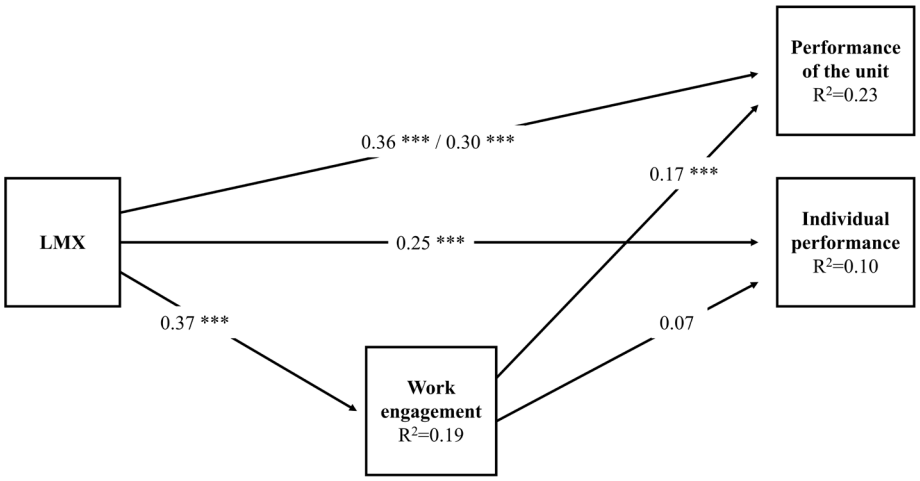

Figure 7. Standardized regression coefficients from a model with only LMX as a predictor (within- / between-level effects)

The model where LMX and managerial coaching were analysed simultaneously (see Figure 8) suggests that managerial coaching was directly connected merely with performance of the unit at individual (β=0.514) and unit-level (β=0.768), while LMX was connected with work engagement (β=0.315) and individual performance (β=0.157). Work engagement was connected only with performance of the unit (β=0.152). Furthermore, LMX had a significant indirect effect on performance of the

unit (b=0.04, 95% CI: 0.02–0.07). It is noticeable that while the individual and unit-level effects on performance of the unit seemed to differ noticeably in some models, the difference was not significant in any model, and therefore there was no contextual effect.

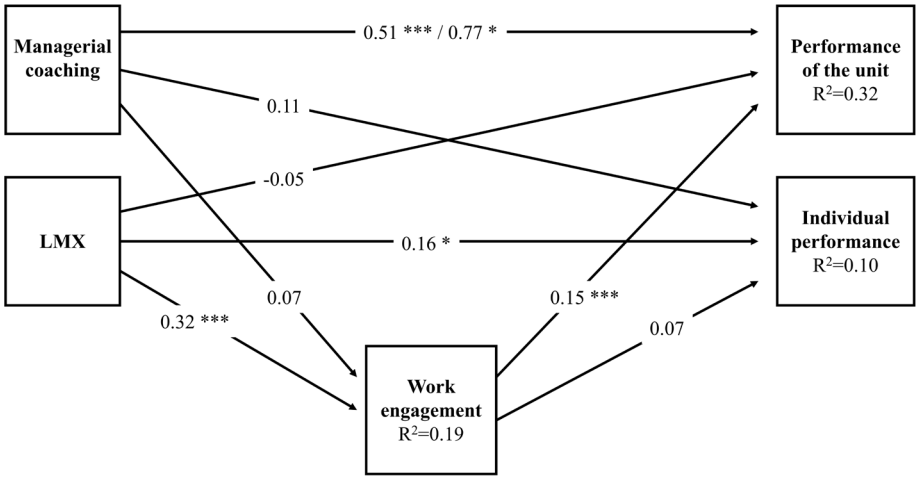

Figure 8. Standardized regression coefficients from a model with LMX and managerial coaching as predictors (within- / between-level effects)

All of the results combined suggest that managerial coaching had a bit stronger relation to unit-level performance, whereas LMX was positively related to individual level performance and work engagement, which also mediated the relationship to unit-level performance.

6.3 Study 3

Previous studies have almost entirely examined the connection of LMX to a unidimensional work engagement measure, and therefore there is a need to explore the associations of LMX on work engagement dimensions: vigor, dedication and absorption, specifically as they have been shown to have partly different antecedents and outcomes (Bakker et al., 2007; Neuber et al., 2022; Mauno et al., 2007). Studying these dimensions separately can offer a more detailed understanding of the aspects that engage employees. Furthermore, it is important to examine why LMX affects work engagement (Mao & Tian, 2022), and whether the explanatory pathways differ between vigor, dedication and absorption.

Study 3 examines how LMX is related with vigor, dedication and absorption, and utilizes the ERI theory (Siegrist, 1996; Siegrist et al., 1986) to investigate whether perceived effort and reward of an employee act as one of the mechanisms explaining the relationships between LMX and the three specified work engagement dimensions. Thus, it examines whether effort and reward mediate the connection between LMX and vigor, dedication and absorption. ERI theory defines effort as perceived strain caused by job demands, and reward through salary, esteem, and career opportunities (Feldt et al., 2013; Siegrist, 1996; Siegrist et al., 2004). ERI holds the balance or combined effect of effort and reward to be critical (Siegrist, 1996; Siegrist & Li, 2016), and therefore the interaction effect between effort and reward on work engagement dimensions is investigated. However, proper tests regarding the imbalance effect of effort and reward have been surprisingly scarce (see also Allisey et al., 2012; Gorgievski et al., 2019; Kunz, 2019).

The results of the moderated mediation path model (see Figure 9) revealed that LMX had a negative connection with effort (β=-0.18), which was associated negatively with vigor (β=-0.08) and positively with absorption (β=0.09). The connection between effort and dedication was not significant. Furthermore, LMX had a strong positive connection with reward (β=0.52). Reward was positively connected with vigor (β=0.28), dedication (β=0.33) and absorption (β=0.21).

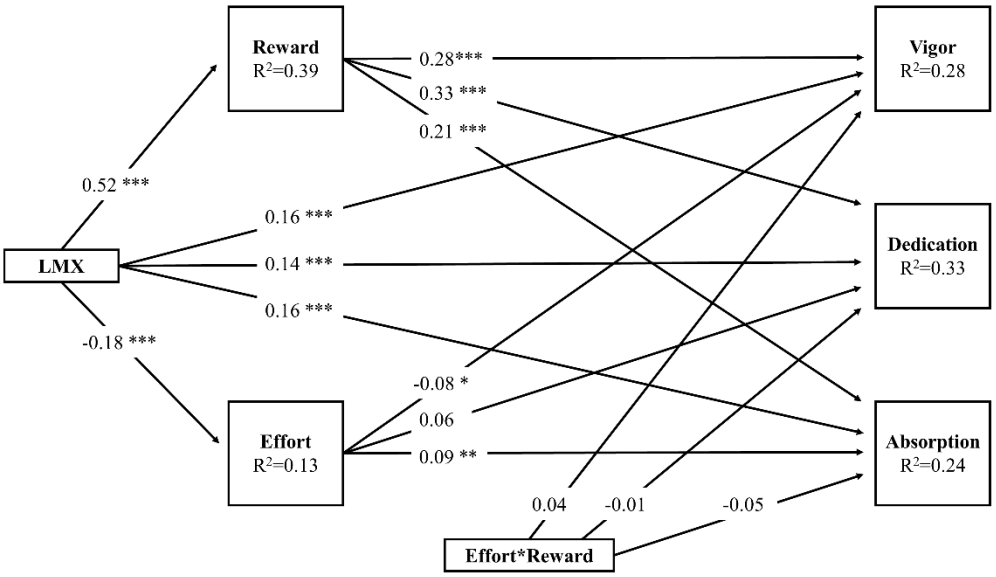

Figure 9. Standardized path coefficients between main study variables (Figure from Tanskanen, 2025)

There was no significant interaction effect between effort and reward on any of the work engagement dimensions. An additional analysis utilizing effort-reward ratio was conducted as a robustness check. The ERI ratio was not significantly related to

vigor, dedication or absorption, when the main effects of effort and reward were controlled for. In addition, when the ERI ratio was analysed separately from the main effects of effort and reward, the model explained the variance of work engagement dimensions worse than when compared to the original model. Thus, the robustness analyses supported the main analysis.

LMX had direct effects with vigor (β=0.16), dedication (β=0.15) and absorption (β=0.16), and there were also indirect effects between LMX and work engagement dimensions through effort and reward. LMX had a significant, but very weak, positive indirect effect on vigor (b=0.01, 95% CI: 0.00–0.03) and a weak negative indirect effect on absorption (b=-0.02, 95% CI: -0.03– -0.01) through effort, but the indirect effect on dedication was not significant. However, LMX had a significant indirect effect on vigor (b=0.14, 95% CI: 0.11–0.17), dedication (b=0.19, 95% CI: 0.15–0.24), and absorption (b=0.12, 95% CI: 0.08–0.16) through reward. Similar to the interaction analysis, the analysis of moderated mediation also indicated that reward did not moderate the indirect effect between LMX and vigor, dedication or absorption through effort.

As a summary, the analysis suggests that high-quality LMX relationships are connected to reduced effort and greater reward, which in turn partially mediate the positive relationship between LMX and vigor, dedication and absorption. Particularly, reward seemed important in explaining work engagement, whereas effort was negatively associated to vigor and positively to absorption.

7 DISCUSSION

7.1 Main findings

This dissertation examines LMX and work engagement, their antecedents and outcomes, and the relationship and explanatory mechanisms between them utilizing COR, JD-R and ERI theories. The work also validates an updated measurement scale for LMX to overcome some of the concerns associated with the most widely used previous LMX scales (see e.g. Gottfredson et al., 2020; Liden et al., 2015). This updated scale is applied in all empirical studies.

Even though previous literature on the predictors of LMX relationship quality has identified several supervisor characteristics as antecedents, supervisor well-being has not yet been explicitly recognised as a predictor of LMX (see e.g. Dulebohn et al., 2012; Liao & Hui, 2021; Liden et al., 1997). Therefore, the main results of Study 1 add novel knowledge to the LMX literature by indicating that the cynicism of supervisors is connected with low-quality LMX relationships, which in turn affects both subordinates' cynicism and dedication, which are dimensions of burnout and work engagement. Previous research has mainly examined the relations between positive or negative well-being indicators and LMX relationship quality separately, even though these presented findings suggest that positive and negative well-being indicators should be investigated simultaneously.

Furthermore, the results indicated that the negative psychological well-being of supervisors in the form of cynicism predicted the quality of the LMX relationship, whereas positive psychological well-being which was measured as dedication did not. This can be understood from the perspective of COR theory, which states that the loss of resources is more salient than gaining them (Hobfoll, 2001; Hobfoll et al., 2018). Furthermore, crossover and COR theory (Hobfoll et al., 2018) suggest that negative transmissions of emotional states and resources from one individual to another happen more quickly, and they are more impactful than positive transmissions (Chen et al., 2015). The study findings showing that LMX relationship quality was positively associated with subordinate dedication and negatively associated with subordinate cynicism, which is consistent with LMX and COR theories and previous empirical findings (e.g. Breevaart et al., 2015; Harms et al., 2017). Thus, the study results suggest that the supervisor's cynicism decreases their ability to form and maintain dyadic relationships with their subordinates, which in turn can reduce the subordinates' involvement at work and psychological well-being (Halbesleben et al., 2014; Hobfoll et al., 2018). Previous empirical research on this kind of well-being crossover process between supervisors and subordinates, specifically through LMX

relationship, has been scarce. This result highlights that supervisor's negative attitudes and negative psychological well-being can present a risk not only for the supervisors themselves, but also to the whole team (see also Gregersen et al., 2016; Skakon et al., 2010).

The strongest empirical support drawn from Study 2 suggests that LMX was positively related to individual level performance (see Dulebohn et al., 2012) and work engagement (cf. Breevaart et al., 2015; Garg & Dhar, 2017) of employees, whereas managerial coaching was positively associated with the unit-level performance (cf. Agarwal et al., 2009), which was the only significant relationship managerial coaching had when investigated simultaneously with LMX. Moreover, the relative importance of LMX compared to managerial coaching in relation to work engagement is in line with a study by Burch and Guarana (2014), which found that LMX (but not transformational leadership) was associated positively with work engagement. These results suggest that managerial coaching was a somewhat more influential at the unit-level, and LMX at the individual level. These kinds of studies that investigate LMX simultaneously with other leadership constructs have been called for repeatedly in the LMX literature over recent decades (Day, 2012; Gerstner & Day, 1997; Scandura & Meuser, 2022). Thus, this parallel analysis of LMX and managerial coaching represents a much-needed contribution to the leadership literature.

It was surprising that work engagement was connected to individual level performance only in the model examining managerial coaching separately, and not in the other models. It is possible that highly-engaged workers evaluate their performance in a very critical light, and in addition, the sample can include work tasks (e.g. manual labour) that might not require high work engagement from an employee to reach good performance. The fact that work engagement is highly infectious can explain the positive association of work engagement on unit-level performance. Engaged employees can inspire and motivate their team members causing work engagement to spread (Bakker & Demerouti, 2008), which reflects to enhanced unit-level performance. In addition, the results suggest that work engagement mediated the effect of LMX on unit-level performance, which concurs with previous findings (e.g. Breevaart et al., 2015; Garg & Dhar, 2017; Li et al., 2012) regarding individual level performance. From the perspective of JD-R theory, the results of Study 2 offered evidence that LMX and managerial coaching act as job resources (Bakker & Demerouti, 2007), and that different leadership construct can have distinct mechanisms on performance, partly through work engagement.

Moreover, the dissertation closely examined the relationship between LMX and work engagement in Study 3, by examining three work engagement dimensions of vigor,

dedication and absorption, and investigating the perceived effort and reward of employees as the explanatory mechanism of the connection. The examination of the relationship between LMX and the dimensions of work engagement has been almost entirely absent from previous literature. The analysis of vigor, dedication and absorption alongside the mediating factors of effort and reward provides a novel and valuable perspective on the relationship between LMX and work engagement. The results of the path analysis suggest that high-quality LMX relationships are connected to reduced effort and the greater reward of employees. The positive relationship between LMX and reward is in accordance with LMX theory (Graen & Scandura, 1987; Graen & Uhl-Bein, 1995; Liden et al., 1997) and previous research (e.g. Karanika-Murray et al., 2015). However, the negative connection between LMX and employee effort was unexpected, although there are some congruent previous empirical findings (e.g. Hesselgreaves & Scholarios, 2014; Muldoon et al., 2012). There are several possible explanations for this. For example, in high-quality LMX relationships, supervisors are aware of the effort level of the subordinate and are able to reduce it when needed. Furthermore, employees in high-quality LMX relationships might not feel as much pressure to exhaust lots of effort to gain trust and develop the relationship with their supervisor. Moreover, LMX and social exchange theories (Cropanzano & Mitchell, 2005; Graen & Uhl-Bein, 1995) suggest that employees in a high-quality LMX relationship feel obliged to reciprocate the benefits they gain by making more effort. Thus, they might not assess the effort as high, but rather as just a fair price to pay for the reward gained from the high-quality LMX-relationship.

The imbalance or interaction effect of effort and reward was not significantly connected to work engagement dimensions, which has also been observed in some previous studies (e.g. Feldt et al., 2013; Inoue et al., 2013). Furthermore, in line with previous literature, reward was strongly and positively connected with all the dimensions of work engagement. The effect was strongest on dedication and vigor (see also Bakker et al., 2007; Hulkko-Nyman et al., 2012; Mauno et al., 2007). Partially as expected, effort had a negative effect on vigor, a nonsignificant effect on dedication, and a positive effect on absorption (see Koyuncu et al., 2006; Mauno et al., 2007). It is understandable that making effort reduces energy levels (i.e. vigor), and it can also be argued that it would be hard to become absorbed in work if there was only a little to do. Perceived reward was clearly stronger predictor of vigor, dedication, and absorption than effort, and reward was a specifically stronger factor mediating the relationship between LMX and work engagement dimensions. Thus, the study introduces effort, and specifically reward, as a novel explanatory mechanism in the positive association between LMX and work engagement.

7.2 Theoretical contributions

This dissertation contributes to the management literature, and in particular to the field of LMX. Study 1 identifies supervisor cynicism — and, more broadly, supervisor well-being — as a novel antecedent of LMX relationship quality (see Dulebohn et al., 2012), thereby opening new avenues for examining important resources in the leadership process. Utilizing resource loss and gain mechanisms within COR theory helps to comprehend the antecedents, explanatory mechanisms, and outcomes of LMX. In addition, the study presents LMX as an underlying mechanism connecting the psychological well-being of supervisors and subordinates, which addresses presented calls (e.g. Gregersen et al., 2016; Harms et al., 2017) to examine the relationships of attitudes and well-being between leaders and their employees.

Study 2 contributes to management literature by presenting and validating new assessment tools for LMX, managerial coaching, and individual and unit-level performance. In addition, Study 2 contributes to the understanding of the motivational process of JD-R theory by supporting leadership as a job resource (Bakker & Demerouti, 2007), and especially by showing the different roles that LMX relationships and managerial coaching play in the motivational process. The results highlight the importance of the relational leadership perspective over behavioral leadership style.

Study 2 further confirms that exploring several leadership constructs simultaneously can offer a rich and multifaceted understanding of their separate mechanisms which act on employee well-being, motivation and performance on different levels. This kind of analysis is often called for but rarely conducted (Day, 2012; Gerstner & Day, 1997; Scandura & Meuser, 2022). Therefore, it is advisable that future research should continue to examine different perspectives on leadership simultaneously, as well as their likely distinct effects on individual and organizational level outcomes. Particularly, leadership constructs could be investigated parallel to each other or in different moderation and mediation models.

It should be noted that the study found a high correlation between LMX and managerial coaching, even though the concepts are theoretically distinct. This has been a usual finding among other leadership constructs as well, which has even led to suggestions that the main leadership constructs might not distinguish themselves from each other at all (Rowold et al., 2015). However, the high correlations could also be explained by the notion that it is likely that motivated and skilful leaders utilize several leadership strategies simultaneously, whereas those not interested or able to lead effectively will fail regarding all of the aspects of leadership. But overall, a leader's interaction and social exchange with subordinates seems to be common for

the majority of leadership constructs (Rowold et al., 2015; see also Decuypere & Schaufeli, 2020). Furthermore, there is also evidence that in high-quality LMX relationships, employees assess their supervisor's coaching in a positive light and believe that the coaching benefits them rather than their supervisor themself (Sue-Chan et al., 2011). Accordingly, these findings and arguments can partly explain the high correlation between LMX and managerial coaching.

Study 3 contributes to the LMX literature by investigating the relationship between LMX and vigor, dedication and absorption, as previous research has almost exclusively examined work engagement as a unidimensional construct. This offers a more detailed understanding of how LMX engages employees. Furthermore, the examination of the antecedents or outcomes of work engagement dimensions is not common in work engagement research overall.

The results of Study 3 partly challenge current JD-R and work engagement literature, as the results indicated that effort has both positive and negative effects on work engagement dimensions. JD-R theory posits that in general, job demands are not connected to work engagement. Although, the incorporation of the division of hindrance and challenge demands in the JD-R theory has changed this perspective, as challenge demands have been connected positively to work engagement (Crawford et al., 2010). In any case, in line with the JD-R theory used in empirical examinations, the relationship between general job demands/effort on work engagement has usually been nonsignificant (Hyvönen et al., 2010; Lesener et al., 2019; Wolter et al., 2021). But at the same time, the majority of work engagement research has adopted a unidimensional work engagement measure. The results of Study 3 suggest that this nonsignificant association between job demands or effort on unidimensional work engagement could be explained by the opposite effects of job demands/effort on different work engagement dimensions, as the positive and negative effects would cancel each other out. To underscore this, the correlation between effort and unidimensional work engagement measure was small and nonsignificant (r=-.046) in the sample of Study 3. Based on these results, more research focusing on the dimensions of work engagement and their predictors is highly recommended.

In general, the utilization of ERI theory in research related to LMX or work engagement has remained relatively scarce. Thus, analyzing the relationship between LMX and work engagement dimensions within an ERI framework offers a needed contribution. Furthermore, the results of Study 3 also make an important contribution to the ERI literature as the core premise of the ERI theory did not gain empirical support. ERI theory builds on the assumption that it is the imbalance between effort and reward that matters (Siegrist, 1996). More specifically, the main premise is that the combination of high effort and low reward is critical, and therefore

should explain more variance of the outcomes than merely the main effects of effort and reward. However, the current analysis with a robustness check indicated no evidence of interaction or imbalance effects between effort and reward for any of the work engagement dimensions (see also Feldt et al., 2013; Inoue et al., 2013). More importantly, a closer look at the ERI literature reveals that this empirical finding is not as unusual as it might seem, and is not limited to work engagement as an outcome. It is true that ERI theory has gained extensive empirical support, but the analyses have usually only applied the ratio of effort and reward (effort/reward) or its logarithm as an independent variable without its main effects, and have not actually tested whether the imbalance/interaction effect is relevant (see also Allisey et al., 2012; Gorgievski et al., 2019; Kunz, 2019; Tse et al., 2007). Moreover, it seems that the majority of studies that have tested the significance of the imbalance effect have reached similar conclusions to those in this study: imbalance of effort and reward does not explain the outcome beyond the main effects of effort and reward (Kunz, 2019; Gorgievski et al., 2019; Preckel et al., 2007; Kinman, 2019). The examined outcomes in these studies include psychological ill-health, health satisfaction, mental health, work-home interference, depression, and quality of sleep. These results suggest a critical review of ERI theory, as it could be unnecessarily complicated.

