



# How and When Environmental Transformational Leadership Enhances Employee Well-being: a Moderated Mediation Model

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Accepted: 21 November 2023

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## Abstract

Leveraging the Conservation of Resources theory and Job Demands-Resources model, this study explores how Environmental Transformational Leadership (ETL) affects Workplace Well-Being (WWB) through the mediating influence of Work Meaningfulness (WM). Additionally, it examines the moderation effects of Leader–Follower Value Congruence (LFVC) and Person-Group Fit (PGF). Data from 271 US industrial employees spanning multiple management levels reveal ETL’s indirect effects on WWB via WM. LFVC serves as a moderating factor, regulating ETL’s indirect influence on WWB. Similarly, PGF moderates the relationship between WM and WWB. Strategies that appoint environmentally conscious leaders can enhance WWB through an uplift in WM. Moreover, strengthening LFVC and PGF yields positive results as they augment leadership and reinforce the beneficial ETL-WM-WWB dynamic. The paper concludes with insights for future research, alongside discussions on study limitations and implications.

**Keywords** Environmental Transformational Leadership · Workplace Well-Being · Work Meaningfulness · Leader–Follower Value Congruence · Person-Group Fit

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## Introduction

Unchecked consumption of natural resources and destructive corporate practices have led to 6.8 deaths per year due to air pollution (Landrigan et al., 2018). This is despite the fact that the United Nations adopted the term ‘sustainability’ in 1987, which means meeting the current needs of generations without compromising the needs of future generations. The United Nations created 17 Sustainable Development Goals (SDGs) to deal with environmental changes (United Nations, n.d.), where Goal 3, ‘excellent health and well-being,’ promotes access to health services and works to minimize pollution-related diseases. This goal has a unique significance since it relates to subsequent goals such as goal 7, ‘affordable and clean energy’ (Liao et al., 2021), and goal 8, ‘decent work and economic growth.’ (Kreinin & Aigner, 2022); goal 11, ‘sustainable cities and communities’ (Cloutier et al., 2014); goal 12, ‘responsible consumption and production’ (Farber, 2012); and goal 13, ‘climate action’ (Budolfson et al., 2021), sustaining social justice, and environmental protection.

Research on workplace well-being (WWB) has increased steadily in recent years (Diener et al., 2018; Kowalski & Loretto, 2017). The rise of this practice can be attributed to research showing that content workers are more effective workers (Miller, 2016). On the other hand, leadership has always been a subject of interest among scholars and researchers for decades (By et al., 2023; Fuller et al., 2022; Malibari & Bajaba, 2022). Recent years have witnessed an increasing focus on leadership’s role in ensuring employee WWB, a phenomenon increasingly becoming a concern for organizations today (Bhuyan & Caldwell, 2023). For example, studies have indicated that Transformational Leadership (TL) significantly impacts employee WWB (Caputo et al., 2023; Ehrnrooth et al., 2023). In this regard, the concept of Environmental Transformational Leadership (ETL) has been introduced to address the growing need for organizations to foster a sustainable work environment that considers environmental sustainability practices (Robertson, 2018). While these mentioned studies shed light on the impact of TL on employees’ WWB, no earlier studies have examined the impact of ETL on WWB and the mechanisms that may mediate this impact, such as Work Meaningfulness (WM). Moreover, the leader’s effectiveness relies on other surrounding factors or contexts (Mahmood et al., 2019). Therefore, investigating the ETL impact on WWB necessitates a holistic approach by integrating more variables, such as Leader–Follower Value Congruence (LFVC) and Person–Group Fit (PGF), in order to examine how and when ETL and WWB relationships may be affected. Therefore, given previous research gaps, this study offers a unique perspective and fills in those gaps by examining these relationships in an important business sector, such as the industrial sector, which is characterized by extensive use of energy and violating environmental regulations, which in turn limit the achieving of UN SDG.

This study seeks to elucidate the influence of ETL on employees’ WWB, taking into account the mediating effect of WM and the potential moderating impacts of LFVC and PGF. The central research inquiry we address is: How and through which mechanisms does ETL affect WWB? Our research extends both theoretical and practical frontiers. From a theoretical perspective, it enriches the existing body of knowledge surrounding ETL, WM, LFVC, PGF, and WWB. In our pursuit to provide a comprehensive understanding of WWB, we integrate the frameworks of the Job Demands–Resources (JD–R) and Conservation of Resources (COR) theories. This integration allows for a nuanced exploration of the direct, indirect, and moderated relationships among the variables in our proposed model. A significant emphasis of our work lies in the examination of the moderating effects of LFVC

and PGF, illuminating their pivotal roles in shaping the dynamics between ETL, WM, and WWB. This nuanced understanding serves not only a theoretical purpose but also holds profound practical implications. Organizations stand to gain actionable insights from our findings, paving the way for strategies to bolster WWB. In essence, our research provides a rigorous, scientific framework for understanding the intricate interplay between these variables, offering a foundation upon which organizations can build while addressing potential concerns or reservations from stakeholders.

Literature reviews, formulation of hypotheses, and the research framework will be discussed in the following sections, followed by methodology and results. Finally, it presents the limitations and suggestions for future research.