7.3 Limitations of the study

There are some limitations within the dissertation related to the study design and methodology. First of all, as the study focuses on the relationship between LMX and work engagement, many interesting aspects related to those concepts are restricted or omitted as they fall outside the scope of the study. For example, analyses with a larger variety of different well-being antecedents of LMX or performance outcomes of work engagement would be interesting. Moreover, an examination of the joint effects of LMX and a wider variety of other leadership constructs would be welcome. Specifically, study designs enabling a comparative analysis of LMX in different roles (parallel, moderator, mediator) with other leadership constructs would be beneficial. In addition, future studies should simultaneously investigate several alternative mediators in the relationship between LMX and work engagement, in order to gain knowledge on the most relevant explanatory pathways.

There are some methodological constraints in the study that need to be acknowledged. Although, the analyses of all of the included studies were adjusted for several possible confounders, the studies were based on cross-sectional data, which prevents the possibility to make any causal claims or to confirm the causal direction of the studied relationships. Some of the connections studied could be bidirectional or have a dynamic relationship. For example, based on LMX theory and related

research, effort and especially reward should also enhance an LMX relationship (Dulebohn et al., 2012; Graen & Uhl-Bein, 1995; Liden et al., 1997). For these reasons, future research should employ longitudinal designs and causal modelling. Longitudinal designs would also better capture the subtle temporal dynamics of processes related to the development of LMX relationships and its relation to work engagement.

Furthermore, all studies were conducted with self-reported assessments. When examining the affective, attitudinal, perceptual, or other internal states of the subjects which was the case in many situations in these studies, self-reports are the most appropriate way obtain data (Spector, 2006). However, using solely self-report measurements raises concerns over the possibility of common method variance (CMV) biasing the analytic results. Some survey design remedies were used to minimize the possibility of CMV. For example, the questionnaire clearly separated different measurement themes proximally and psychologically, and the measures utilized different scale anchors and numbers of scale points (Podsakoff et al., 2003). Besides these procedural designs, CMV was tested with unmeasured latent factor technique in two of the studies, indicating that CMV was unlikely to be a problem (Podsakoff et al., 2012). However, it is advisable that future studies also utilize more objective measures or ratings from several sources, for example relating to effort, reward and performance (e.g. expert or supervisor ratings, objective performance measures) to address potential bias stemming from self-reported measurements. In addition, LMX could also be measured from the supervisor perspective, and not only from that of the employee. Furthermore, even though the measurement scale for effort has undergone a rigorous validation process (Kinnunen et al., 2008; Siegrist et al., 2004) some of its items (e.g. "I have constant time pressure due to a heavy workload") may be interpreted more in terms of role overload than effort per se. This could partly explain the unexpected finding that LMX was negatively related to effort. However, role overload is a situation naturally characterized by the requirement of high effort.

Due to the rather complicated study designs, all three studies were conducted with a standard linear methodology, where the examined relationships were restricted to linear functional forms. Even though this is a common analytic approach in empirical LMX and work engagement research, future studies could benefit from a curvilinear rationalization in hypotheses building matched with suitable curvilinear analysis such as polynomial or nonparametric regression (e.g. Keele, 2008). For example, future studies should continue to examine the possible too-much-of-the-good-thing effect of work engagement.

The study sample was collected from the Finnish service sector, and therefore it is possible that the findings are specific to Finnish workers or only to the service sector. However, the service sector involves very different types of work, and the sample utilized represented a variety of different organizations, occupations and types of work in a satisfactory manner. The sample includes a wide section of different blue- and white-collar jobs (e.g. care work, customer service, and knowledge work). But while the phenomena investigated in this study are not restricted to the service sector, future research would benefit from examinations of a wider range of national contexts and sectors, and different kinds of occupations. Extending these studies, future research could also explore the contextual effects of various demographic and organizational characteristics.

One limitation of the study concerns the timing of the data collection. The data were gathered between 2011 and 2012, and since then, remarkable changes have occurred in how work is organized (e.g. the rise of remote work). These developments have potential implications for the generalization of the results. For example, in remote work settings, the role of supervisors has become more important, as employees' contact with colleagues is often limited (Urrila et al., 2025). Thus, it is possible that the effect of LMX on work engagement is even stronger in present-day working environments.

7.4 Practical contributions

This dissertation not only contributes theoretical discussions, but also has several valuable implications for practical application. The results of this dissertation indicate that high-quality LMX relationships are connected to the enhanced work engagement of employees, and partly through that have an effect on individual and unit-level performance. A high level of work engagement helps employees address the challenges of contemporary work, such as taking responsibility, meeting the demands for consistently high-quality performance, and demonstrating proactive behaviour (Bakker & Schaufeli, 2008; Leiter & Bakker, 2010).

Vast amounts of LMX literature acknowledges various other positive individual and organizational outcomes for LMX (e.g. Dulebohn et al., 2012; Gerstner & Day, 1997; Ilies et al., 2007). Thus, LMX relationships are acknowledged as being important for employees and whole organizations. Investing in developing LMX relationships enables organizations to enhance performance in a sustainable way. For supervisors, this dissertation stresses the importance of building good quality relationships with as many subordinates as possible. However, it should be noted that as it 'takes two to tango', subordinates should also consider their own role in the building of high-

quality LMX relationships with their supervisor. To promote this, organizations should acknowledge the significance of high-quality LMX relationships, and could help their members to understand the importance of high-quality relationships between subordinates and supervisors, as well as between colleagues. More specifically, organizations should encourage their supervisors to improve and maintain high-quality LMX relationships, for example by training in delegation and active listening skills, encouraging them to reflect on the negative and positive components of relationships with subordinates, and training them to discuss their expectations and their resource and reward needs (e.g. Liao & Hui, 2021; Scandura & Graen, 1984; Sonnentag & Pundt, 2015). The results of Study 1 imply a novel insight that a supervisor's poor psychological well-being and particularly their cynicism was related to low-quality LMX relationships. Thus, attention should be paid to supervisors' cynicism, specifically given the extent of the increased pace and continuous change seen in contemporary organizations, which can be particularly stressful for supervisors. Several person- and individual-directed interventions have been shown to reduce burnout symptoms, but their positive effects seem to diminish over time (Awa et al., 2010). Thus, developmental programs should primarily aim to prevent excess stress and identify early stress and burnout symptoms, and supervisors' resilience and coping skills could also be developed (e.g. Joyce et al., 2018).

Furthermore, it is important to acknowledge that employees form units, which have common goals and require collaborative capabilities (Geroy et al., 2005). The results of Study 2 highlight the importance of managerial coaching regarding unit-level performance. Therefore, in addition to LMX relationship development, the overall quality of leadership should be scrutinized in organizations, and development programmes to equip supervisors with managerial coaching skills should be provided. In addition, the results of the Study 3 suggests that employee reward is strongly connected with all of the dimensions of work engagement. Different rewards can be tangible or intangible, such as salary, career opportunities, recognition, appraisal, and support. Organizations should therefore pay attention to adequate rewarding, and make sure that supervisors have sufficient positional power and resources to reward employees.

7.5 Conclusions

This dissertation highlights the importance of high-quality relationships with supervisors as an asset for employees, enabling their positive well-being, motivation, and performance at work. The overall aim of the three empirical studies was to validate assessment tools and examine the antecedents, outcomes, and mechanisms

linking LMX and employee work engagement by utilizing COR, JD-R and ERI theories. The dissertation study highlights supervisor cynicism as a predictor of low-quality LMX relationships, and through that on subordinates' higher cynicism and lower dedication. In addition, the results suggest that LMX relates to individual level constructs such as work engagement and individual performance that complement the perspective of behavioural leadership, which seems to be more strongly connected to unit-level outcomes. Furthermore, employees' perceived effort and reward partly mediate the relationship between LMX and work engagement.

Consequently, high-quality LMX relationships may be seen as a great asset for employees as they affect the resources at hand and enable experiences of work engagement that reflect positive states of well-being and motivation, which lead to better performance. This relational perspective to leadership should not be overlooked in contemporary organizations facing constant new challenges.

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Do relationships matter? Investigating the link between supervisor and subordinate dedication and cynicism via the quality of leader-member exchange

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Abstract

Drawing on leader-member exchange and conservation of resources theories we investigate the role of the quality of leader-member exchange in the relationships between supervisors' and subordinates' cynicism and dedication. Survey responses were collected from 104 supervisors and 971 subordinates nested within 104 work-units in five organizations in Finland. A multilevel structural equation model and cross-level mediation were utilized to test the hypotheses. The results show that the quality of leader-member exchange mediates the association between supervisor cynicism and subordinate cynicism and dedication. However, supervisor dedication does not appear to have an influence on leader-member exchange or subordinate cynicism and dedication. The findings related to the influence of supervisor cynicism on the cynicism and dedication of subordinates point towards the value of management interventions that directly address supervisor psychological well-being. Practical interventions might include training for supervisors and employees to enhance relationship-building skills, team-building activities and leadership development. This empirical study is novel in its focus on how a supervisor's cynicism and dedication may affect their relationships at work and how this, in turn, may have an effect on their subordinates.

Keywords

Conservation of resources theory, Leader-member exchange, Leadership, Supervisor/subordinate relations.

Do relationships matter? Investigating the link between supervisor and subordinate dedication and cynicism via the quality of leader-member exchange

In many workplaces worldwide, organizational leaders are facing the challenge of finding ways to encourage employees to identify with their work. Integral to this challenge are efforts to prevent negative attitudes such as cynicism and to build positive employee attitudes such as dedication. These are important attitudes for employees' psychological well-being as well as productivity and organizational performance (Bakker, Albrecht, & Leiter, 2011; van Rossenberg et al., 2018; Young, Glerum, Wang, & Joseph, 2018). Attitudes such as cynicism and dedication do not arise in a vacuum; they are embedded in and affected by social relationships at work (see for example Lorinkova & Perry, 2017) and the dyadic relationships between leader and follower are an essential part of an organization's social networks. Previous research has demonstrated the important role of line managers and supervisors in employee attitudes and psychological well-being (Kuvaas & Buch, 2018; Medler-Liraz & Seger-Guttmann, 2018; Schuh, Zhang, Morgeson, Tian, & van Dick, 2018), although several scholars have called for research to investigate the process of how supervisor and subordinate attitudes are connected (Harms, Credé, Tynan, Leon, & Jeung, 2017; Skakon, Nielsen, Borg, & Guzman, 2010). Our study builds on this understanding and contributes novel knowledge by addressing the research question: Are supervisor and subordinate cynicism and dedication associated via the quality of their dyadic relationship?

Cynicism and dedication respectively represent negative and positive aspects of identification with work and are important elements of psychological well-being at work (Bakker & Leiter, 2010; Mäkikangas, Hyvönen, & Feldt, 2017; Schaufeli & De Witte, 2017). On the negative side, employees who do not identify with their work are often described as experiencing burnout, and more specifically, cynicism. Burnout cynicism (also referred to as

depersonalization) is a core dimension of burnout, which organizational psychologists have studied as a critical indicator of negative psychological well-being (Maslach, Schaufeli, & Leiter, 2001; Salmela-Aro, Rantanen, Hyvönen, Tilleman, & Feldt, 2011). The burnout literature defines cynicism as a dis-interested or distal attitude toward work in general and the people with whom one works, losing interest in one's work, and not seeing work as meaningful (Maslach et al., 2001; Salmela-Aro et al., 2011). Burnout cynicism is also linked to decreased investment in social interactions (Nesher Shoshan & Sonnentag, 2019). We focus on burnout cynicism because it is the interpersonal dimension of burnout and therefore most relevant to social relationships at work.

On the positive side, previous studies have contrasted burnout cynicism with dedication, which is defined as a motivational and emotional dimension of work engagement that also has been identified as a positive indicator of psychological well-being (Bakker et al., 2011; Schaufeli & Bakker, 2010). Dedication refers to a strong sense of involvement in one's work, feelings of enthusiasm and significance, and a sense of pride, challenge and inspiration found at work (Bakker, 2011; Schaufeli & Bakker, 2010). Our study focuses on dedication, which conceptually resembles, yet is distinct from, the constructs of organizational commitment and job involvement (Christian, Garza, & Slaughter, 2011; Schaufeli & Bakker, 2010). Dedication is about identifying with the work itself, the work role, or work group (Christian et al., 2011). It is likely that dedication in the context of supervisory work is related to positive feelings towards other people in the organization, for example, being proud of the achievements of their work group. Therefore, dedication is highly relevant to one's social relationships at work.

The dyadic relationships between leader and follower are an essential part of an organization's social networks and often studied through the lens of Leader-Member Exchange (LMX) theory. LMX is based on the idea that each relationship between a supervisor and his/her

subordinates is unique and differs from others in quality. LMX relationships develop through social exchanges between relationship parties (Bauer & Green, 1996; Dienesch & Liden, 1986; Graen & Uhl-Bien, 1995) and are most likely to be initiated by the supervisor (Dulebohn, Bommer, Liden, Brouer, & Ferris, 2012; Gregersen, Vincent-Höper, & Nienhaus, 2016; Liden, Sparrowe, & Wayne, 1997). Developing and maintaining high-quality LMX relationships requires psychological investments to be made by the supervisor (Nienaber, Hofeditz, & Romeike, 2015; Schaufeli, 2006). There is also some empirical evidence that impaired well-being of a leader, especially leader stress, is linked to abusive supervision (see the recent meta-analysis by Harms et al., 2017). Therefore, the supervisor's cynicism and dedication are likely to play an important role in the quality of LMX relationships s/he is able to build and maintain. Unfortunately, previous studies reveal very little about how a supervisor's cynicism or dedication may affect his/her LMX relationships, so the first contribution of our study is to address this gap in knowledge.

Previous research has established a wide range of positive outcomes for LMX (Dulebohn et al., 2012; Ilies, Nahrgang, & Morgeson, 2007), and several studies have connected the quality of LMX with the well-being of workers (e.g. Christian et al., 2011; Gregersen et al., 2016; Harms et al., 2017; Jiang, Law, & Sun, 2014; Medler-Liraz & Seger-Guttmann, 2018; Sparr & Sonnentag, 2008). However, these studies have focused either on positive well-being indicators such as work engagement (Christian et al., 2011) or negative indicators such as stress and burnout symptoms (Gregersen et al., 2016; Harms et al., 2017; Jiang et al., 2014; Medler-Liraz & Seger-Guttmann, 2018) or job depression (Sparr & Sonnentag, 2008). The second contribution of our study is that we focus on both negative (i.e., cynicism) and positive (i.e., dedication) employee outcomes of LMX.

While it has been shown that LMX relationship quality plays a mediating role in the relationships between several different antecedents and outcomes (see Dulebohn et al., 2012 for a meta-analysis), only a few studies have investigated the mediating role of LMX related to psychological well-being indicators (Gregersen et al., 2016; Hassan & Al Jubari, 2010; Sparr & Sonnentag, 2008). There is evidence that, for instance, stress can be transmitted from one person to another either directly via empathy or indirectly via different mediation mechanisms (Westman, 2001; see also Chen, Westman, & Hobfoll, 2015). In the context of relationships at work, transmission of supervisor cynicism or dedication to subordinates may happen directly or indirectly, for example through the supervisor's activity in exchanges with his/her subordinates, in particular, LMX. Thus, we propose that LMX relationship quality has the potential to mediate the relationship between a supervisor's cynicism and dedication and the subordinate's cynicism and dedication. Therefore our third contribution is to investigate this mediated relationship.

However, to understand the role of LMX in the relationship between supervisor and subordinate indicators of psychological well-being we need to look beyond LMX. To explain this connection, we bring together the theoretical perspectives of leader-member exchange (LMX) and conservation of resources (COR).

COR theory (Hobfoll, 1989, 2001, 2002; Hobfoll, Halbesleben, Neveu, & Westman, 2018) is one of the leading theories of psychological wellbeing (Chen et al., 2015). The fundamental base for this perspective is that people tend to obtain, retain, protect, and foster the things that they value and these different types of valued things are called resources (Hobfoll, 2001, 2002). Resources can be, for instance, time, skills, personality traits or social support. For instance, working with a supervisor who provides social support can be one type of resource employees have at work (Halbesleben, Neveu, Paustian-Underdahl, & Westman, 2014; Hobfoll, 2011). COR theory states that individuals who have resources are likely to acquire even more. However,

where there is a lack of resources it is likely that they will diminish further (Halbesleben et al., 2014; Hobfoll, 2001, 2002). Furthermore, lack of resources leads to stress and burnout, which, in turn, leads to negative organizational outcomes, such as poorer job performance (Chen et al., 2015).

Building on COR theory's (Hobfoll, 1989) explanation of resource protection, gain and preservation, Bolger, DeLongis, Kessler and Wethington (1989) added the notion of resource exchange or crossover. As described by Hobfoll et al. (2018), a crossover refers to the transmission of psychological states, experiences, emotions, or resources between individuals in dyads or workgroups, in social and organizational contexts. This is particularly salient to our study because we suggest that high quality LMX serves as a resource (Hobfoll et al., 2018) that underlies the connection between supervisor and subordinate. Specifically, we develop and test hypotheses in relation to how supervisor cynicism and dedication start a path leading to subordinate cynicism and dedication, where the quality of LMX relationships serves as a linking mechanism for crossover.

Below we review the literature and discuss the relationships involved in more detail. After explaining our research survey method, empirical evidence is presented and discussed. The paper concludes with a discussion of the implications of the research.

Supervisor's cynicism and dedication and Leader-Member Exchange relationship quality

The central argument in LMX theory is that the leader creates a unique exchange relationship with each of his/her followers and the quality of these relationships will vary from high to low (Liden & Maslyn, 1998; for a review, also see Schriesheim, Castro, & Cogliser, 1999). LMX relationships between a supervisor and each of his/her subordinates develop through social exchanges that entail a series of interdependent interactions between parties. Through exchanges,

dyad partners generate obligations and expectations for each other. Depending on how well those expectations are met, the quality of the relationship will develop in either a negative or positive manner (Bauer & Green, 1996; Dienesch & Liden, 1986) leading either to low- or high-quality supervisor-subordinate dyads (Liden & Maslyn, 1998).

Due to differences in organizational roles and the power relations between dyad partners, LMX exchanges are typically initiated by the supervisor (Dulebohn et al., 2012; Gregersen et al., 2016; Liden et al., 1997). For instance, delegation of tasks by a supervisor to a subordinate has been positively linked to the quality of LMX relationships (Hassan, Wright, & Park, 2015; Schriesheim, Neider, & Scandura, 1998). Further, it has been suggested that where a subordinate performs well with the delegated tasks, the supervisor will be more satisfied, give better feedback and assign additional interesting work tasks; this process leads to positive development of the LMX relationship (Choy, McCormack, & Djurkovic, 2016). In general, supervisor-related behavior, such as a supervisor's recognition and reward of subordinates' good performance (Wayne, Shore, Bommer, & Tetrick, 2002) and supervisor characteristics such as extraversion, a personality trait related to sociability and individual consideration (Bono & Judge, 2004) and agreeableness, a trait associated with cooperative and helpful behavior, have been found to be important antecedents for the quality of LMX relationships (Dulebohn et al., 2012).

Intensive social exchanges in working life, especially those in which supervisors are engaged (e.g., providing feedback and recognition for accomplishments) when developing and maintaining high-quality LMX relationships, require psychological investments (Nienaber et al., 2015; Schaufeli, 2006). Drawing on COR theory's notion of accumulation and diminishment of resources, we can expect that individuals who have resources (e.g., social support) are likely to gain even more, while where there is a lack of resources it is likely that they will diminish further (Halbesleben et al., 2014; Hobfoll, 2002, 2011). Thus, with the help of COR theory we can

expect that where a supervisor suffers from high cynicism s/he is likely to have few resources to invest in interactions with his/her subordinates, as cynicism is related to distancing oneself from social relationships at work and being disinterested in people with whom one works (Maslach et al., 2001). Previous research has found that leaders who are negative and cynical are less likely to be supportive of their subordinates (Rubin, Dierdorff, Bommer, & Baldwin, 2009). A recent meta-analysis (Harms et al., 2017) found support for the notion that depersonalization (cf. cynicism) is negatively related to a transformational leadership style. The same study also reported that leader stress is positively related to abusive supervision.

Thus, it is likely that a supervisor with a high level of cynicism will find it difficult to be interested in his/her subordinates' work, give recognition and feedback, and be available when they need help; all of these are crucial elements in LMX relationship building. Even though LMX relationships are dyadic and the quality of each LMX is different from each other, subordinates who have a supervisor high in cynicism are likely to have a different average level of LMX than subordinates whose supervisor is not suffering from cynicism. Thus, supervisor cynicism can impair all LMX relationships in the unit or reduce the number of high quality LMX relationships. In both cases, the unit's average LMX level is lower when compared to units with a less cynical leader. Therefore, we hypothesize as follows:

Hypothesis 1a: Supervisor cynicism is negatively associated with the quality of LMX relationships in the work-unit.

In contrast to the negative role of cynicism, people with a high level of dedication find their work to be meaningful and valuable and they are proud of their job (Bailey, Madden, Alfes, & Fletcher, 2017; Meng & Wu, 2015). Again, applying COR theory, we may expect that where a supervisor's dedication is high, s/he will have resources (e.g., a positive mindset and

communication skills) to invest in interactions with subordinates (Halbesleben et al., 2014). Thus, supervisors high in dedication may enact strong involvement with their subordinates and strengthen their relationship-building activities as a part of their supervisory work. In contrast, supervisor low in dedication may not involve in such behavior and activities and thus the average level of LMX relationships between supervisors with high and low dedication are likely to vary. Therefore, we suggest that supervisor dedication could be a critical antecedent for LMX relationship quality and we hypothesize as follows:

> *Hypothesis 1b: Supervisor dedication is positively associated with the quality of LMX relationships in the work-unit.*

LMX relationship quality and subordinates' cynicism and dedication

To explore and explain the link between LMX relationship quality and subordinates' cynicism and dedication, we again apply COR theory (Hobfoll, 2001; Hobfoll et al., 2018). According to COR theory, several types of resources are salient to employees' attitudes and psychological well-being, and a high quality of relationship with one's supervisor is one of the important resources that can be acquired in a workplace (Halbesleben et al., 2014; Hobfoll, 2011). A high-quality LMX relationship offers direct resources to the worker such as emotional and social support, desirable work assignments and job direction (Dulebohn et al., 2012; Gerstner & Day, 1997). High-quality LMX relationships also serve as an instrumental resource, as they give workers access to additional resources such as autonomy, developmental opportunities, and extra information, because the leader actively creates a resource-rich work environment for followers (e.g., Breevaart, Bakker, Demerouti, & van den Heuvel, 2015). Empirical research supports the view that a high-quality LMX relationship functions as a job resource and can therefore have a positive effect on subordinates' attitudes and well-being (Furunes, Mykletun, Einarsen, & Glaso,

2015; Karanika-Murray, Bartholomew, Williams, & Cox, 2015; Sparr & Sonnentag, 2008). While there is strong evidence connecting LMX with work engagement in general (Christian et al., 2011; Meng & Wu, 2015), our research offers a novel contribution by focusing on the specific connection between LMX and dedication.

On the other hand, subordinates with poor quality LMX relationships are likely to have few meetings with their supervisor, and receive very little support and positive feedback about their work from him/ her (Dulebohn et al., 2012). Poor quality LMX may also indicate that dyad partners do not like each other but due to organizational structure they are forced to work together (Dulebohn, Wu, & Liao, 2016). These kinds of work situations lead to negative outcomes and poor quality LMX relationships have been associated specifically with subordinates' cynicism (Becker, Halbesleben, & O'Hair, 2005; Jiang et al., 2014; Schaufeli & Bakker, 2004) as well as with burnout in general (e.g. Huang, Chan, Lam, & Nan, 2010; Thomas & Lankau, 2009). Explained through the lens of COR theory, the resource loss associated with a poor quality relationship with one's supervisor can have a profound negative impact on employees (Halbesleben et al., 2014).

Based on COR theory and relevant empirical findings, we hypothesize as follows:

Hypothesis 2a: LMX relationship quality is negatively associated with subordinate cynicism.

Hypothesis 2b: LMX relationship quality is positively associated with subordinate dedication.

A meta-analysis by Dulebohn et al. (2012) has shown that LMX relationship quality plays a powerful mediating role in explaining the relationships between several different antecedents and

outcomes. Those studies mainly focused on aspects of justice and fairness. For example, Hassan and Al Jubari (2010) found that LMX mediates the relationship between organizational justice and subordinates' work engagement. Some evidence was also found to support the view that LMX may mediate the association between a supervisor's behavior and a subordinate's psychological well-being. In particular, LMX has found to mediate the association between perceived fairness of supervisor feedback and job-related depression (Sparr & Sonnentag, 2008). In addition, a study by Gregersen et al. (2016) focused on the mediating role of LMX and burnout. These authors found that LMX mediates the positive link between job resources (in particular, role clarity, meaningfulness and predictability) and reduced emotional exhaustion, which is another core indicator of burnout alongside cynicism.

Only a few studies have investigated the mediating role of LMX related to psychological well-being. However, there is evidence that, for instance, stress can be transmitted from one person to another either directly or indirectly (Westman, 2001). Direct transmission happens through empathy and occurs typically in close relationships, e.g., between husband and wife. There is also some evidence that leaders' emotions are related to employees' emotions (see for a review Skakon et al., 2010). Also, indirect transmission can occur via a mediating mechanism (Chen et al., 2015). In their review paper, Skakon et al. (2010) reported that there is some evidence that may indicate that leader burnout is linked to leader behavior and through that, to employees' burnout. However, these studies (Price & Weiss, 2000; Vealey, Armstrong, Comar & Greenleaf, 1998) have been conducted in the field of sports psychology and in the context of coach–coachee relationship and therefore the results are not directly comparable to the workplace context.

Drawing on this literature, we suggest that emotional states transfer from supervisor to subordinate through the supervisor's ability to build or maintain LMX relationships that offer

resources to the subordinates. Thus, LMX relationship quality will serve as a crossover mechanism (Hobfoll et al., 2018) and mediate the relationship between the supervisor's cynicism and dedication and the subordinate's cynicism and dedication. It is however unlikely that LMX quality would be the only mediating mechanism and there could also be direct crossovers, so we will also model the direct effects between supervisor and subordinate cynicism and dedication. Therefore, we propose the following mediation hypotheses:

Hypothesis 3a: LMX relationship quality mediates the association between supervisor cynicism and subordinate cynicism.

Hypothesis 3b: LMX relationship quality mediates the association between supervisor cynicism and subordinate dedication.

Hypothesis 3c: LMX relationship quality mediates the association between supervisor dedication and subordinate cynicism.

Hypothesis 3d: LMX relationship quality mediates the association between supervisor dedication and subordinate dedication.

Our hypothesized multi-level model is shown in Figure 1 below. Subordinates reported quality of LMX, cynicism and dedication and supervisors of the units provided the information about their cynicism and dedication. Thus, cynicism and dedication of the supervisor were measured at the unit level while LMX quality, cynicism and dedication of the subordinates were observed at the individual level.

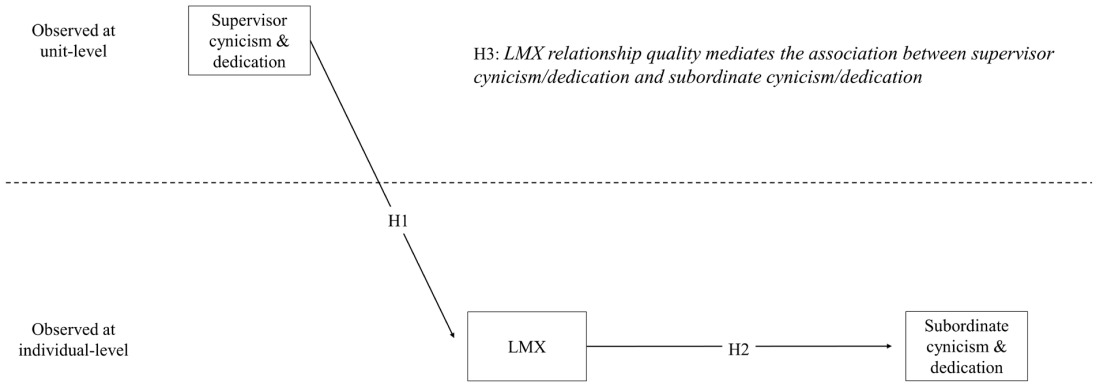

Figure 1. The conceptual model and hypotheses of the study

Methods

Sample and procedure

The sample for this study was recruited in 2011–2012 from five different Finnish organizations, which give a broad representation of the service sector. The combined sample was utilized in the analysis to have more statistical power in estimation and enough work-units to analyze a multilevel model. We collected data by using both paper and online versions of a questionnaire. The paper version was used where employees did not use computers in their daily tasks. In some organizations, a member of the research team administered the survey in meetings with employees arranged by the participating organization, with time allocated to facilitate survey completion. Where there was no opportunity to arrange a meeting, paper questionnaires were delivered with prepaid envelopes to employees who returned their completed questionnaires

directly to the research team. The online version was administered via a link emailed to the supervisors or the organization's contact person, who distributed an email to employees using an internal organizational email list. It is not possible to calculate response rates because there is no information on how many employees received the invitation to the online questionnaire. All participants were informed that their participation was voluntary and responses to the surveys would remain confidential. The participants were asked to give the name of their supervisor and this information was used to determine the work-unit to which each subordinate belonged. It was possible for the researchers to identify each supervisor, as there was a possibility for each participant to give their name confidentially.

A total of 1430 responses from employees and 142 from supervisors were obtained from organizations including an insurance company (N=334), a communal day-care organization (N=364), a logistics organization (N=488), a retail company (N=175) and a finance organization (N=211). In the final sample there were 971 matched responses from employees nested within 104 work-units, and 104 supervisors. The majority of respondents (73.4 %) were female, which is explained by the day-care organization with a majority female workforce being one of the participating organizations. The average (mean) age of respondents was 42.77 years (SD=12.05) and the average tenure with their current employer was 11.35 years (SD=11.31). The majority of the respondents have had the same supervisor for between one and seven years (52.4 %) or less than one year (40.2 %). The respondents identified their direct supervisor and all employees sharing the same supervisor were defined as a work-unit. The number of employees in work-units ranged from 1 to 40 (mean = 9.34; SD=7.43). Almost half of the respondents were in work-units with 21-40 employees.

Measures

Cynicism

To measure burnout cynicism, we used the validated Finnish version of the five-item subscale of the Bergen Burnout Inventory (BBI) (Näätänen, Aro, Matthiesen, & Salmela-Aro, 2003). A sample item is: "I find it difficult to involve myself in my customers' or my other employees' problems". Supervisors and subordinates were asked to rate their own cynicism using a six-point Likert scale ranging from (1) completely disagree to (6) completely agree. The Cronbach's alpha coefficient for the cynicism measure was good for supervisors (α=.86) and subordinates (α=.86).

Dedication

Dedication was measured with the three-item subscale of the Utrecht Work Engagement Scale using the validated Finnish version (Seppälä et al., 2009). The items were: "I am enthusiastic about my job", "My job inspires me" and "I am proud on the work that I do". Supervisors and subordinates were asked to rate their own dedication using a scale ranging from never (0) to every day (6) and the reliability of the scale was good for both the supervisors (Cronbach's α=.87) and subordinates (Cronbach's α=.88).

Leader-member exchange (LMX)

LMX measures the quality of the work relationship occurring in an organization between two vertically-related individuals, supervisor and subordinate. We utilized a validated Finnish nine-item LMX-UVA scale that is a refinement of previous scales (e.g. LMX-7) (Tanskanen, Mäkelä, & Viitala, 2018). Subordinates were asked to complete the LMX-UVA scale with a seven-point Likert scale ranging from (1) strongly disagree to (7) strongly agree. Sample items include: "We trust each other" and "We can genuinely listen to each other's opinions". The reliability of the scale was excellent (Cronbach's α=.97).

Control variables

Several possible confounders were controlled in the analysis as they might influence the connections between supervisor cynicism and dedication, LMX and subordinate cynicism and dedication. As our sample came from five organizations and by controlling the organization (organizations dummy-coded and insurance company as a reference) we can state the relationship between supervisor and subordinate cynicism and dedication via LMX is not simply caused by the differences between organizations.

Furthermore, organizational tenure in years, age and gender of the participant (coded female = 0, male = 1) were controlled for because earlier studies have reported that these can be related to psychological well-being (Cheng, Chen, Chen, Burr, & Hasselhorn, 2013; Purvanova & Muros, 2010). We also controlled for the tenure of the LMX relationship (1=under 1 year, 2=1-2 years, 3=2-7 years, 4=over 7 years) because the temporal aspect has been found to influence outcomes related to LMX quality (Harris, Kacmar, & Carlson, 2006). Finally, we controlled for the size of the work-unit using information reported by the supervisors (1=under 13, 2=13-20, 3=21-40, 4=over 40) as it might act also as a confounder. Categorical control variables were dummy-coded for the analysis.

Measurement model and missing data

Unfortunately it was not possible to run a complete two-level measurement model, because it had more parameters than there were work-units. However, measurement models where LMX was analyzed only at the within level ($\chi 2(215)=660.83$; RMSEA=.05; within SRMR =.04; between SRMR =.11; TLI=.96; CFI=.96) or where supervisor cynicism and dedication were analyzed at the between level, and LMX, subordinate cynicism, and dedication at the within level ($\chi 2(135)=429.07$; RMSEA=.05; within SRMR =.04; between SRMR =.07; TLI=.97; CFI=.97) both produced acceptable model fits. With regard to standard goodness of fit cut-off values,

RMSEA < .05 and SRMR <.08 are indicators of acceptable fit, and TLI and CFI values over .95 indicate a good fit (e.g., Hu & Bentler, 1999).

The main study variables held very small amounts of missing data (1-15, less than 1.5 % of the whole sample). There were more missing values regarding organizational tenure (N=60), age (N=179), and gender (N=68) and therefore FIML estimation was utilized in the analysis to handle the missing data.

Analysis

As the data were collected from supervisors and subordinates nested within work-units, multilevel structural equation modeling (MSEM) was employed to test our hypotheses (Preacher, Zyphur, & Zhang, 2010). MSEM was also appropriate because the data were collected at both work-unit level (supervisor cynicism and dedication) and individual level (subordinate LMX, cynicism and dedication) (2-1-1 model). As the data are nested within units there is only work-unit-level variance regarding the supervisors' cynicism and dedication. Thus, the effect of supervisor cynicism and dedication on LMX can be examined only at the work-unit (between) level. We used Mplus (7.4) software with robust maximum likelihood estimation (Muthén & Muthén, 1998–2015). Compared to the standard multilevel modeling paradigm, the MSEM strictly and without bias separates within- and between-level effects (Preacher et al., 2010).

We utilize a *cross-level mediation approach* as described by Pituch and Stapleton (2011; 2012; also see Krull & MacKinnon, 2001; Talloen et al., 2016; VanderWeele, 2010), where unlike the *cluster-level only mediation approach* (see Preacher et al., 2010; Zhang, Zyphur, & Preacher, 2009) a mediation process can flow through an individual-level mediator, if it is theoretically plausible that the individual-level outcome could be influenced by an individual-level mediator that reflects absolute scale value, not relative standing in a group. Our study

satisfies these conditions as it is safe to assume that an employee's personal LMX quality impacts employee cynicism and dedication, and further that it is the absolute level of LMX rather than relative position in the work-unit that is important. Because of this, the cross-level mediation is a more suitable approach for this study. Moreover, a big advantage of cross-level mediation approach is that there is more information in estimating an individual cross-level indirect effect than a cluster-level only indirect effect (there are more observations at the individual than unit-level). This means that a cross-level mediation approach has a huge power advantage in finding indirect effects over the cluster-level approach (Pituch & Stapleton, 2012).

The regression paths and cross-level mediation effects were estimated utilizing two separate models (model 1 and model 2) following Pituch and Stapleton's (2011) instructions. Model 1 examines the effect of supervisor cynicism and dedication on LMX at the unit-level, while model 2 estimates the relationship between LMX and employee cynicism and dedication at the individual level. Grand-mean centering was utilized for predictors and only fixed slopes were estimated. The confidence intervals for the cross-level indirect effects were estimated with the Monte Carlo method, with 20000 simulations, utilizing the interactive online tool developed by Selig and Preacher (2008). Our analytical approach is consistent with similar recent examples of cross-level mediation in management research (e.g., Cooper, Wang, Bartram, & Cooke, 2019).

In cross-level mediation the mediation may happen at the individual level and also through cluster-level aggregate of the mediator. Estimating these two indirect effects instead of their combination, as in cluster-level only approach, is interesting as the individual level effects are usually theoretically the most important; in addition, contextual effects are often hypothesized to be present in multi-level designs. *Contextual effect* is defined as the difference between individual (within) and aggregated (between) effects. An additional analysis was estimated to study the contextual effect of LMX relationship quality on subordinate cynicism and dedication.

Contextual effect measures whether the collective LMX relationship quality of a work-unit (group average) contributes any *additional* effect beyond the effect of individual LMX (Pituch & Stapleton, 2012). In other words, we study whether belonging to a unit with for example a high average LMX level brings any *extra* increase/decrease to the individual dedication/cynicism. For example, high average LMX level in the unit might lead to an extra increase in employee dedication.

Results

Table 1 presents the means, standard deviations and inter-correlations among the study variables at work-unit and individual levels. Intraclass correlations (ICCs) indicate how much employees resemble each other in the same work-unit. Of the study variables, LMX had the largest ICC (.15), while dedication (.11) and cynicism (.08) were at lower levels. The inter-correlations between study variables were moderate at both the work-unit and the individual levels. The associations followed the hypothesized direction. The measure of supervisor cynicism was positively correlated with subordinate cynicism ($r=.35$, $p=.005$) and negatively with subordinate dedication ($r=-.40$, $p<.001$) and LMX ($r=-.32$, $p=.025$). The correlations for supervisor dedication were a bit lower with subordinate cynicism ($r=-.29$, $p=.030$), and dedication ($r=.37$, $p=.001$), and the correlation with LMX was not significant ($r=.20$, $p=.155$). LMX was connected more strongly with subordinate cynicism and dedication at the work-unit level ($r=-.45$, $p=.003$ & $r=.43$, $p=.009$) than at the individual level ($r=-.28$, $p<.001$ & $r=.28$, $p<.001$). The correlation between subordinate cynicism and dedication was also larger at the work-unit ($r=.88$, $p<.001$) than individual level ($r=-.49$, $p<.001$) and the connection was stronger than among supervisors ($r=.-65$, $p<.001$).

Table 1. Means, standard deviations, and correlations among the study variables

	Mean	SD	1	2	3	4
Work-unit level (between)						
1 Supervisor cynicism	1.94	0.84	-			
2 Supervisor dedication	5.00	1.14	-.65 ***	-		
3 LMX	5.65	1.16	-.32 *	.20	-	
4 Subordinate cynicism	2.04	0.87	.35 **	-.29 *	-.45 **	-
5 Subordinate dedication	4.74	1.34	-.40 ***	.37 **	.43 **	-.88 ***
Individual level (within)						
3 LMX			-	-	-	
4 Subordinate cynicism			-	-	-.28 ***	-
5 Subordinate dedication			-	-	.28 ***	-.49 ***

Note. * p<.05, ** p<.010, *** p<.001.

The standardized results of the two MSEM models utilized in cross-level mediation (model 1 and model 2) are presented in Table 2. All models were saturated and therefore had a perfect fit to the data. The analysis revealed that in work-units where the supervisor was more cynical, subordinates reported on average lower quality of LMX relationships (β=-0.34, p=.029), which supported our Hypothesis 1a. However, the association between supervisor dedication and LMX (β=-0.08, p=.642) was not statistically significant and thus our Hypothesis 1b was not supported.

The individual level effects of LMX on subordinate cynicism (β=-0.28, p<.001) and dedication (β=0.27, p<.001) were statistically significant. Hypotheses 2a and 2b were both supported as subordinates reporting higher quality of LMX relationships experienced lower levels of cynicism and higher levels of dedication. In addition, the direct links from supervisor to subordinate cynicism and dedication were tested at the work-unit level and none of the direct effects between supervisor and subordinate cynicism (β=0.14, p=.506 & β=-0.15, p=.488) and dedication (β=-0.19, p=.182 & β = 0.01, p=.926) were significant.

Table 2. Results for the MSEM models 1 and 2

	Model 1	Model 2	
	LMX	**Subordinate cynicism**	**Subordinate dedication**
Work-unit level (between)			
Intercept	0.75 [-1.60–3.09]	9.11 [5.31–12.903] ***	12.33 [8.97–15.69] ***
Supervisor cynicism	-0.34 [-0.64– -0.03] *	0.14 [-0.27–0.54]	-0.19 [-0.48–0.09]
Supervisor dedication	-0.08 [-0.42–0.26]	-0.15 [-0.56–0.27]	0.01 [-0.30–0.32]
Insurance company	Reference	Reference	Reference
Day-care organization	-0.12 [-0.60–0.36]	-0.71 [-1.12– -0.29] **	0.56 [0.25–0.87] ***
Logistics organization	-0.31 [-0.68–0.06]	-0.41 [-0.80– -0.02] *	-0.07 [-0.46–0.33]
Retail company	0.35 [0.02–0.67] *	-0.49 [-0.85– -0.13] **	0.25 [-0.05–0.55]
Finance organization	0.42 [-0.04–0.88]	-0.30 [-0.77–0.18]	-0.44 [-0.81– -0.08] *
Work-unit size: under 13	Reference	Reference	Reference
Work-unit size: 13-20	0.21 [-0.27–0.68]	0.21 [-0.21–0.63]	-0.28 [-0.63–0.07]
Work-unit size: 21-40	0.46 [-0.20–1.13]	0.15 [-0.43–0.72]	-0.26 [-0.70–0.19]
Work-unit size: over 40	0.22 [-0.21–0.64]	0.23 [-0.13–0.59]	-0.32 [-0.66–0.02]
Work-unit level R^2	0.32	0.59	0.71
Individual level (within)			
LMX	-	-0.28 [-0.36– -0.21] ***	0.27 [0.21–0.34] ***
Organizational tenure	-0.04 [-0.15–0.08]	0.01 [-0.08–0.10]	0.03 [-0.08–0.13]
Age	0.07 [-0.03–0.18]	0.01 [-0.09–0.11]	0.14 [0.04–0.23] **
Male	-0.08 [-0.18–0.02]	0.07 [-0.01–0.16]	-0.17 [-0.26– -0.08] ***
LMX tenure: under 1y.	Reference	Reference	Reference
LMX tenure: 1-2 y.	-0.06 [-0.14–0.02]	0.06 [-0.03–0.14]	-0.02 [-0.09–0.05]
LMX tenure: 2-7 y.	0.02 [-0.08–0.13]	0.02 [-0.07–0.12]	-0.04 [-0.12–0.04]
LMX tenure: over 7 y.	0.04 [-0.03–0.12]	0.02 [-0.04–0.08]	-0.03 [-0.10–0.04]
Individual level R^2	0.02	0.10	0.15

Note. Table presents standardized regression coefficients and their 95% confidence intervals.

*: p<.05, **: p<.01, ***: p<.001

The contextual effect of LMX relationship quality was estimated in an additional analysis that clearly revealed that LMX did not have a contextual effect on subordinates' cynicism (β=0.04, p=.53) or dedication (β=-0.05, p=.57). This means that the average LMX relationship quality of the work-unit members did not have any influence on their cynicism and dedication above and beyond the individual-level association between LMX and subordinate cynicism and dedication.

The significance of cross-level indirect effects was examined with the Monte Carlo method. Two cross-level indirect effects can be viewed as significant because the confidence intervals of the estimates do not include zero. LMX significantly mediated the effect of supervisor cynicism on subordinate cynicism (β=0.10, 95% CI: 0.01 – 0.19) and subordinate dedication (β=-0.09, 95% CI: -0.18 – -0.01) supporting hypotheses 3a and 3b. More cynical supervisors were associated with lower LMX relationship quality, which in turn led to higher levels of subordinate cynicism and reduced subordinate dedication. In contrast, where a supervisor was more dedicated to work, this was not significantly associated with LMX relationship quality nor through that with cynicism (β=0.02, 95% CI: -0.07 – 0.12) and dedication (β=-0.02, 95% CI: -0.12 – 0.07), so hypotheses 3c and 3d were not supported.

With regard to the control variables, results indicated that (subordinate) women and older workers tended to report higher levels of dedication than did men or young workers. Organizational tenure, current LMX tenure, and size of the work-unit were not connected to any outcome variable, while some differences were found across organizations in terms of LMX relationship quality and subordinate cynicism and dedication.

Discussion

In this research, we applied LMX and COR theories to investigate the role of LMX relationship quality as a mediator between the cynicism and dedication of supervisors and their subordinates. Our work contributes to the management literature and in particular, to the field of LMX. Theorizing a process from leader cynicism and dedication to subordinate cynicism and dedication via LMX and with the help of COR theory opens novel avenues to explain and study different kinds of resources (e.g., psychological resources of leaders) important for the leadership process. Resource loss and gain mechanisms help us to better understand the antecedents, underlying

mechanisms and outcomes of LMX. In addition, our study also contributes to the literature on work well-being by highlighting the importance of LMX as a possible underlying mechanism linking supervisor and subordinate cynicism and dedication to each other. Moreover, our study not only contributes to scholarly knowledge, it also has valuable implications for practical application, such as helping to shape intervention strategies to improve employee identification.

We found mixed results for our hypotheses. With regard to our first set of hypotheses, while supervisor cynicism was found to be negatively associated with the quality of LMX relationships in the work-unit, the expected positive influence of supervisor dedication was not found. By focusing on supervisor cynicism and dedication, our study extends research into antecedents of LMX relationship quality (e.g. Dulebohn et al., 2012; Nienaber et al., 2015) and addresses calls for research into associations between the attitudes and well-being of leaders and their employees (Gregersen et al., 2016; Harms et al., 2017; Skakon et al., 2010). However, our findings are only partially consistent with LMX theory. Our findings provide novel evidence about how a leader's well-being may affect their ability to perform in a leadership role and suggest that a supervisor's negative attitudes could have a stronger influence on LMX relationship quality than might a supervisor's positive attitudes. This can be explained through the lens of COR theory, which posits not only that loss of resources is more salient than gain (Hobfoll, 2001; Hobfoll et al., 2018) but also can lead to substantial negative outcomes for subordinates' attitudes and psychological well-being (Halbesleben et al., 2014; Skakon et al., 2010).

Our second set of hypotheses was fully supported: We found LMX relationship quality to be positively associated with subordinate dedication and negatively associated with subordinate cynicism. This is consistent with COR theory (Hobfoll et al., 2018) and supports the notion of LMX relationship quality as a job resource for subordinates (Gregersen et al., 2016). This finding

provides novel knowledge about outcomes of LMX and also about the role of leadership in work and employees' attitudes.

With regard to our third set of hypotheses, we found support for the mediating role of LMX in the link between supervisor cynicism and subordinate cynicism and dedication, as predicted in hypotheses 3a and 3b. The results show a negative effect of supervisor cynicism on their work-unit's LMX relationship quality and through that on subordinates' cynicism and dedication, indicating that a supervisor's negative attitudes present a risk not only for the individual but also for the work-unit (Gregersen et al., 2016; Skakon et al., 2010). Based on our findings we may assume that the supervisor's cynicism decreases their ability to invest in building dyadic relationships with their subordinates, which in turn reduces the subordinates' involvement at work and psychological well-being (Halbesleben et al., 2014; Hobfoll et al., 2018). Further studies, such as qualitative and longitudinal research designs, are needed to reveal the mechanisms behind this. In contrast, we did not find support for the proposed mediating role of LMX in the link between supervisor dedication and subordinate cynicism and dedication, as predicted in hypotheses 3c and 3d. As noted earlier with regard to findings for our first hypothesis, a possible interpretation of this is that a supervisor's cynicism might be more influential for the work-unit than is the supervisor's dedication. A highly dedicated supervisor does not appear to have an effect on his/her work-unit LMX relationship quality. This finding can be interpreted with the help of literature bringing together crossover and COR theory (Hobfoll et al., 2018), which suggests that transfer of emotional states and resources from one individual to another happens more slowly and is less impactful for positive transmissions than it is for negative transmissions (Chen et al., 2015). Future studies could explore this further: Perhaps the supervisor's dedication is more influential in areas other than relationships, such as work-unit performance (Gooty & Yammarino, 2016).

Finally, in an additional analysis we did not find evidence of a contextual effect between LMX relationship quality and cynicism and dedication, meaning that the average LMX of the whole work-unit did not have any additional effect on subordinates' cynicism and dedication beyond the effect of an individual LMX-relationship. This supports the proposition of LMX theory that each LMX relationship is unique. An employee's own LMX relationship is influential for their psychological well-being; however, the average LMX quality, or relationships between colleagues in the same work-unit, does not influence their cynicism and dedication. To strengthen understanding of this, future research could consider the relative importance of situational and workplace context as well as individual factors in the quality of relationships between supervisors and their subordinates (Dulebohn et al., 2012; Gregersen et al., 2016; Skakon et al., 2010).

Our study contributes new empirical evidence focusing on cynicism and dedication. Our finding that LMX relationship quality at the individual level is related to subordinate cynicism and dedication supports LMX theory, as it is aligned with the proposition of LMX theory that each LMX relationship is unique. Our findings are also consistent with the COR theoretical argument that relationships at work, such as the LMX relationship quality, are key resources for workers (Hobfoll et al., 2018).

Limitations and future research

Several limitations of this study must be acknowledged. First, while the results overall are consistent with theory, our reliance on cross-sectional data means that we cannot infer causality and the direction of relationships is unclear. LMX relationships develop over time through an interactive process. Thus, subordinate cynicism and dedication may influence leader attitudes or behaviors that could in turn influence the quality of LMX relationships (Byza, Maier, Schuh,

Dörr, & Spörrle, 2017; Dulebohn et al., 2012). The findings of this study would need to be replicated with a longitudinal design before stronger inferences could be drawn in relation to the associations between supervisor and subordinate cynicism, dedication and LMX. It may take some time for supervisor attitudes to affect LMX and in turn for LMX to influence subordinates' attitudes and these temporal dynamics are best captured with longitudinal data. Second, while reliance on the use of self-reported perceptual data is a limitation, we did collect data from multiple sources: supervisors and subordinates. Several steps were taken to account for method bias through careful procedural and statistical research design. Two measurement models for all study variables were estimated utilizing the COMPLEX algorithm in Mplus to test common method bias with an unmeasured latent method factor approach. Comparison of the models indicate that common method bias is unlikely to be a problem in this research as the unmeasured latent method factor model did not produce a better model ($\Delta\chi^2(1)=0.618$, p=.22; ΔRMSEA=.00; ΔSRMR=.00; ΔCFI=.00; ΔTLI=.00) fit when compared with the normal measurement model (Podsakoff, MacKenzie, & Podsakoff, 2012). While perceptual data are appropriate to address our research aim, it would be beneficial for future research to combine perceptual and objective data where possible or to explore LMX evaluation from supervisor or co-worker viewpoints, for instance, subordinates' view of their superiors' cynicism. Third, although the respondents included almost 1,000 employees from five firms drawn from different industries, there is scope for enhancing the generalizability of the findings by examining the association between supervisor and subordinate cynicism and dedication across a wider range of industries. Finally, future studies might explore additional outcomes related to subordinate cynicism and dedication. In recent studies, both burnout (Son, Kim, & Kim, 2014) and work engagement (Agarwal, Datta, Blake-Beard, & Bhargava, 2012; Breevaart et al., 2015; Burch & Guarana, 2014; Li, Sanders, & Frenkel, 2012) have been examined as mediators linking LMX relationship quality with a range

of outcomes such as performance, organizational citizenship behavior, and turnover. Future studies could contribute by investigating the specific mediating roles of cynicism and dedication.

It is possible that our findings are culturally specific to Finnish workers, so a valuable direction for future research would be to replicate our findings in other national contexts. Future research might also explore the moderating effects of various demographic and organizational characteristics in the supervisor-LMX-subordinate relationship. In addition, future studies could explore the effect of leader attitudes, such as cynicism or dedication on LMX within a unit from another perspective, LMX differentiation among subordinates (see e.g., Dong, Jiang, Rong, & Yang, 2020; Haynie, Baur, Harris, Harris, & Moates, 2019; Manata, 2020) and its mediating role in a relationship between supervisors' and subordinates' attitudes. In addition, Future research could add the team-member exchange (TMX) dimension and examine the impact of interplay between LMX and TMX quality on subordinate dedication/cynicism.

Practical implications

Evidence of the role of LMX relationship quality in the association between supervisor and subordinate cynicism and dedication provides organizational leaders with useful information to substantiate efforts within organizations to influence the identification of their employees. Interventions such as leadership development can play an important role by helping line managers and supervisors to understand the critical role of dyadic relationships in the workplace. Given the pace and extent of change in many contemporary organizations, supervisors often experience substantial stress during organizational restructuring and change, which includes the risk of more severe impairment of their work attitudes and well-being. An important practical implication of our finding is that organizational leaders should pay particular attention to supervisors' cynicism. Interventions might include initiatives for the prevention and early

identification of stress and burnout symptoms, as well as provision of support available to both supervisors and subordinates. Also, leadership development for supervisors could be an effective intervention leading to improved worker attitudes and overall psychological well-being (Kelloway & Barling, 2010). Developmental interventions aiming to increase leader resilience and coping skills would be beneficial not only for the leader but also for subordinates' attitudes and well-being (Bardoel, Pettit, De Cieri, & MacMillan, 2014).

Our findings related to the influence of supervisor cynicism on the cynicism and dedication of subordinates point towards the value of directly addressing supervisor attitudes in efforts to influence the general workforce. Practical interventions might include initiatives to enhance relationship-building skills, team-building activities and leadership development, which could benefit both supervisors and subordinates.

Conclusion

The overall aim of the current research was to address a gap in understanding by examining the association between supervisor and subordinate cynicism and dedication and the mediating role of LMX in this association. We suggest that application of LMX and COR theories in combination has much to offer research investigating work-teams, relationships, attitudes and psychological well-being at work. This study contributes to leadership research by providing empirical evidence of the importance of LMX relationship quality for the connection between supervisor and subordinate identification with their work. In combination with the confirmation of the mediating role of LMX in the association between supervisor and subordinate cynicism and dedication, this research highlights the important role played by relationships at work and the value of investment at the supervisory and work-unit level.

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RESEARCH PAPER

Linking Managerial Coaching and Leader–Member Exchange on Work Engagement and Performance

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Abstract This study investigates how individual- and unit-level performance can be fostered by supervisors' behavioural styles (managerial coaching) and the personal relationship between supervisor and subordinate (leader–member exchange, LMX). The JD-R model holds that good leadership serves as a job resource and triggers a motivational process that will lead through work engagement to good performance. This study first introduces and validates novel measurement instruments for managerial coaching, LMX, and self-rated performance. Then, the study utilizes multilevel methodology (MSEM) to investigate the connections between study variables at the individual- and unit-level. A sample from two organizations (N = 655) was utilized in the measurement validation and a sample from multiple organizations (N = 879) in the hypothesis testing. Samples using self-rating measurements were collected from different Finnish organizations between 2011 and 2012. The results show that, while managerial coaching was connected more to the unit-level performance, LMX had stronger effect to the individual performance and work engagement, which was connected with the unit-level performance. Analysing two leadership constructs at the same time suggests that there are different mechanisms driving managerial coaching and the LMX relationship in the motivational process and towards good performance as the JD-R model proposes. The study also contributes to literature by introducing and validating measurement instruments.

Keywords Managerial coaching · Leader–member exchange · Work engagement · Performance · JD-R model · Mediation

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1 Introduction

In increasingly competitive markets, the question of how to support and improve performance in an organization is central. Leadership has been established as a powerful factor in performance (Burke et al. 2006; Huang et al. 2015) but there is very little research focusing on the mechanisms explaining the connection between leadership and performance. Earlier studies have indicated that the so-called black box between those two elements might be related to the well-being of employees, particularly in relation to work engagement (e.g. Bakker and Bal 2010; Breevaart et al. 2015). Work engagement is linked to the positive feelings about work, meaningfulness of work and flow—all related to the happiness and subjective well-being (Seligman 2002, see Martínez-Martí and Ruch 2017). The job demands-resources (JD-R) model—based on the idea that job characteristics can be divided into two categories; job demands and resources—can aid in investigating that connection (Bakker and Demerouti 2007). Job demands (e.g. high workload) lead to negative outcomes and health impairment, and job resources (e.g. autonomy and social support) lead to positive, motivational processes, for instance to better performance through work engagement. Job resources are physical, psychological, social, or organizational features of the job that can be instrumental to achieving work goals. Supervisory support has proved to be one important aspect of job resources (Bakker and Demerouti 2007) and recent research acknowledges the need for studies focusing on leadership as a job resource (Bakker 2011).

Earlier research focusing on leadership and performance has mainly adopted a transformational leadership perspective (see the meta-analysis of Wang et al. 2011); however, it has been criticised as declamatory and heroic (see van Knippenberg and Sitkin 2013; Yukl 1999) and for perhaps being too grandiose for studies focusing on the leadership in other organisational levels than the highest (Alvesson and Kärreman 2016). Managerial coaching, in other words leadership behaviour that supports and prompts individuals and work groups to set and attain their goals, to improve performance, and to develop competencies, and to strengthen self-directed behaviour, and to understand the broader goals of the organization (Bond and Seneque 2013; Ellinger et al. 2003, 2008), provides an alternative lens on leadership and performance (Wheeler 2011). A positive, trusting, and supportive relationship between a leader and a member is a crucial element in managerial coaching (e.g. Bond and Seneque 2013; Ellinger et al. 2011). Despite that, the relationship between a leaders and a follower does not yet feature strongly in studies of managerial coaching. Most of that research focuses on a leader's actions to the detriment of the employee perspective. Therefore, to complete our understanding of the relationship between leadership and performance and the mechanism underpinning it, the relational approach to leadership, namely leader–member exchange (LMX) theory is relevant.

LMX is based on the argument that a leader creates a unique exchange relationship with each of his/her followers, and that LMX relationships are based on the social exchanges between parties. The recent meta-analysis by Mazur (2012) shows that LMX is positively related to employees' individual job performance, and the performance of work groups (Le Blanc and González-Romá 2012). A few empirical studies have shown that both a leader's coaching behaviour (Babcock-Roberson and Strickland 2010; Choi 2013) and LMX (Agarwal et al. 2012; Li et al. 2012) are positively related to employee work engagement, which, in turn, is a fundamental determinant of employee performance in organizations (Christian et al. 2011; Gruman and Saks 2011; Torrente et al. 2012). For instance, it has been shown that an employee's work engagement mediates the relationship between high-quality leader–member exchange (LMX) relationships and performance (Breevaart et al. 2015;

Burch and Guarana 2014; Li et al. 2012). However, more studies revealing the underlying, complex processes leading to performance at different levels (individual/group-level) would be welcome. Prior research has concentrated mainly on the effects of leadership on performance either by focusing on leadership in the form of a leader's behaviour, or as an interpersonal relationship quality between leader and subordinate. A recent exception is the study by Burch and Guarana (2014), which simultaneously examines the effects of transformational leadership and LMX on organizational citizenship behaviour and turnover intentions via work engagement. When LMX was considered, the positive effects of transformational leadership became insignificant; indicating interpersonal relationships are more important than leader's behaviour.

Accordingly, this study focuses on the JD-R model's motivational process by studying how managerial coaching and LMX relationships as potential job resources are related to performance and, in addition, if work engagement mediates that relationship. These hypothesis are examined with a big Finnish service sector data utilizing a multilevel structural equation modeling. The study also introduces and validates novel measurement instruments for managerial coaching, LMX, and the scales for self-rated performance. The ultimate aim of the study is to improve understanding of the complex inter-organizational and socio-psychological mechanisms that influence performance. In this study, we use the term *unit* to refer to an organizational entity, where a group of employees work towards common targets and are led by a single leader (see e.g. Agarwal et al. 2009). This paper continues with a literature review and hypothesis building, before outlining its methodology, and reporting its findings.

2 Literature Review and Hypotheses

2.1 Managerial Coaching and Performance

Some previous research indicates that coaching leadership encourages better individual performance (e.g. Huang and Hsieh 2015; Wheeler 2011). The effects have been seen for example on sales performance (Agarwal et al. 2009), completing assigned duties (Huang and Hsieh 2015), and customer satisfaction (Wageman 2001). Although, empirical evidence of a connection between managerial coaching and individual performance is still relatively rare, extant research does include a considerable amount of secondary evidence. For example, managerial coaching is positively connected to job satisfaction (Moen and Federici 2012; Wheeler 2011), which several studies in turn link to better performance at work (e.g. Baptiste 2008; Killic and Dursun 2008). Moreover, many studies with different leadership models have empirically established that good quality leadership predicts good performance in organizations (e.g. Alimo-Metcalfe et al. 2008; Kuvaas 2007). Such research indicates that a leader's active coaching behaviour facilitates an employee reaching her/his goals and performing well at work. Thus, the first hypothesis is set:

Hypothesis 1A Managerial coaching has a positive connection with individual performance.

There is some research evidence that managerial coaching encourages better performance at the group-level too, through improving group effectiveness (Agarwal et al. 2009; Wageman 2001). That occurs when team members engage with the collective goals and

take collective responsibility for performance (Duff 2013); by creating better collaborative capabilities (Geroy et al. 2005; Stoker 2008); and by improving self-management, member relationships, and member satisfaction (Agarwal et al. 2009). However, the empirical evidence of the connection remains contradictory. For example, the study of Wageman (2001) recorded no influence of managerial coaching on team task performance, although coaching helped to improve self-management, member relationships, and member satisfaction. However, in other studies, self-management, member relations, and member satisfaction have proved to be important antecedents of team performance (see e.g. Ashill et al. 2005; Torrente et al. 2012). Additionally, Stoker (2008) showed that managerial coaching was positively related to the performance of team members with a long tenure, but not to those relatively new to the team. Group-level outcomes of managerial coaching warrant more investigation and according to Zhao and Chadwick (2014), that should be conducted at the unit-level, because many organizations have no clear team structure. Thus, the following hypothesis will be tested in this paper:

Hypothesis 1B Managerial coaching has a positive connection with unit-level performance.

2.2 Managerial Coaching and Work Engagement

Work engagement has been nominated as an important goal of managerial coaching because it is an important indicator of individual well-being and happiness at work (Bakker 2011) and driver of the development and performance of employees (Duff 2013; Wageman 2001). In addition, there is some empirical evidence that supervisory support is an essential job resource predicting work engagement, even if according to Bakker et al. (2011) more research is yet required on the influence of leaders on followers' work engagement. Many of the typical coaching behaviours of a leader such as communicating clear expectations; supporting an employee in developing new skills, and encouraging employees to solve work-related problems, have been proposed as predictors of work engagement (Babcock-Roberson and Strickland 2010; Bakker and Demerouti 2007; Choi 2013). In addition, a recent meta-analysis confirmed that typical coaching behaviours predict the work engagement of employees (Christian et al. 2011). Given the above discussion, the next hypothesis is proposed:

Hypothesis 2 Managerial coaching has a positive connection with work engagement.

2.3 LMX and Performance

While the relationships between a leader and a subordinate have been addressed in literature on managerial coaching, they are not usually explicitly measured in quantitative studies. Thus, we suggest that leader–member exchange (LMX) relationships should be investigated alongside managerial coaching. LMX relationships are based on the economic and social exchanges between leaders and subordinates (Liden and Maslyn 1998; Schriesheim et al. 1999). It has been shown that subordinates who are party to a high-quality relationship receive more inside information and have a greater influence on decision-making. They are also promoted more frequently, and receive higher bonus payments and salary increases (Varma and Stroh 2001). Moreover, earlier research found that LMX relationships positively relate to organizational citizenship behaviour (Dulebohn et al. 2012; Wang

et al. 2005), and innovative and creative behaviours (Basu and Green 1997; Tierney et al. 1999) which can be linked to individual performance. Subordinates in high-quality LMX relationships perform well (Dulebohn et al. 2012; Li et al. 2012; Varma and Stroh 2001; see Mazur 2012 for meta-analysis). Thus, it is likely that LMX is positively related to individual performance and therefore we hypothesize:

Hypothesis 3A LMX has a positive connection with individual performance.

Moreover, as LMX quality reflects the extent to which leaders and each follower exchange resources in that particular dyad, the link to the group-level outcomes, such as unit performance, is not very clear. While LMX has been found to relate to various positive evaluations concerning a job or organization, and high-quality LMX has been found to positively relate to job satisfaction (Fisk and Friesen 2012) and negatively to turnover intention (Harris et al. 2009; Liden and Maslyn 1998), there is no evidence that high-quality LMX relationships lead to better evaluations of unit-level performance. Therefore, the current study proposes the hypothesis:

Hypothesis 3B LMX has no connection with unit-level performance.

2.4 LMX and Work Engagement

LMX relationships can be viewed as job resources leading to a motivational process because high-quality LMX relationships are characterized by high levels of trust, affect, loyalty, and professional respect (Graen and Uhl-Bein 1995). For instance, trust in a leader (an essential element in LMX relationships) is positively related to work engagement (Chughtai and Buckley 2011). Additionally, high-quality LMX relationships have been found to be positively related to employees' organizational citizenship behaviour (Wang et al. 2005) and job satisfaction (Fisk and Friesen 2012). A few earlier studies reported a positive relationship between LMX and work engagement (Agarwal et al. 2012; Dulebohn et al. 2012; Li et al. 2012), and therefore, the current study suggests the hypothesis:

Hypothesis 4 LMX has a positive connection with work engagement.

2.5 Work Engagement and Performance

A variety of studies have connected work engagement positively with different measurements of individual performance such as in-role and extra-role performance (Bakker and Bal 2010; Christian et al. 2011), role-based performance (Li et al. 2012), colleague and leader-rated in-role performance (Halbesleben and Wheeler 2008), and financial results (Xanthopoulou et al. 2009). There are several explanations for the positive relationship between work engagement and performance. For instance, it has been argued that engaged employees are committed to their clients, to the team, and to the profession, and they have energy and motivation to concentrate on the tasks at hand (Demerouti and Cropanzano 2010; Yalabik et al. 2015). Based on these findings the following hypothesis is proposed:

Hypothesis 5A Work engagement has a positive connection with individual performance.

The benefits of work engagement extend beyond mere individual performance. Prior research shows that work engagement is highly infectious, meaning that engaged employees are a key source of inspiration to others and therefore transfer their engagement throughout their immediate work environment (Bakker and Demerouti 2008), and promote better performance at the unit-level too. Team-level work engagement has been linked, for instance, with in-role and extra-role team performance (Torrente et al. 2012) and with service climate in the work organization (Salanova et al. 2005). In addition, a meta study by Harter et al. (2002) has established that unit-level employee satisfaction and engagement is connected to unit-level performance indicators such as customer satisfaction and loyalty, employee turnover, safety, productivity, and profitability. These results lead us to propose the following hypothesis:

Hypothesis 5B Work engagement has a positive connection with unit-level performance.

2.6 Work Engagement as a Mediator Between Leadership and Performance

The JD-R model holds that good leadership functions as a resource for employees and starts a motivational process that leads via work engagement to strong performance. The current literature review indicates that while managerial coaching has a positive direct effect on individual- and unit-level performance and LMX has a positive direct effect on individual performance, they also contribute to the work engagement of employees, which has an additional positive effect on both individual and unit-level performance. Thus, work engagement operates as a mediator between managerial coaching, LMX, and performance. Recent studies show work engagement to act as a partial or a full mediator between LMX and in/extra-role performance (Bakker and Bal 2010), task performance (Breevaart et al. 2015), role-based performance (Li et al. 2012), organizational citizenship behaviour, and employee turnover intentions (Burch and Guarana 2014). In this study, the following hypotheses are tested based on the JD-R model and previous findings concerning the direct and indirect effects flowing between leadership, work engagement, and performance.

Hypothesis 6A Managerial coaching has a positive connection with individual performance via work engagement.

Hypothesis 6B Managerial coaching has a positive connection with unit-level performance via work engagement.

Hypothesis 6C LMX has a positive connection with individual performance via work engagement.

Hypothesis 6D LMX has a positive connection with unit-level performance via work engagement.

3 Methods

3.1 Sample

A combined sample was drawn from various Finnish organizations between 2011 and 2012. Samples from a logistics organization (N = 488) and a financial organization (N = 211) were used to validate the measurements, while samples from a communal day-care organization (N = 364), an insurance company (N = 334), 13 small and medium-sized enterprises (N = 129) and a retail company (N = 175) were utilized to examine the hypothesis. Supervisors (N = 167) were omitted from the samples, leaving a total of 655 subordinate respondents into the validation data, and 879 respondents in the analysis sample. The employees in the sample worked in 114 units with an average of 7.47 respondents in each.

The data were collected either using a paper copy of the questionnaire or an electronic form distributed via the internet. The paper copy was used if employees did not use a computer related in their daily tasks. Paper copies of the questionnaire were delivered by a member of the research team while attending a meeting arranged by each participating organization, which set aside time to fill in the survey. If there was no opportunity to arrange a meeting, paper questionnaires were delivered with prepaid return envelopes to the relevant supervisor who delivered the questionnaires to his/her employees who then returned the questionnaires directly to the research team. Electronic form questionnaires were collected by sending the link to the e-questionnaire to the supervisors or an organization's contact person, who then delivered the invitations to employees, which is the reason response rates could not be obtained. The sample was female dominated (69.2%), and the age of the participants ranged between 18 and 66, with a mean of 41.68. The average tenure with the current employer was 11.10 years and a strong majority of the respondents (80.0%) had a permanent position at work. The length of the supervisor-subordinate relationship was less than 2 years for most respondents (68.2%).

3.2 Measures

3.2.1 Managerial Coaching

Measures for managerial coaching are still under development in the research literature. In their recent meta-review of scales used to measure managerial coaching, Hagen and Peterson (2014) stated that only a few of the ten scales used in previous studies had a specific theoretical grounding and were based on a validation process or solid reliability testing. In this study, the respondents were asked to evaluate their leader's activity in seven different types of coaching behaviour (see "Appendix" section). Five of the items (numbers 1–5) focused on a leader's coaching behaviours at the group-level, and two of them (numbers 6 and 7) concerned the leader's behaviour at the level of the individual subordinate. These seven items were selected from the questionnaire of 29 items developed earlier in the multi-methodological study with eight semi-structured interviews and data on 1197 supervisors rated by subordinates (Viitala 2004). The seven items were chosen from the questionnaire based on their strong intercorrelations and strong relevance affirmed by previous research on managerial coaching. They were also supported by prior empirical research (e.g. Berg and Karlsen 2007).

3.2.2 LMX

Several different measurement scales for LMX have been developed and utilized in studies over the past three decades (Dansereau et al. 1975; Ferris 1985; Liden and Maslyn 1998). The most established measurement scale to date is the LMX-7 scale (Graen and Uhl-Bein 1995) and the LMX-MDM (Liden and Maslyn 1998) has also been utilized in many studies (Dulebohn et al. 2012). However, LMX measurement has been criticized on several grounds, perhaps the most justifiable being that (1) existing LMX scales do not measure exchanges themselves very much, and that (2) reciprocity is almost lacking from the measurement instruments (see Dulebohn et al. 2012). These two issues are at the very core of LMX theory. LMX measurement scales have also been criticized for overlapping too much with those measurement instruments which focus on leaders' behaviour and/or leadership style, even though conceptually those are different phenomena (Joseph et al. 2011). In addition, there are some other problematic issues with the measurement scales that can cause both theoretical and practical problems for studies of LMX. For instance, the existing scales are worded in such a way that they cannot be used in a similar format for both parties of the dyad. Secondly, especially in the case of the LMX-7 scale (Graen and Uhl-Bein 1995), the answer options are not in a similar format for all the questions.

The items for the novel University of Vaasa LMX scale (LMX-UVA) were generated following a careful review of LMX literature and earlier measurement instruments (Joseph et al. 2011; Liden and Maslyn 1998). In addition, a wide-ranging set of interviews of both subordinates and supervisors were analysed to generate the questions. As our aim was to update existing measures rather than present anything completely new, we decided on a one-dimensional scale, including the items of the most central elements referring to relationship quality (see "Appendix" section). Every item was developed to indicate some kind of exchange between parties, whether tangible or intangible. Each item was also developed in such a way as to harvest the opinions of both parties in the dyad, not only the follower's perception of the leader or the leader's perception of the follower, as has been the case in most of the items in previous LMX measurement scales.

3.2.3 Work Performance

The respondents were asked to evaluate both their own task performance and the performance of the unit they worked in from the perspectives of goal attainment, quality, and competences (see e.g. Brudan 2010; Sung and Choi 2014). We chose self-ratings of performance for a number of reasons. Firstly, in a study like the current one, where empirical data is gathered from different kinds of work units in several organisations, objective and comparable measures are impossible to specify for either individual- or unit-level performance measurement (see Folan et al. 2007; Lebas 1995). Secondly, because of many practical reasons, leader-ratings are commonly used as the performance measuring method in studies on one company with a small number of employees (e.g. Steel and Van Scotter 2003; Vigoda-Gadot 2007). In studies like ours, simultaneous research access to several organizations and response rates have to be compromised by requesting supervisor ratings (e.g. Snape and Redman 2010). However, despite some criticism (Pransky et al. 2006) self-report measurements are common in performance research (e.g. Snape and Redman 2010; Vega et al. 2015) and have also been shown to be acceptably consistent with performance ratings made by a superior (see e.g. Jensen et al. 2007; Steel and Van Scotter 2003). Dess

and Robinson (1984) have even argued that subjective perceptual measures (e.g. a question about *overall performance*) are more relevant than objective numerical measures. In the questionnaire, responses to all the items concerning managerial coaching, LMX, and performance (see "Appendix" section) were recorded on a 7-point Likert scale anchored with *strongly disagree* (1) and *strongly agree* (7).

3.2.4 Work Engagement

Work engagement was measured with the validated Finnish version (Seppälä et al. 2009) of the Utrecht Work Engagement Scale with nine items (Schaufeli et al. 2006). The items included: '*At my work, I feel bursting with energy*'. Responses were given on a scale ranging from *never* (0) to *every day* (6) and the reliability of the scale was good (Cronbach's $\alpha = .938$).

3.2.5 Control Variables

The effects of gender, age in years, organization, years worked in the current organization and the length of the current LMX relationship on work engagement and work performance were controlled for in the analysis.

3.3 Analytic Strategy

The validity of the work engagement and the novel scales for managerial coaching, LMX, and work performance were investigated using confirmatory factor analysis (CFA). First factor structure was examined with both samples and then a multi-group measurement model was specified to examine measurement invariance, which indicates whether the measurements of a study are interpreted in a similar manner in two different organizations. The logistics organization represented a blue-collar orientation, and the financial organization, a white-collar orientation.

The data of the study are clustered in the work units, which violates the assumption of independent observations leading to downward-biased standard errors if ordinary regression methods are utilized (Preacher et al. 2010). Accordingly, a multilevel structural equation model (MSEM) (Preacher et al. 2010) was utilized to analyse the hypothesis. In the MSEM, random intercepts and fixed slopes were specified. MSEM also strictly, and without bias, separates within-level (individual-level) and between-level (unit-level) effects (Preacher et al. 2010). This enables modelling at the individual- and unit-level. The unit-level analysis was only conducted with the performance of the unit measure, because summing the individual performance of each employee in the unit does not usually adequately reflect the performance of the unit. The collective estimate of the performance of the unit should be more objective than subjective individual ratings of unit performance. The confidence intervals for indirect effects were estimated with the Monte Carlo method, by way of the interactive online tool devised by Selig and Preacher (2008) with 20,000 iterations.

The validation sample included only a few missing values ($N = 4–24$) for the study variable, which amounted to only .6–3.7% of the total sample. Accordingly, we implemented a list-wise-deletion of missing values in the validation process. The full information maximum likelihood estimation (FIML) was utilized in the hypothesis testing, because the control variables held missing values. All analyses in the study were performed with Mplus

7.4 software (Muthén and Muthén 1998–2015) using a robust maximum likelihood (MLR) estimation.

4 Results

4.1 Validation of the Measurements

The validation process started with an examination of the dimensionality and discriminant validity of the scales with combined dual-organization sample. The standard cut-off values of good fit were used (e.g. L. Hu and Bentler 1999) for the CFA model fit indices. For RMSEA and SRMR < .08 indicates an adequate fit (< .05 a good fit) and for CFI and TLI > .90 indicates an adequate fit (> .95 a good fit). Two different confirmatory factor models were estimated and a model (M1), with a five-factor structure where managerial coaching, LMX, work engagement, individual performance, and the unit-level performance formed their own separate factors, had a clearly better fit to the data in terms of χ^2-test and fit indices ($\chi^2(7) = 902.01$, $p < .001$; ΔRMSEA = − .020; ΔSRMR = − .014; ΔCFI = .050; ΔTLI = .073) (see also Table 1) than a three-factor model (M2) where the items of managerial coaching and LMX formed a unidimensional leadership factor and the performance items loaded on a single performance factor. The five-factor model was also modified regarding the managerial coaching, work engagement and performance of the unit scales by releasing total of five error covariances. In managerial coaching scale the error covariance between 'My manager discusses our performance with us sufficiently' and 'My manager ensures that everyone is capable of doing their tasks' was estimated and regarding the work engagement scale two error covariances were estimated between 'At my work, I feel bursting with energy' and 'At my job, I feel strong and vigorous', which both reflect employee vigor and between 'I am immersed in my work' and 'I get carried away when I'm working', which are related to absorption. Two error covariances were estimated also from the performance of the unit scale between 'Operation of our unit is high quality' and 'There is a clear common agreement in our unit about the direction of development of competence' and between 'Our unit always reaches its quantitative goals' and 'The performance of our unit is much better than the average in our organization'. All the estimated error covariances related to items that were measuring a similar phenomenon.

The modified five-factor model (M3) had a significantly better model fit in terms of the χ^2-test and model fit indices ($\chi^2(5) = 593.914$, $p < .001$; ΔRMSEA = − .016; ΔSRMR = − .009; ΔCFI = .041; ΔTLI = .044) than M1 did. The model fit did not improve substantially when more error covariances were released and therefore the M3 model was the measurement model ultimately adopted. All factor loadings were significant and standardized factor loadings generally high (> .700), though work engagement had two relatively low loadings (.630 and .579) and personal performance one (.576). There were a few large standardized residual (15% over 2.58, 4% over 4 and maximum − 6.71) and modification indices, but they mainly reflected covariances between unit-level items in different scales, similar wording of the items and some items reflected the same phenomenon. Omitting items or allowing more covariance between error terms did not substantially improve the model fit.

Hair et al. (2010) recommended measures and threshold values to comprise reliability, convergent validity and discriminant validity. The composite reliability (CR) was clearly over the .700 threshold for all measurements (.790–.966) indicating good

Table 1 Model fit of the CFA models in the validation process

	χ^2 (*df*)	Scaling correction	RMSEA (95% CI)	SRMR	CFI	TLI
M1: Five-factor model	1801.639 (517)	1.310	.062 (.059–.065)	.051	.910	.902
M2: Three-factor model	2797.523 (524)	1.312	.082 (.079–.084)	.065	.840	.829
M3: Modified five-factor model	1207.725 (512)	1.299	.046 (.042–.049)	.042	.951	.946
Factorial invariance test						
M4: Configural invariance	2073.352 (1024)	1.174	.056 (.053–.059)	.049	.932	.926
M5: Metric invariance (weak)	2151.317 (1053)	1.178	.057 (.053–.060)	.062	.929	.925
M6: Scalar invariance (strong)	2277.520 (1082)	1.174	.058 (.055–.062)	.068	.923	.920
M7: Residual variance invariance (strict)	2510.452 (1116)	1.194	.062 (.059–.065)	.094	.910	.910

Table 2 Characteristics of the study variables

	Scale	No. of items	AVE	CR	1	2	3	4
1 Managerial coaching	1–7	7	.737	.951	–			
2 LMX	1–7	9	.760	.966	.883/.830	–		
3 Individual performance	1–7	4	.488	.790	.229/.249	.279/.258	–	
4 Unit-level performance	1–7	5	.547	.857	.636/.539	.565/.422	.483/.412	–
5 Work engagement	0–6	9	.604	.931	.409/.330	.408/.361	.179/.148	.370/.342

All correlations significant at $p < .001$ level

Correlations represent first latent variable correlations from the validation sample and second composite variable correlations from analysis sample

AVE average variance extracted, *CR* composite reliability

reliability for the scales (see Table 2). The average variance extracted (AVE) varied between .488 and .760. The AVE of individual performance was just below the .5 threshold, while other measures were above the threshold indicating convergent validity for those measurements. Maximum shared variance (MSV), average shared variance (ASV) and heterotrait-monotrait ratio of correlations (HTMT) (Voorhees et al. 2016) were calculated to examine discriminant validity of the measurements. AVE was higher than ASV (.058–.330) for all measurements and AVE was also higher than MSV (.167–.780) except for managerial coaching and LMX, where MSV was just a little higher. HTMT was below critical value .85 expect between managerial coaching and LMX, which was marginally higher (.88). The discriminant validity can also be examined with latent variable correlations. Managerial coaching and LMX were highly correlated (r = .883/.830) while other correlations of measures were low or moderate (see Table 2). On the other hand, EFA and CFA analysis clearly segregated managerial coaching and LMX, and the examination of structure coefficients supported the suggested factor structure as the structure coefficients to items of other factors were clearly smaller than pattern coefficients of the factors. Also, after all, the discriminant validity can be sampling issue, because utilizing bigger analysis data to the AVE vs. MSV test indicated discriminant validity.

The measurement invariance between blue-collar and white-collar orientation organizations was tested with the suggested model M3. First, a configural invariance model (M4) was estimated for baseline. The level of measurement invariance was defined by comparing the measurement invariance models based on the change in CFI (> − .005), RMSR (> .025 for metric and > .005 for scalar and residual invariance) and RMSEA (> .010) (Chen 2007). The metric invariance model (M5), had an acceptable fit to the data and the changes in fit indices were small (ΔRMSEA = + .001; ΔSRMR = + .013; ΔCFI = − .003) compared to the configural model. In the scalar invariance model (M6) the model fit remained acceptable, but the changes in fit indices between the metric and scalar invariant model (ΔRMSEA = + .001; ΔSRMR = + .006; ΔCFI = − .006) were just over the cut-off criteria for SRMR and CFI. Changes in fit indices were more evident (ΔRMSEA = + .004; ΔSRMR = + .026; ΔCFI = − .013) when comparing the residual variance model with the scalar invariance model. The cut-off criteria should be used with caution because for example, model complexity and sample sizes influence the magnitude of changes in fit indices (Chen 2007). The results did not support the strict measurement invariance, which is usual in empirical studies, but it seems safe to

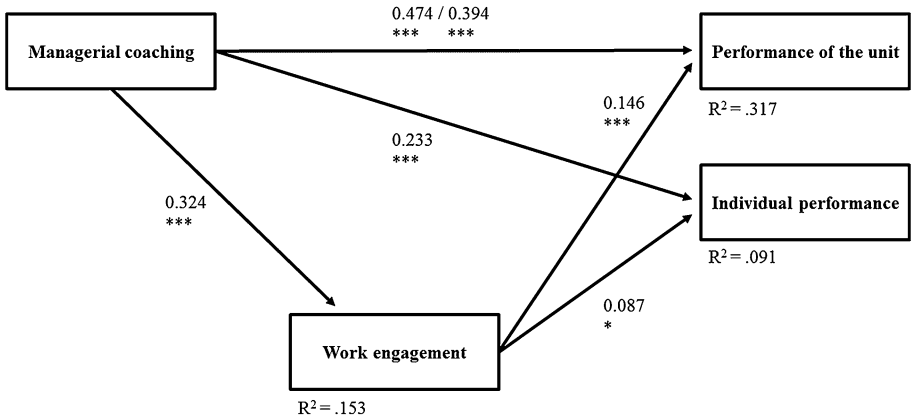
conclude that strong measurement invariance holds, meaning that the measurements are valid for use in both blue-collar and white-collar oriented organizations.

4.2 Examination of the Hypotheses

The MSEM analysis was conducted with composite variables rather than latent variables, because there would not have been enough work units to estimate multilevel model with latent variables, which have more parameters. The scale reliabilities were sufficient (> .7) when measured with Cronbach's alpha and the composite variable correlations, although slightly lower, were comparable to latent variable correlations (see Table 2).

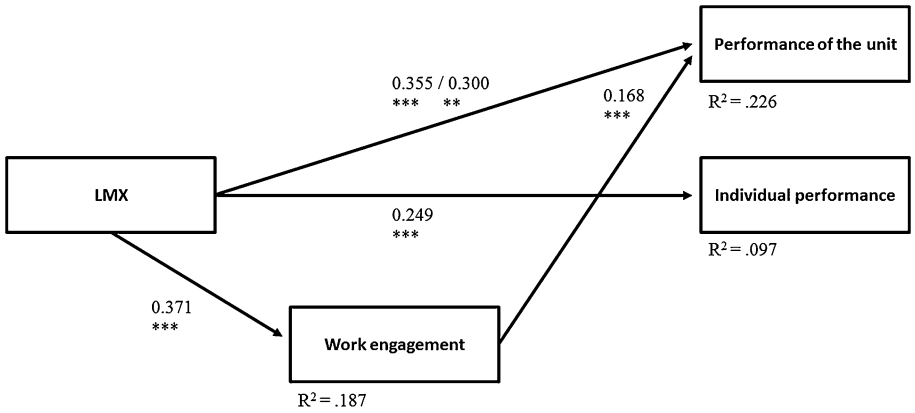
As managerial coaching and LMX were highly correlated, the MSEM models were first conducted separately for both leadership constructs and then simultaneously. The model fit of the MSEM models were excellent for managerial coaching ($\chi^2(2) = 2.668$, $p = .264$; RMSEA = .020; SRMR = .002; CFI = .999; TLI = .980), LMX ($\chi^2(2) = 2.516$, $p = .284$; RMSEA = .017; SRMR = .002; CFI = 1.000; TLI = .984) and for simultaneous model of managerial coaching and LMX ($\chi^2(3) = 2.806$, $p = .423$; RMSEA = .000; SRMR = .002; CFI = 1.000; TLI = 1.003). ICCs for the study variables were as follows: managerial coaching (.270); LMX (.186); work engagement (.132); individual performance (.102); and performance of the unit (.259).

Three different MSEM models were estimated. First, managerial coaching (Fig. 1) and LMX (Fig. 2) were studied separately and then simultaneously (Fig. 3). Leadership constructs were connected directly and indirectly via work engagement to performance. The measures of managerial coaching and LMX correlate highly and therefore their connections were fairly similar in separate models, though managerial coaching was clearly stronger connected with performance of the unit than LMX, but LMX had stronger connection with work engagement. These results are also supported by the bivariate correlations (Table 2). Furthermore, the simultaneous model where managerial coaching and LMX were analysed simultaneously suggests that managerial coaching was directly connected only with performance of the unit at both within—(β = .514) and between-levels (β = .768)



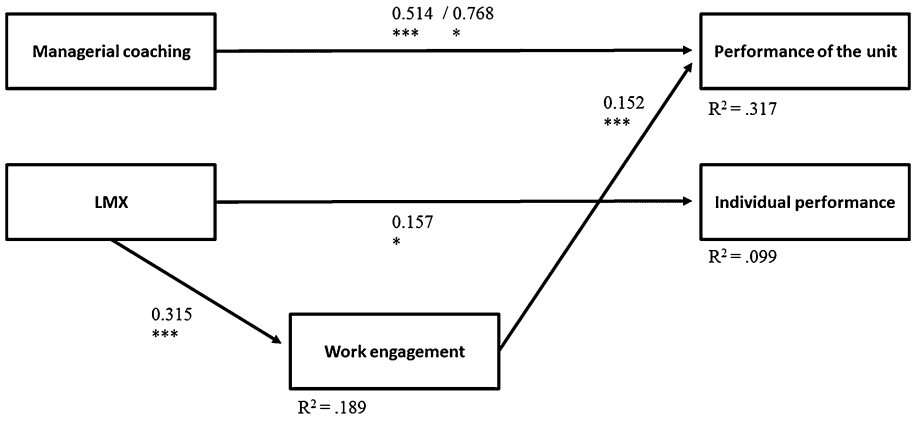
The figure represents the standardized regression coefficients of the significant connections between study variables. Within- / between-level effects.

Fig. 1 Managerial coaching, work engagement and performance



The figure represents the standardized regression coefficients of the significant connections between study variables. Within- / between-level effects.

Fig. 2 LMX, work engagement and performance



The figure represents the standardized regression coefficients of the significant connections between study variables. Within- / between-level effects.

Fig. 3 Managerial coaching, LMX, work engagement and performance

while LMX was connected with work engagement (β = .315) and individual performance (β = .157), which are more subjective and personal constructs. In this model work engagement was connected only with performance of the unit (β = .152). Although the within- and between-level effects differed noticeably in some instances in all models, they did not however differ significantly, thus there was no contextual effect.

Total effects combined the direct and indirect effects. Coaching had a significant total effect on the individual performance (β = .26) and the performance of the unit at the within—(β = .52) and between-level (β = .40) when studied separately and in the simultaneous MSEM model the connection with the performance of the unit at the within—(β = .52) and between-level (β = .78) were rather similar (the standard error in the between effect was large) and significant. These results of the MSEM models combined with the correlation analysis (see Table 2) gained partial support for the Hypothesis 1A and full support

for Hypothesis 1B. In the separate analysis coaching was positively and significantly connected with work engagement (β = .32) and the correlation between coaching and work engagement was also positive. Thus, partially supporting the Hypothesis 2.

LMX had also a significant total effect on individual performance in a separate (β = .27) and in a simultaneous (β = .18) analysis and in a separate analysis the total effects on performance of the unit at the within—(β = .42) and between-levels (β = .31) were significant. As, in addition, the correlations indicated predicted results the H3A gained full support and H3B partial support from the analyses. The Hypothesis 4 was also fully supported as correlation and both separate and simultaneous MSEM models revealed a positive direct effect between LMX and work engagement.

The correlations and MSEM models indicated that work engagement was positively connected with performance. In the coaching model work engagement was connected with both the individual performance (β = .09) and with the performance of the unit (β = .15), while in the LMX (β = .17) and in the simultaneous model (β = .15) work engagement was significantly connected only with the performance of the unit. Therefore, H5A gained only weak support and H5B full support.

In all estimated models there were significant indirect effects between leadership and performance. In the managerial coaching model work engagement mediated the connections of coaching and individual performance (b = .02, 95% CI .00–.04) and performance of the unit (b = .04, 95% CI .02–.06). In addition, the indirect effect between LMX and performance of the unit was significant in LMX (b = .05, 95% CI .03–.08) and simultaneous (b = .04, 95% CI .02–.07) models. Thus, the results suggest strong support for Hypothesis 6D and partial support for 6A and 6B. In addition to the hypothesized MSEM model an alternative model, where leadership had indirect effect on work engagement via performance, had an inferior fit to the data (e.g. $\chi^2(1) = 150.271$, $p < .001$; ΔRMSEA = + .209; ΔSRMR = + .027; ΔCFI = − .078), which supports the hypothesized model.

All analysed models explained relatively well work engagement ($R^2 = .153–.189$) and performance of the unit ($R^2 = .226–.317$), but did not explain individual performance ($R^2 = .091–.099$) very well, which suggests that other aspects of work, and for example, the personality of the workers contribute more to the rating of personal performance. There was a big difference in R^2 between the models explaining performance of the unit, which also suggests that it was indeed managerial coaching and not LMX that was connected with performance of the unit. The strongest empirical support suggest that managerial coaching was connected with the subjective experience of unit-level performance and the group estimate of managerial coaching was connected to the more objective collective rating of the unit-level performance, while LMX was connected with work engagement and individual performance.

5 Conclusions and Discussion

The current study examined how managerial coaching and LMX relationships relate to work engagement and performance and, in addition, how work engagement mediates this relationship. Our study improves the understanding of the JD-R model's motivational process by providing evidence of leadership as a job resource and especially by showing the different roles that managerial coaching and the LMX relationship play in the motivational process. In particular, by studying work engagement, study increases our knowledge about the antecedents and outcomes of well-being and happiness at work. This study also introduced and validated novel measurement instruments for managerial coaching, LMX (LMX-UVA), and the scales for self-rated performance.

Managerial coaching has been advocated in the literature by the fact that it prompts people to improve performance at work (Ellinger et al. 2011). This study has some support that high quality managerial coaching is connected with good individual performance (H1A), which is in line with previous studies (Agarwal et al. 2009; Huang and Hsieh 2015) but the relationship became nonsignificant when LMX-relationship was adjusted. There was however strong support that managerial coaching is connected to perceived unit level performance (see below). In any case, supervisory behaviour may have a relatively weak direct influence on an individual's performance for many reasons. Autonomous motivation (see Deci and Ryan 2000) to perform well can be fostered in other ways, for example, by job design, interpersonal relations in work group, and compensation (Gagné and Forest 2008). Personal self-image, ambition levels, reflexive capabilities, and personal desires might give rise to more variation in the sample than leader's behaviour. However, this finding can also be considered a result of managerial coaching. Previous research findings indicate that managerial coaching increases goal awareness (Kim et al. 2013), which may also make the subordinate strongly aware of both their current level of performance and the gap to ideal performance, and this could cause the subordinate to rate their performance as modest rather than excellent. At its worst, strong managerial coaching could even cause feelings, that performance could always be better and nothing is enough. In general, the variance among subjective ratings was quite small (largely representing the *modest* performance level rather than the very bad or excellent). A partial explanation for the absence of bad self-ratings might be that employees in contemporary working organisations with a constant threat of downsizings have to—and usually want to—perform well enough in order to maintain their employment relationships.

However, there was a strong support that managerial coaching had a positive direct effect on unit-level performance, rated both at the individual and at the more objective collective unit-level, and thus H1B gained support. The people in a unit form a group with common goals and require collaborative capabilities (Geroy et al. 2005), which in the light of our study, can be supported by managerial coaching. Thus, our findings confirm earlier findings (Agarwal et al. 2009) and also respond to Zhao and Chadwick (2014), who call for more investigation on the unit-level.

In addition, our findings suggest managerial coaching has no connection to employees' well-being, that is, work engagement, when LMX is adjusted, but when managerial coaching was examined separately there was a significant connection with work engagement as in some previous studies (Christian et al. 2011). The H2 was not therefore fully empirically supported. The personal factors presented in relation to performance may also explain this finding. In particular, the respondents' motivation might explain more of their work engagement than the behaviour of their managers, which was the case in a recent study by Shu (2015) of the connections between leadership style (either authoritative or/authentic) and work engagement. Supervisory support has been suggested to be an important aspect of job resources (Bakker and Demerouti 2007), but there may also be some substitutes for leadership support operating in the work place, such as a cohesive work group and peer support (see e.g. Xu et al. 2013).

In our data, a dyadic relationship between leader and follower (LMX) had a positive relationship with work engagement, thus supporting H4 and was also positively related to individual performance, H3A. LMX was not connected with performance of the unit in the simultaneous model, which supports H3B. These findings contribute to the understanding of the JD-R model and well-being and happiness at work, and provide evidence that leadership as a job resource (Bakker and Demerouti 2007) is not only a question of leadership style, but should be approached from the relational leadership perspective. As a

high-quality LMX relationship is positively linked to work engagement it seems to function as an antecedent for well-being and happiness in working life. If we reflect on this finding in relation to the general understanding of happiness, developing and having a high-quality relationship with the leader may not always lead to the experience of maximal pleasure and positive emotions (cf. hedonism) as it may mean a need for flexibility and completion of challenging tasks. However, a high-quality LMX relationship is likely to lead employees to successfully use their strengths and engage in activities and may therefore lead to authentic happiness and good life through engagement (Seligman 2002). It is likely that managerial coaching explains the relationship between LMX and unit-level performance as simultaneous model suggests, which indicate that the direct effects of LMX are mainly found at the individual-level (Dulebohn et al. 2012). Earlier literature on LMX has shown that high-quality LMX is typically related to better access to information in the organization, and employees enjoying high-quality LMX have a greater influence on decision-making (Graen and Uhl-Bein 1995). It may also be possible that a high-quality LMX relationship leads to better job resources, such as autonomy, and through that affects the motivational process. However, unearthing the detail of such a mechanism would require fresh research.

In sum, it can be said of these two perspectives on leadership that unit-level performance benefits from having a leader with strong coaching behaviour, and that for individual performance it is essential to have a good LMX relationship with the leader. In addition, to support employees' work engagement, the influence of LMX is more important than managerial coaching; a finding in line with a recent study by Burch and Guarana (2014), which found a positive relationship between LMX and work engagement, but not between transformational leadership and work engagement.

It was surprising that work engagement was not constantly connected with individual performance (H5A). Nevertheless, the results showed a positive relationship between work engagement and the performance of the unit (H5B). Here too the reasons may relate to aspects of the self-rating of performance mentioned earlier. The personality of the employee might also have an impact on the relationship. Highly-engaged workers might be at their most critical when evaluating their own performance. In addition, some tasks (e.g. manual labour) might not require an employee to be highly engaged to reach the performance goals required. Demerouti and Cropanzano (2010) have also noted when studying the relationship between work engagement and performance, that those studies utilizing general performance indicators have not explained the performance variance as well as studies using more specific performance measures, which might explain the relatively low coefficient of determination for individual performance.

There was some support that work engagement mediates the connection between managerial coaching and performance (6A and 6B), but the effects become nonsignificant when LMX was studied simultaneously. There was however strong support that work engagement function as a mediator between LMX and unit-level performance (H6D). This suggests that managerial coaching directly influences unit-level performance, but LMX also operates through increased work engagement, as suggested in the recent studies of Bakker and Bal (2010), Breevaart et al. (2015), and Li et al. (2012). Analysing the two leadership constructs at the same time suggests that there are different mechanisms driving managerial coaching and the LMX relationship in the motivational process and towards good performance, as the JD-R model asserts. This finding may also be linked to the general understanding of happiness (Martínez-Martí and Ruch 2017; Seligman 2002). It is possible that through work engagement LMX also supports employees' tendency to use their strengths to achieve something larger than their individual goals (cf. eudemonia), for instance, performance of their unit. However, as this was not focus in our study and further research is needed.

The current study has some limitations. First, the findings come from a cross-sectional design, meaning the causal direction of the effects cannot be confirmed. Longitudinal studies would be required to confirm the connections between leadership, work engagement, and performance. While the study validated new measurements for study variables and strong measurement invariance between white-collar and blue-collar oriented work was supported and the measures had good reliability and mostly sufficient validity. There were some concerns relating to the new measurements. Convergent validity for individual performance was marginally lower than threshold value, which means that inter-correlations of items were low and the measure should be used with caution. Also, the measurements related to leadership correlate highly and discriminant validity was not fully established and the measures should be used together with caution. These concerns might be caused by sampling and therefore validity testing with different samples is welcomed. Future studies should also compare the scales to other established instruments. In addition, we suggest that future research should simultaneously consider different perspectives on leadership, as doing so could provide rich and multifaceted evidence of their effects on organizational- or individual-level outcomes. It would also be fruitful to study the interactions of different leadership perspectives. Moreover, it is also recommended that other underlying mechanisms governing how leadership affects, for instance, performance should be studied.

One limitation of the study is also that the data were obtained only via the self-ratings of respondents. There were some remedies in the survey form, which were designed to minimize the common method bias. The variables were psychologically separated in the form and work engagement was measured with different scale anchors, but the risk that common method variance (CMV) could bias the results still remained. CMV was tested with unmeasured latent factor technique (e.g. Podsakoff et al. 2012) and the model fit of the latent common method factor model was a bit better than the original CFA model ($\chi^2(33) = 169.169$, $p < .001$; $\Delta\text{RMSEA} = -.005$; $\Delta\text{SRMR} = -.004$; $\Delta\text{CFI} = +.011$; $\Delta\text{TLI} = +.010$). However, a closer examination of the models revealed that standardized regression weights differed in most cases only a little and few bigger differences related to unit-level questions, which suggests that the common factor captured mainly variation relating to unit-level. These results suggest that CMV should not have a significant effect on the measurements, but future studies should examine the hypothesis with other more objective measures, perhaps supervisor-rated ones.

Our findings could have several practical implications for leaders, subordinates, and senior management. For the leaders, it is important to understand the value of coaching behaviour and of building good quality relationships with every subordinate. However, subordinates should consider their role in the leadership process and especially in building LMX relationships, because there are always two parties involved. The timidity of respondents in performance self-ratings might indicate a need to amplify target setting and systematic evaluations in discussions between supervisors and followers. Additionally, managers and supervisors should focus on improving common goal awareness, collaborative capabilities, and member satisfaction in their units and work groups. Even if opportunities to directly influence an individual's performance seem limited, they are more obvious at the group-level. To bolster competitiveness in the organization, upper management and HR professionals should scrutinize the quality of leadership and provide development programmes to equip leaders to undertake their role as managerial coaches. A practical implication drawn from our findings is that relating to the importance of the LMX relationship, which should be acknowledged in organizations. As LMX quality is a question of dyadic relationship building, all members of the organization should be trained to understand their own role in

that process. Putting effort into developing LMX relationships, would enable organizations to deliver performance in a sustainable way.

Overall, more investigation would be welcome to clarify when and how managerial coaching positively influences engagement and performance among employees. The contingency perspective (e.g. one examining the type of work) would be valuable, as would both subjective and objective measures to understand the complex mechanisms involved.

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Appendix

See Table 3.

Table 3 Items of the coaching leadership, LMX and performance scales

Coaching leadership	
1	My manager discusses our performance with us sufficiently
2	My manager facilitates mutual cooperation in a group
3	My manager ensures that everyone is capable of doing their tasks
4	My manager supports the work community in dealing with problems and mistakes constructively
5	My manager seeks to develop the operation of our unit
6	My manager understands the problems and needs of my work
7	I receive encouraging feedback for my work
LMX	
1	I get along well with my supervisor(/subordinate)
2	Our cooperation benefits the performance of us both at work
3	We can openly handle even challenging issues among ourselves
4	We trust each other
5	We appreciate each other's competence at work
6	We can genuinely listen to each other's opinions
7	We are usually willing to understand each other
8	If needed, we are ready to support each other's viewpoints on work issues
9	It is easy for us to bring up different work-related issues
Individual performance	
1	I always reach the goals of my job
2	I am very pleased with the quality of my work
3	My performance is better than average in my unit
4	My competence level is sufficient for accomplishing my current tasks
Performance of the unit	
1	Operation of our unit is high quality
2	Our unit always reaches its quantitative goals
3	The performance of our unit is much better than the average in our organization
4	The competence level in our unit is high
5	There is a clear common agreement in our unit about the direction of development of competence

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Effort and reward as a mechanism linking leader-member exchange with work engagement

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ABSTRACT

Leader-member exchange (LMX) theory consentrates on the unique dyadic relationships between leaders and followers. Consistent evidence associates LMX relationships to employee work engagement, but research on the mechanisms explaining the connection has remain scarce. This study applies social exchange, LMX and effort-reward imbalance theories to examine whether the effort made by employee and the reward gained mediate the relationship between LMX and three dimensions of work engagement: vigor, dedication, and absorption. A large Finnish cross-sectional sample (M = 1701) collected from service-sector was analysed utilizing path modelling. The results indicate that high-quality LMX relationships were connected with employees' greater reward and reduced effort, which in turn partially mediated the positive association to work engagement dimensions. Reward was positively connected with vigor, dedication, and absorption, while effort had a negative relationship with vigor and a positive association with absorption. There was no significant interaction effect between effort and reward on any work engagement dimension. This study contributes to literature by connecting LMX with work engagement dimensions and, more importantly, provides empirical evidence on the mechanism explaining these relationships. Reward had a particularly important role in explaining the relationships. Distinct associations with vigor, dedication and absorption encourages to examine them separately in future studies.

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Introduction

Employee well-being has become a major concern in modern complex, hectic and stressful working life, where the motivation to develop, use and sustain new skills is a constant requirement (Gagné et al., 2022; Inceoglu et al., 2018). The concept of work engagement addresses the current requirements regarding work-related employee well-being and motivation because organizations need employees who are energized by, dedicated to, and absorbed in their work (Bakker et al., 2014). Work engagement is a pervasive, active, and fulfilling work-related state of mind: a truly positive measure of work well-being (Bakker et al., 2014; Schaufeli et al., 2002). Work engagement has a wide range of positive consequences for employees and the organization as a whole (Bakker et al., 2011; Christian et al., 2011; Mazzetti et al., 2023). High-quality leadership is one organizational factor that has been suggested to improve employee well-being, motivation, and work engagement (e.g. Bakker et al., 2014; Breevaart et al., 2015; Garg & Dhar, 2017). This study concentrates on a relationship-based approach to leadership in the form of leader-member exchange (LMX) (Dansereau et al., 1975; Graen & Scandura, 1987; Liden et al., 1997) and examines the effect of LMX on the dimensions of work engagement vigor, dedication, and absorption. Furthermore, the study specifically examines whether social exchanges related to employee effort and reward act as a mechanism explaining the association between LMX and work engagement dimensions.

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LMX theory (Dansereau et al., 1975; Liden et al., 1997) focuses on the dyadic relationships between subordinates and their supervisors, where valued resources are exchanged. The LMX theory is partly based on social exchange theory (Cropanzano & Mitchell, 2005; Gouldner, 1960), which focuses on the rules and norms of exchange, resources exchanged and the relationship that emerges from the social exchange. The main argument is that exchanging resources generates obligations. Accordingly, a supervisor can offer different resources and reward, which subordinates can reciprocate, for example, by putting extra effort into work. The better the LMX relationship, the more and better-quality resources are exchanged. Several recent studies connect LMX positively with employee work engagement (e.g. Breevaart et al., 2015; Garg & Dhar, 2017; Hesmert & Vogel, 2024; Mao & Tian, 2022; Wagner & Koob, 2022). However, previous LMX literature has mainly concentrated only on the overall unidimensional measure of work engagement, although the examination of three separate work engagement subdimensions would be important as vigor, dedication, and absorption have partly different antecedents and outcomes (Bakker et al., 2007; Neuber et al., 2022; Mauno et al., 2007). In addition, a three-factor structure has proved statistically superior to a unidimensional conceptualization of work engagement (Mills et al., 2012). Accordingly, examining vigor, dedication, and absorption separately should offer a more accurate and detailed understanding of the aspects that engage employees than investigating work engagement as a unidimensional construct.

The main focus of the study lies in the examination of the possible mechanism explaining the positive relationship between LMX and work engagement as the current research has not adequately identified the explanatory pathways (Mao & Tian, 2022). Previous studies have theoretically explained the relationship between LMX and work engagement usually by leaning on the job demands-resources model (JD-R), stating that LMX enhances work engagement by increasing job resources. Few empirical studies have found that, for example, social resources (Breevaart et al., 2015; Radstaak & Hennes, 2017), challenging job demands (Radstaak & Hennes, 2017), reduced role overload and increased job security (Altinay et al., 2019), psychological empowerment (Aggarwal et al., 2020), psychological safety (Mao & Tian, 2022) and team atmosphere (Wagner & Koob, 2022) partly mediate the relationship between LMX and work engagement. However, despite this recent empirical evidence, the mechanism linking LMX to work engagement has been described as essentially unresolved (Mao & Tian, 2022).

We consider it likely that there are several distinct pathways, and this study introduces the employee effort and reward as a novel mechanism with the potential to explain the relationship between LMX and work engagement. Employee effort and reward are introduced as potential mediators as they are central to the social exchange between supervisor and subordinates and have been extensively associated with employee well-being in the effort-reward imbalance (ERI) model (Siegrist, 1996). In addition, examining effort and reward enables the investigation of possible positive and negative pathways connecting LMX to work engagement. We examine effort and reward in the framework of the ERI model, where effort is defined by reference to the perceived strain caused by the workload and other job demands and reward in terms of salary, esteem, and career opportunities (Feldt et al., 2013; Siegrist, 1996; Siegrist et al., 2004). Similarly to LMX theory, the ERI model is based on social exchange theory, and according to the ERI model, effort should have an adverse effect and reward a positive effect on well-being (e.g. work engagement), but the focus of the ERI model lies on the combined effect of effort and reward (i.e. in their interaction or balance). The ERI model holds that if an employee's level of effort is not reciprocated with matching level of reward, negative emotions, disengagement and stress emerge (Ge et al., 2021; Li et al., 2023; Siegrist, 1996; Siegrist & Li, 2016), although this imblance effect is only rarely properly tested (see also Allisey et al., 2012; Gorgievski et al., 2019; Kunz, 2019). Thus, unlike the previous research this study examines the mechanism linking LMX and work engagement in the framework of ERI model. Overall, the utilization of ERI model in LMX and work engagement research has remained relatively limited.

Based on the LMX and social exchange theories, we assume employees in high-quality LMX relationships receive more reward to counter the effort they invest. Such employees then reciprocate through vigorous, dedicated, and absorbed working. This study thus references LMX theory and the ERI model to examine whether the employee effort, reward, and the accordant interaction effect explain the connection between LMX and the three dimensions of work engagement: vigor, dedication, and absorption.

Association of leader-member exchange (LMX) with effort and reward

Leader-member exchange (LMX) is a leadership approach that focuses on the unique dyadic relationships between subordinates and their supervisors (Dansereau et al., 1975; Graen & Uhl-Bein, 1995; Liden et al., 1997). LMX theory is based on role theory (Graen & Scandura, 1987) and social exchange theory (Graen & Uhl-Bein, 1995; Liden et al., 1997), which suggest that dyadic LMX relationships develop in the process where a supervisor exchanges valued resources with subordinates (Liden et al., 1997). A supervisor can offer direct and indirect resources such as information, autonomy, attention, encouragement, social support, responsibility and interesting and challenging tasks. In addition, various tangible and intangible reward, such as approval, salary increases, and career progression, can be exchanged (Graen & Scandura, 1987; Graen & Uhl-Bein, 1995; Liden et al., 1997). Subordinates can reciprocate by taking greater responsibility, investing extra effort, or committing to the leader and organization; which are valued by the supervisors as they help them to meet their own goals (Liden et al., 1997; Wilson et al., 2010). The norm of reciprocity evokes an obligation for both sides to repay the acquired benefits (Gouldner, 1960). In low-quality LMX relationships, the exchange is restricted to material and formal levels and will focus only on the items of the job description. In contrast, in high-quality LMX relationships, the exchange will be material and social. The latter scenario fosters mutual trust, affect, loyalty, respect, and obligation between supervisor and subordinate (Graen & Uhl-Bein, 1995; Liden et al., 1997). Accordingly, the exchange of valued resources should improve in quantity and quality as the quality of the LMX relationship develops. The quality of the LMX relationship shapes the attitudes, perceptions, and behaviors of the subordinates (Dulebohn et al., 2012; Gerstner & Day, 1997; Liden et al., 1997). The quality of the LMX relationship is also connected to the amount of effort made by the subordinate and the reward earned (Liden et al., 1997).

LMX Is associated with intensified effort

Resources are exchanged in all LMX relationships, but LMX theory suggests that employees involved in high-quality LMX relationships feel obliged to reciprocate the resources directed towards them by engaging in extra and undetermined work activities beyond contractual or transactional expectations (Liden et al., 1997). These added duties require them to accept extra challenges and responsibility, commit themselves and invest more time and energy in work and, thus, more physical and mental effort (Liden et al., 1997). Empirical findings support the positive relationships between LMX and effort, as Lu and Sun (2017) found a positive connection between LMX and effort measured as work intensity, and the study of Buch et al. (2014) connected social exchanges with supervisor with higher effort. Furthermore, high-quality LMX has been linked with extensive job demands measured for example by time pressure and physical workload (e.g. Jiang et al., 2014). Accordingly, the following hypothesis is presented:

Hypothesis 1: LMX is positively connected with effort.

LMX Is associated with enhanced reward

LMX relationships can generate reward for subordinates in several ways. First, leaders provide attention, appreciation, career prospects and developmental opportunities in exchange for employee effort (Breevaart et al., 2015; Graen & Scandura, 1987; Liden et al., 1997). LMX relationships are positively connected with general reward and recognition (Karanika-Murray et al., 2015) and satisfaction with salary (Dulebohn et al., 2012), which can indicate at least adequate financial reward. Furthermore, employees in high-quality LMX relationships can obtain indirect reward as they are offered more challenging and responsible tasks, which should provide them with extra reward. It has also been shown that subordinates in high-quality LMX relationships receive better performance evaluations, which determine the organizational reward open to them (Graen & Uhl-Bein, 1995). Hence, we propose the following hypothesis:

Hypothesis 2: LMX is positively connected with reward.

Associations of effort and reward with work engagement

The effects of effort and reward have been examined comprehensively through the ERI model (Siegrist, 1996), concentrating on the perceived balance between effort and reward acquired at work. According to ERI model effort reflects the perceived strain caused by workload, time pressure, responsibilities imposed by the employer and other job demands (Feldt et al., 2013; Siegrist et al., 2004). Employee effort manifests in the time and energy they invest, and in exchange, they expect reward (Siegrist, 1996). From an ERI perspective, reward encompasses more than merely salary and bonuses, and can be intangible reward such as esteem (recognition and respect), career opportunities, and job security (Siegrist et al., 2004).

The ERI model hypothesizes that effort and reward have separate effects on work-related well-being, but the main argument of the ERI model is that the combined effect (i.e. interaction or balance of effort and reward) explains outcomes over and above the separate effects (Siegrist & Li, 2016; van Vegchel et al., 2005). An imbalance between effort and reward, and more specifically, a high effort level combined with a low reward level, matters. A failure of reciprocity is likely to provoke negative emotions and sustained stress responses with adverse long-term effects on health (Siegrist & Li, 2016). The majority of empirical studies examining the ERI model support the imbalance effect, but most studies have not actually investigated whether the balance/interaction of effort and reward explains outcomes beyond their separate additive effects (Allisey et al., 2012; Gorgievski et al., 2019; Kunz, 2019; Tse et al., 2007). The ERI model was originally developed to examine strain reactions, which are also the focus of much of the empirical research (van Vegchel et al., 2005). However, the ERI model has recently been utilized in studies examining psychological well-being and motivational outcomes such as work engagement (e.g. Kinnunen et al., 2008; Li et al., 2023; Wolter et al., 2021).

Work engagement is considered a truly positive measure of work-related well-being in contrast to burnout and stress (Bakker et al., 2014). The measure is defined as a persistent and pervasive, active, positive, and fulfilling work-related state of mind, manifested in three dimensions: vigor, dedication, and absorption (Schaufeli et al., 2002). Vigor is an affective component, which implies high energy levels and mental resilience while working, the willingness to work intensively and persistence in difficult situations. Dedication manifests as a motivational dimension in a person's genuine and strong involvement in work and experiencing work-related pride, sense of significance, enthusiasm, challenge, and inspiration. Absorption refers to a cognitive state of being where a person is fully concentrated and completely occupied by their work, where time passes quickly, and the person finds it difficult to detach from work. The concept of flow relates closely to absorption, but with the difference that flow refers to a short-term peak experience while absorption refers to a more pervasive and persistent state of mind (Schaufeli et al., 2002; Mauno et al., 2007). Vigor and dedication are the closely related core components of work engagement (Bakker et al., 2011). Because of their similarity, they have rather similar antecedents in empirical studies compared to absorption (Bakker et al., 2007; Mauno et al., 2007; Mazzetti et al., 2023). In general, job resources, such as the various forms of reward, consistently facilitate work engagement, while job demands requiring effort have not usually been significant predictors of unidimensional measured work engagement (Bakker et al., 2011; Lesener et al., 2019; Schaufeli & Taris, 2014).

The association of effort on vigor, dedication and absorption

According to the ERI model, effort should cause strain and have a negative effect on well-being (Siegrist, 1996). Though, job demands and the requirement to make an effort can also be interpreted as a challenge, which can increase work engagement (Crawford et al., 2010). In practice, there are some evidence connecting efforts negatively (e.g. Li et al., 2023) and positively (e.g. Inoue et al., 2013) with work engagement. Though, the relationship between effort or job demands on work engagement has usually been nonsignificant (Hyvönen et al., 2010; Lesener et al., 2019; Wolter et al., 2021). However, effort could have different and even opposite effects on different work engagement dimensions, which could partly explain the nonsignificant association found in studies utilizing of unidimensional work engagement measure.

Overall, effort has been connected negatively, particularly to vigor and dedication. Spreitzer et al. (2010) state that excessive job demands reduce work engagement as demands take effort and are cognitively and physically taxing, and they exhaust resources. A situation like that drains employees of energy and vigor, which can lead them to opt to disengage from rather than dedicate themselves to work. For example, Pöysä et al. (2022) reported rather strong negative correlations between effort, vigor, and dedication, but the correlation between effort and absorption was weak. In addition, Van Bogaert et al. (2014) connect job demands negatively with vigor, as the associations to other work engagement dimensions were not significant. Accordingly, based on the ERI model and previous research on effort and job demands, we propose the following hypothesis:

Hypothesis 3a: Effort is negatively related to vigor and dedication.

Even though making effort drains employees' energy and has a negative effect on certain well-being indicators, it can simultaneously act as a challenge with positive effects on other well-being indicators (Crawford et al., 2010; Webster et al., 2011; Widmer et al., 2012). Regarding the work engagement dimension absorption it seems logical that effortless tasks do not absorb employees and therefore effort should have a positive effect on absorption. Furthermore, as absorption parallels with the concept of flow, it is likely that also absorption emerges in situations where employees have to invest time and energy and which are characterized by considerable challenges and matching skills (Bakker, 2005). Previous research supports a positive connection between effort and absorption. A follow-up study by Mauno et al. (2007) showed that time demands predicted follow-up absorption, although only when the baseline absorption was not controlled for. In addition, workload has been positively connected with absorption (Koyuncu et al., 2006), and the study of Kinnunen et al. (2008) reported a significant positive correlation between effort and absorption. Based on the literature on challenge demands (Crawford et al., 2010) and the empirical findings, the following hypothesis is proposed:

Hypothesis 3b: Effort is positively related to absorption.

Reward is associated positively with vigor, dedication, and absorption

The ERI model argues that reward has a positive effect on well-being (Siegrist, 1996). In addition, the connection between reward and work engagement can be explained by reference to social exchange theory and the norms of reciprocation, which predict that employees feel obligated to compensate for the received reward by engaging with work (Cropanzano & Mitchell, 2005; Saks, 2006). A meta-analysis offers strong empirical evidence that reward and recognition are connected with work engagement (Crawford et al., 2010). For example, appreciation (Hulkko-Nyman et al., 2012), job security (Mauno et al., 2007), performance feedback (Crawford et al., 2010) and opportunities for development (Breevaart et al., 2015; Crawford et al., 2010) have been connected with work engagement. In their meta-analysis, Mazzetti et al. (2023) concluded that developmental resources (feedback and learning opportunities) were among the strongest resources associated with engagement.

Based on the rules of social exchange, employees can reciprocate the reward earned with vigorous, dedicated, and absorbed working (Saks, 2006). Accordingly, all dimensions of work engagement can be utilized in social exchange, and there is some empirical evidence that reward have an equally strong relationship with vigor, dedication, and absorption (Koyuncu et al., 2006; Wolter et al., 2021). However, the majority of studies connect reward such as appreciation positively specifically with vigor and dedication, but also with absorption (Bakker et al., 2007; Hulkko-Nyman et al., 2012; Kinnunen et al., 2008;Wang et al., 2017). Accordingly, based on theory and empirical findings, we hypothesize as follows:

Hypothesis 4: Reward is positively related to all dimensions of work engagement and most strongly with vigor and dedication.

High effort combined with low reward is negatively associated with vigor, dedication, and absorption

The ERI model (Siegrist, 1996) states that it is not just effort and reward that matter but the balance between them. When employees perceive their effort is not reciprocated with adequate reward, the resulting imbalance will prompt strong negative emotions (Siegrist, 1996; Siegrist & Li, 2016). Negative emotions can reduce employees' willingness to work vigorously, dedicate themselves to work, or absorb themselves in it. In addition, the reward earned can help employees cope with job demands and put the effort invested in the job into perspective (Bakker et al., 2007). The few empirical studies examining ERI and work engagement have produced mixed results. The ratio of effort and reward (ERI ratio) has been connected negatively with work engagement (Ge et al., 2021; Hyvönen et al., 2010) and its dimensions (Wolter et al., 2021). Accordingly, in line with the ERI model, greater effort invested than reward acquired has been connected with reduced work engagement; however, there is also some evidence of a nonsignificant imbalance effect (Feldt et al., 2013; Inoue et al., 2013; Tse et al., 2007) and also that an 'over benefitting' imbalance would lead to slightly worse work engagement than a balanced situation (Li et al., 2023). Nevertheless, Hypothesis 4b proposes that effort can increase absorption. Based on the ERI model, we argue that effort does not have this kind of positive effect unless there is a compensating reward. Accordingly, in line with the ERI model, the following hypothesis is formed:

Hypothesis 5: A combination of high effort and low reward is associated with the lowest level of vigor, dedication, and absorption.

Indirect effect of LMX on work engagement via effort and reward

High-quality LMX relationships have been connected with several positive outcomes such as work engagement, which is a truly positive measure of employee well-being and motivation (e.g. Hesmert & Vogel, 2024; Mao & Tian, 2022; Wagner & Koob, 2022). However, only few studies have empirically examined the mechanism linking LMX with work engagement. It is generally thought that a positive leadership such as high-quality LMX relationship influences work engagement by impacting job demands and particularly by generating different job resources (Decuypere & Schaufeli, 2020; Tummers & Bakker, 2021). Resources such social support (Breevaart et al., 2015), social job resources (Radstaak & Hennes, 2017), psychological empowerment (Aggarwal et al., 2020), psychological safety (Mao & Tian, 2022) and team atmosphere (Wagner & Koob, 2022) have been found to mediate the positive effect of LMX on work engagement.

Based on social exchange theory and specifically on LMX and ERI theories, this study suggests a novel idea that employee effort, reward, and their interaction could constitute an additional pathway that explains the relationship. The norm of reciprocity holds that employees in a high-quality LMX relationship feel obliged to make more effort, but are simultaneously also rewarded in many ways (Graen & Uhl-Bein, 1995; Liden et al., 1997). Employees can reciprocate the earned reward by engaging with work (Crawford et al., 2010; Cropanzano & Mitchell, 2005; Saks, 2006). Based on the ERI model and discussion about challenge and hindrance job demands, effort can drain energy and reduce vigor and dedication (Spreitzer et al., 2010), while it can also increase absorption (Koyuncu et al., 2006; Mauno et al., 2007). Nevertheless, regarding the ERI model, if effort is not matched with reward, the impact of effort should be extra negative. Furthemore, few prior studies present indirect effects between LMX and work engagement through challenging job demands (Radstaak & Hennes, 2017) and development opportunities (Breevaart et al., 2015). Those findings offer indirect empirical evidence that effort and reward can mediate the relationship. Accordingly, we hypothesize:

Hypothesis 6a: LMX has a negative indirect effect on vigor and dedication through effort.

Hypothesis 6b: LMX has a positive indirect effect on absorption through effort.

Hypothesis 7: LMX has a positive indirect effect on vigor, dedication and absorption through reward.

Hypothesis 8: LMX has a negative indirect effect on vigor, dedication and absorption through effort, particularly when reward levels are low.

Methods

Sample and procedure

The study sample (M = 1701) was collected from multiple Finnish service-sector organizations: a communal day-care organization (N = 364), an insurance company (N = 334), a logistics organization (N = 488), a retail company (N = 175), a finance organization (N = 211) and several small and medium-sized organizations (N = 129). The combined sample offers a broad representation of the service sector and enhances statistical power in estimation. Participants were informed about the nature of study. Responding to the survey required employees to evaluate the behavior of their supervisors, and therefore the employee respondents were assured that their responses would remain confidential and the research team would held the data. Participants presented their written informed consent by submitting the completed survey. Ethical approval for the study was exempted by the University of Vaasa Human Science Ethics Committee as participation in the research did not deviate from the principles of informed consent, the research did not intervene in the physical integrity of adult participants or expose them to strong stimuli. Furthermore, the research did not involve a risk for causing mental harm or threat to the safety of participants.

The majority of respondents (68%) were female, which is explained by the fact that almost all employees at the day-care organization were women (97%). However, the sample represents the gender distribution of the whole Finnish service sector (Statistics Finland, 2010). The age of the respondents varied between 18 and 66, with an average of 42.0 years (SD = 12.0). Almost one-third (29%) had a higher-level education, and a strong majority of the respondents (81%) held a permanent position. The average tenure with the current employer was 11.0 years (SD = 11.1), while the majority of the respondents had worked with their current supervisor for a relatively short time: 40% for less than one year and only 8% for over seven years, while 10% held a supervisory position.

Measures

Leader-member exchange (LMX) was assessed with a validated nine-item LMX-UVA scale (Tanskanen et al., 2019) that updates previously applied scales (e.g. LMX-7) and, for example, focuses more on the exchange between parties. Subordinates recorded responses on the Finnish LMX-UVA scale with a 7-point Likert scale anchored with *fully disagree* (1) and *fully agree* (7). Items included: 'We trust each other'. The internal consistency of the scale was excellent (Cronbach's α=.97).

Vigor, dedication, and absorption were measured with the validated nine-item Finnish version of the Utrecht Work Engagement Scale (Seppälä et al., 2009). All dimensions were assessed with three items, and the responses were recorded on a scale ranging from *never* (0) to *every day* (6). Example items from the scales are 'At work, I feel bursting with energy' (vigor); 'I am enthusiastic about my job' (dedication) and 'I am immersed in my work' (absorption). The internal consistencies of the scales were good (Cronbach's α= .85 to .90).

Effort and *reward* were measured with the ERI questionnaire developed by Siegrist et al. (2004), which has also been validated in a Finnish sample (Kinnunen et al., 2008). Five items measured effort (e.g. 'I have constant time pressure due to a heavy workload') and 11 items measured reward through esteem, career opportunities, and job security (e.g. 'I receive the respect I deserve from my superiors'). All items were measured with a 4-point Likert scale anchored with *fully disagree* (1) and *fully agree* (4). The effort (Cronbach's α=.70) and reward (α=.81) were internally consistent for both scales. The interaction term between effort and reward was calculated utilizing centred variables.

Analytical strategy

Confirmatory factor analysis of the measurements produced an adequate model fit ($\chi 2(512) = 3364.91$, $p<.001$; RMSEA= .06; SRMR= .07; CFI = .90; TLI= .90) according to a standard cut of values (L. Hu & Bentler, 1999). First, the connections between study variables were examined at a descriptive and correlational level. Then a moderated mediation path model was estimated. The imbalance between effort and reward has been operationalized in previous studies mostly as a ratio of effort and reward (effort/

reward) but also with the interaction term (effort*reward) or as latent profiles. This study utilizes the interaction term approach as it allows the examination of the main effects of effort and reward and whether the balance of effort and reward has explanatory power over and beyond the main effects (Allisey et al., 2012; Gorgievski et al., 2019). The path model utilized observed variables and was adjusted with possible confounders gender, age, tenure, LMX-tenure, supervisory position, and organization as they have been connected with the study variables (e.g. Garg & Dhar, 2017; Gerstner & Day, 1997; Hulkko-Nyman et al., 2012; Inoue et al., 2013). The path model was analysed with MPlus 8.3 software (Muthén & Muthén, 2017) utilizing a robust maximum likelihood estimation. A complex survey data (COMPLEX) procedure was applied as the data were clustered in work units (N = 215). The main study variables had little missing data (1.1–1.6%), but the adjusting variables had more missing values and therefore, a full information maximum likelihood estimation was applied. The confidence intervals of the indirect effects and indexes of moderated mediation were calculated with a bias-corrected bootstrap procedure with 1000 iterations.

Results

The level of work engagement dimensions and specifically LMX, were generally satisfactory (see Table 1). Employees in the sample reported that at the average level, reward earned slightly outweighed effort made. LMX was positively correlated with work engagement dimensions and particularly with reward (r=.56).

The estimated path model was saturated and therefore had a perfect fit to the data. Figure 1 presents the results from the model explaining the variances of work engagement dimensions (R^2=0.24–0.33) and reward (R^2=0.39) relatively well but effort only modestly (R^2=0.13). Hypothesis 1 was rejected as LMX had

Table 1. Descriptive statistics of the main study variables.

	Mean (SD)	1	2	3	4	5	6
1. LMX	5.56 (1.24)	α =.97					
2. Vigor	4.75 (1.22)	.36***	α =.87				
3. Dedication	4.67 (1.41)	.37***	.82***	α =.90			
4. Absorption	4.61 (1.41)	.31***	.69***	.77***	α =.85		
5. Reward	2.82 (0.48)	.56***	.44***	.46***	.34***	α =.81	
6. Effort	2.73 (0.59)	−.16***	−.15***	−.02	.03	−.29***	α =.70

Note. Means, standard deviations, Cronbach's alphas (on the diagonal) and correlations.
***p<.001.

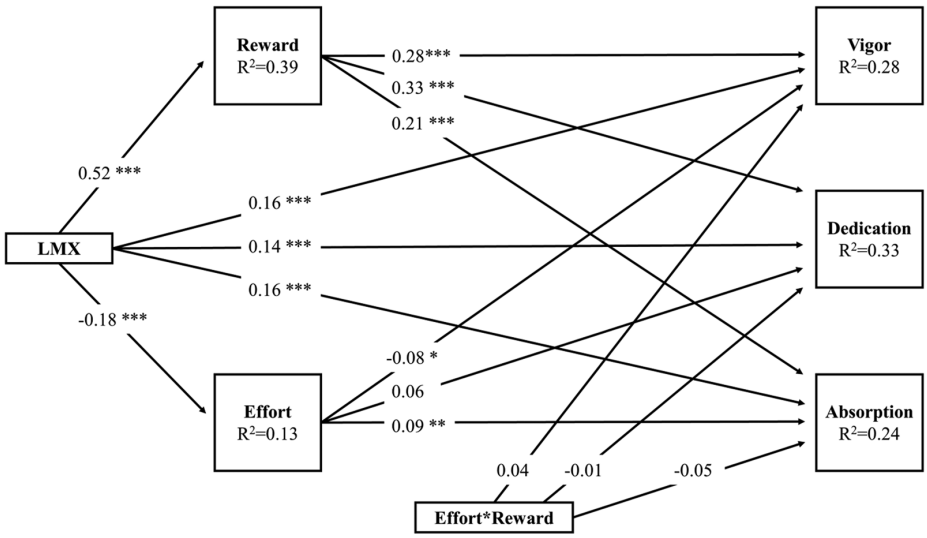

Figure 1. Standardized path coefficients between main study variables.

Table 2. Support for hypotheses.

Hypothesis	Support for hypothesis
H1: LMX is positively connected with effort.	Not supported
H2: LMX is positively connected with reward.	Supported
H3a: Effort is negatively related to vigor and dedication.	Partially supported
H3b: Effort is positively related to absorption.	Supported
H4: Reward is positively related to all dimensions of work engagement and most strongly with vigor and dedication.	Supported
H5: A combination of high effort and low reward is associated with the lowest level of vigor, dedication, and absorption.	Not supported
H6a: LMX has a negative indirect effect on vigor and dedication through effort.	Not supported
H6b: LMX has a positive indirect effect on absorption through effort	Not supported
H7: LMX has a positive indirect effect on vigor, dedication and absorption through reward.	Supported
H8: LMX has a negative indirect effect on vigor, dedication and absorption through effort, particularly when reward levels are low.	Not supported

a negative connection with effort (β=-0.18), but LMX had a significant positive connection with reward (β = 0.52), which supported Hypothesis 2. Effort had a negative association with vigor (β=-0.08) and positive associations with absorption (β = 0.09). Unexpectedly, effort was not significantly associated with dedication. Accordingly, Hypothesis 3a, stating that effort has a positive association with vigor and dedication, was partially supported, and Hypothesis 3b predicting a positive relationship between effort and absorption, was also supported. Reward was significantly and positively connected with vigor (β = 0.28), dedication (β = 0.33) and absorption (β = 0.21), which supported Hypothesis 4.

The interaction terms between effort and reward were small (β=-0.05–0.04) and nonsignificant for vigor, dedication and absorption. Therefore, Hypothesis 5 was not supported. The results of the path model indicated that besides the direct connections with vigor (β = 0.16), dedication (β = 0.15) and absorption (β = 0.16), LMX also had an indirect effect on work engagement dimensions through effort and reward. The analysis indicated that LMX had a significant, but very weak, positive indirect effect on vigor (b = 0.01, 95% CI: 0.00 – 0.03) and a negative indirect effect on absorption (b = -0.02, 95% CI: -0.03 – -0.01) via effort. The indirect effect on dedication was not significant. Accordingly, neither Hypothesis 6a nor 6b was supported. However, Hypothesis 7 was supported as LMX had a significant indirect effect on vigor (b = 0.14, 95% CI: 0.11 – 0.17), dedication (b = 0.19, 95% CI: 0.15 – 0.24), and absorption (b = 0.12, 95% CI: 0.08 – 0.16) through reward. The analysis of moderated mediation revealed that reward did not moderate the indirect effect between LMX and vigor, dedication or absorption through effort. Moreover, all 95% confidence intervals of indexes of moderated mediation included a zero (vigor: IMM=-0.01, 95% CI: -0.04 – 0.01; dedication: IMM = 0.00, 95% CI: -0.02 – 0.03; absorption: IMM = 0.02, 95% CI: -0.01 – 0.05). According to Hayes (2015), if the index of moderated mediation is not significant (the confidence interval includes a zero), then the simple slopes of indirect effects do not differ significantly either. Therefore, Hypothesis 8 was not supported. The support for each hypothesis is presented in Table 2.

Discussion

This study extended the available literature by connecting LMX with the work engagement dimensions of vigor, dedication, and absorption and investigating a mechanism explaining these connections. The path analysis revealed that a high-quality LMX relationship was connected to an employee experience of reduced effort and greater reward, which in turn partially mediated the positive relationship between LMX and vigor, dedication and absorption.

Contrary to expectations, the connection between LMX and effort was negative. There are however some concurring prior empirical evidence (e.g. Hesselgreaves & Scholarios, 2014; Muldoon et al., 2012). It is therefore possible that those in high-quality LMX relationships actually make less effort. They may feel safe at work owing to their good relationship with their supervisor, and rather than proving themselves and reciprocating by working hard, as LMX theory states, they may work at a lower intensity. For example, employees who already experience their LMX relationship to be high-quality might not anymore feel pressure to work very hard as a way to develop the relationship and gain trust. On the other hand, high-quality LMX relationships have been connected to employee job crafting that decrease hindering job demands (Ji et al., 2023). Furthermore, in high-quality LMX relationships, supervisors should be aware

of the subordinate's effort level, and they can influence on the job demands and ensure that the pressure does not rise too far (Decuypere & Schaufeli, 2020; Sonnentag & Pundt, 2016; Tummers & Bakker, 2021).

However, it might be possible that employees in high-quality LMX relationships work hard and have a high level of job demands (e.g. Jiang et al., 2014), but do not perceive they are making a great effort. Several pathways can explain this association. First of all, LMX can influence attitudes to work and therefore, employees involved in a high-quality LMX might have a positive approach to the volume of job demands (Karanika-Murray et al., 2015). Furthermore, a leader's appreciation and support can mean effort is viewed differently (Bakker et al., 2007). Additionally, the LMX and social exchange theories (Cropanzano & Mitchell, 2005; Graen & Uhl-Bein, 1995) indicate that those in a high-quality LMX relationship feel obliged to reciprocate their benefits by making more effort. Such employees might, therefore, not consider the effort they expend at work to be overwhelming but just an acceptable price to pay for the reward gained from high-quality LMX-relationship. The negative correlation (r=-.29) between perceived reward and effort, which is usually observed in other samples as well (e.g. Hyvönen et al., 2010; Inoue et al., 2013; Kinnunen et al., 2008) supports those last interpretations.

In accordance with LMX theory (Dansereau et al., 1975; Graen & Scandura, 1987; Graen & Uhl-Bein, 1995; Liden et al., 1997) and previous research (Karanika-Murray et al., 2015), the LMX relationship was positively connected with reward earned. Resources are exchanged in every dyadic supervisor–subordinate relationship regardless of the quality of the LMX relationship, but in high-quality LMX relationships, more resources are exchanged, and therefore subordinates earn a greater reward.

Theoretical implications

This study contributed to the literature by examining the work engagement dimensions, which have not previously been studied in the LMX literature. Unsurprisingly, reward was strongly connected with work engagement dimensions, and the strongest effect was on dedication, followed by that on vigor, which is in line with previous research (Bakker et al., 2007; Hulkko-Nyman et al., 2012; Mauno et al., 2007). Reward was a far stronger predictor of vigor, dedication, and absorption than effort, and the results indicated that reward mediates the connection between LMX and work engagement dimensions particularly strongly. Overall, LMX had a distinct relation to vigor, dedication and absorption, particularly because of the indirect effects through effort. In addition to the indirect effects through reward and effort, the study identifies significant direct effects between LMX and the work engagement dimensions, which indicates that there are several other mediators/pathways in addition to reward and effort, explaining the connection between LMX and work engagement. Therefore, future LMX research should comprehensively examine the possible pathways to work engagement and other outcomes.

Effort had an expected negative connection to vigor and a nonsignificant effect on dedication but did enhance employee absorption, as found in previous studies (Koyuncu et al., 2006; Mauno et al., 2007). Understandably, making an effort reduces energy (vigor) levels as job demands are cognitively and physically taxing and also deplete resources (Spreitzer et al., 2010). However, an employee cannot be absorbed in work with little to do. Research offers mixed findings concerning the relationship between demands and work engagement, which Crawford et al. (2010) explained with two types of demands: challenges and hindrances. However, utilizing an overall unidimensional work engagement scale instead of examining vigor, dedication, and absorption separately could also explain the nonsignificant connection between effort and work engagement in the study of Hyvönen et al. (2010) and the nonsignificant relationship between job demands and work engagement usually found. Utilizing a unidimensional scale implicitly assumes that antecedents have a similar connection with every work engagement dimension. This study, however, indicates that effort has a negative effect on one dimension, a positive one on another, and no effect on the third. Accordingly, these contrasting effects could cancel each other out if examining the association of effort on unidimensional work engagement; a notion also supported by the small and nonsignificant correlation (r=-.046) between them. It is apparent that in addition to the type of antecedent, the work engagement dimension also determines the connection. Therefore, more research focusing on the predictors and outcomes of work engagement is merited.

The main premise of the ERI model is that the combination of high effort and low reward has a greater influence on outcomes than the separate main effects of effort and reward alone (Siegrist, 1996).

However, contrary to the predictions of the ERI model, the current analysis revealed no interaction effects between effort and reward on work engagement dimensions. Accordingly, instead of the balance of effort and reward, the separate effects of effort and particularly of reward were important in explaining work engagement, which was also the case in the studies of Inoue et al. (2013), Tse et al. (2007) and Wolter et al. (2021). Previous ERI studies have rarely investigated whether an imbalance of effort and reward is actually relevant (see Allisey et al., 2012; Gorgievski et al., 2019; Kunz, 2019; Tse et al., 2007), but many studies that have examined the significance of imbalance have concluded that imbalance does not explain the outcome beyond the separate main effects of effort and reward (Kunz, 2019; Gorgievski et al., 2019; Preckel et al., 2007; Kinman, 2019). These results suggest that the ERI model might be unnecessarily complicated, and more parsimonious models, such as the JD-R, could be preferable.

As a robustness check for this finding that is contrary to the ERI model, we performed additional analyses utilizing the ERI ratio (effort/reward) instead of the interaction term of effort and reward (effort*reward). The ERI ratio was analysed with the main effects of effort and reward and without them, which is typical in the ERI literature. The logarithm of the ERI ratio was utilized in the analysis as suggested by (Kinnunen et al., 2008; Siegrist et al., 2004). In the additional analyses, the ERI ratio was not significantly related to vigor, dedication, or absorption when the main effects of effort and reward were controlled for. Furthermore, when analysing just the ERI ratio, the coefficients of determination (R^2) regarding work engagement dimensions were lower than in the main model of the study, indicating that the main effects of reward and effort explained the work engagement dimensions better than the ERI ratio. Accordingly, the robustness analyses supported the main analysis.

Limitations and future directions

The current study is not without its limitations. The study was based on self-reports, which are sometimes the most appropriate option to obtain data, for example, when studying affective, attitudinal, perceptual, or other internal states of the subjects (Spector, 2006). Self-report measurements can prompt concerns over common method variance, but the questionnaire used clearly separated the measurements proximally on different themes. The measures also have different scale anchors and numbers of scale points (Podsakoff et al., 2003). However, future studies should utilize an objective measurement technique to complement personal evaluations of effort and reward.

The current study also followed previous research and assumed all the examined relationships were linear, which might not be the most realistic assumption. It is also likely that at least some of the connections studied are bidirectional. Effort and especially reward should enhance an LMX relationship (Dulebohn et al., 2012), and high levels of work engagement probably lead to enhanced effort and reward. Even though, several possible confounders have been adjusted in the analysis, the cross-sectional data do not permit an examination of bidirectional or causal effects. Therefore, future research should apply longitudinal designs and causal modelling.

The study sample was a broad representation of the Finnish service sector. Because the measurements were not specifically related to service work and were rather general, the results can, to some extent, be generalized to other sectors as well, but research would benefit if the analysis were expanded to a wider range of sectors and to different kinds of jobs.

Practical implications

The most obvious practical implication for organizations and supervisors is the importance of social relationships and the well-being of employees in the workplace. Engaged employees experience positive emotions such as happiness and joy and have better health (Bakker et al., 2014). Furthermore, work engagement has been connected with several positive organizational outcomes, such as organizational citizenship behavior, good performance, and lower turnover intention rates (Christian et al., 2011). Supervisors should try to create as many high-quality LMX relationships as possible. Moreover, organizations could enhance such effort by training leaders in the LMX concept, active listening skills, reflecting on the negative and positive components of relationships with each follower, and discussing the leader's

expectations and the resource and reward needs of the followers (e.g. Scandura & Graen, 1984). However, a concern is evident in the LMX literature that time and other resource constraints prevent a supervisor from establishing high-quality LMX relationships with each subordinate. In that case, the levels of mediating variables (effort and reward) could be more easily manipulated in organizations, which would result in positive outcomes even for those with a low-quality LMX relationship. The results of the study indicate that employee effort is not purely negative or positive predictor of employee work engagement. High effort can increase absorption, but simultaneously decrease vigor. Furthermore, according the analysis the negative effect of effort cannot be mitigated with reward. However, reward were strongly associated with all dimensions of work engagement and therefore rewarding in terms of salary, career opportunities, recognition, appraisal, support and fair treatment should be given attention in organizations. Accordingly, organizations could benefit from assigning sufficient positional power and resources to supervisors to reward employees. Reward are also important in the development process of LMX relationships (Graen & Scandura, 1987; Graen & Uhl-Bein, 1995; Liden et al., 1997). Future research would benefit from examining subtly the dynamic and intertwined development of LMX relationship and rewarding.

Conclusions

This study reinforces the empirical evidence connecting LMX with work engagement and contributes to the literature by showing that the relationship can be partly explained by the employee effort and reward concept. In addition to investigating relevant mechanisms, the study examines work engagement dimensions and the combined effect of effort and reward. A good leader-member exchange relationship can decrease subordinates' perceived level of effort and increase their perceived level of reward, which are, in turn, connected to all dimensions of work engagement.

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Data availability statement

The data that support the findings of this study are available upon reasonable request from the author. The data are not publicly available due to their containing information that could compromise the privacy of research participants.

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