## Literature Review

### Theoretical Background

This paper investigates ETL and WWB by considering the roles of WM, LFVC, and PGF using multiple theoretical backgrounds, namely, Job Demands-Resources (JD-R) (Bakker & Demerouti, 2007), and Conservation of Resources (COR) theory (Hobfoll, 1989). This approach seemed more appropriate for examining ETL and WWB because these constructs contain varied dimensions and antecedents and exhibit varying complex behaviors and decisions across various organizational levels (McIvor & Bals, 2021). Among a variety of factors, managers' leadership orientation, LFVC, WM, and PGF play a pivotal role in this context.

According to the JD-R model, when job demands are high, and neither the job's nor the employee's positive resources (such as the opportunity to learn, practice new skills, take on meaningful work, get constructive criticism, and see immediate results from their efforts) are plentiful, the job performance would suffer, stress, and burnout increase. Conversely, higher job resources can offset the effects of high job demands and could contribute to WWB (Bakker & Demerouti, 2007). In this endeavor, some studies (Munir et al., 2012; Nielsen & Daniels, 2012; Nielsen et al., 2008; Schmidt et al., 2014) lie on the JD-R theory and suggest that resources/work characteristics and individualized consideration mediated the relationship between TL and WWB, as TL has the potential to influence psychological resources/working conditions by controlling the workload, job conditions, and feedback rewards system (Hobfoll, 1989), which in turn influence WWB. Robertson and Barling (2013) expand the TL concept to include target-specific themes by taking an environmental perspective. Accordingly, they describe the ETL as an extension of TL where the supporting of environmental actions and initiatives is the main focus of ETL. Based on that, the impact of ETL on WWB could lie in JD-R theory since ETL is an extension of the TL concept.

Moreover, COR theory explains human behavior built on the evolutionary necessity to acquire and conserve resources for surviving (Hobfoll, 1989), as well as how individuals can acquire and build a bank of resources that contribute to not only guarding against ill health but also improving overall well-being (Clarke et al., 2015). Due to the multiplicative nature of resources and the ease with which they may be combined or connected, resource accumulation is a natural byproduct of possession (Hobfoll, 2001). When one's reserves are high, he will be in a better position to invest more resources. Conversely, when one's reserves are low, he will focus on protecting what is left rather than expanding them.

As a result, both resource consumption and investment result in ever-increasing returns (Clarke et al., 2015), creating a self-perpetuating cycle of losses and profits. COR theory provides some insight regarding the confusion about the nature of the relationship between ETL, putative mediators, and WWB. Hobfoll (2001) recognizes the 'feeling that my life is meaningful' as a personal resource. Therefore, COR theory explains the impact of ETL by showing that people naturally want to get their hands on more resources. Thanks to the ETL's efforts, a resource canvas (e.g., providing work purpose and job clarity) will be established, which will improve WWB as a whole.

## Environmental Transformational Leadership and Work Meaningfulness

Robertson and Barling (2013) describe the ETL as an extension of TL where the supporting of environmental actions and initiatives is the main focus of ET. It involves similar behaviors associated with TL with a concentration of environmental dimension. More precisely, the Environmental Idealized Influence (EII) consists of the leader's ethical responsibility to preserve the environment and actual actions that show his followers how to behave in an environmentally friendly manner. In Environmental Inspirational motivation (EIM), followers are passionately motivated to ignore self-interests to create a pro-environmental vision that goes beyond their own interests. Environmental issues are creatively addressed through Environmental Intellectual Stimulation (EIS) by challenging long-held assumptions about current practices. In Environmental Individualized Consideration (EIC), the leader is responsible for building relationships with followers to help them positively impact the environment (Robertson & Barling, 2013). ETL posits that leaders should be stewards of environmental resources and advocate for establishing sustainable organizational practices, prioritize environmental sustainability, and aim to influence their followers to make beneficial, sustainable decisions for the environment. By doing so, ETL creates an enabling work environment that fosters environmental citizenship behavior among employees and ultimately leads to enhanced sustainable performance (Althnayan et al., 2022).

On the other hand, WM is a critical concept in contemporary organizational settings that interpret the significant interest in understanding the concept of WM and its impact on organizational outcomes (Vuori et al., 2012). According to Rosso et al. (2010), WM is a subjective concept that refers to the degree to which individuals perceive their work as valuable, significant, and purposeful. It is also characterized by a sense of identity, purpose, and personal fulfillment for the individual performing the task. They identified three core components of work meaningfulness: autonomy, impact, and purpose. Autonomy refers to the extent to which employees have control over their work and decision-making; Impact refers to the perception that one's work has a positive effect on others or the world; and purpose refers to the belief that one's work is meaningful and aligns with one's values and goals. Previous studies asserted the positive correlation between environmental sustainability and WM. Glavas (2012) revealed that when employees perceive their work as meaningful, their effort toward the environment is enhanced.

While there is a severe lack of study on the impact of ETL on WM, it can be argued that ETL can play a significant role in the creation of WM since the ETL style involves the integration of organizational goals with sustainable environmental practices, thereby leading to a workplace environment that fosters a sense of purpose and impact among employees. By doing so, ETL creates a working environment that enhances WM for employees because it enhances the perception that one's work has a positive effect on others or the world environment, the belief that one's work is meaningful and aligns with one's values and goals,

and develop a sense of pride in their work, leading to an increase in WM. The following hypothesis is formulated:

H1: *ETL is positively related to WM.*

## **Environmental Transformational Leadership and Workplace Well-being**

WWB is an increasingly important area of research as organizations recognize the benefits of prioritizing the WWB of their employees. It encompasses many dimensions, such as physical, emotional, and social well-being (Thompson & Bates, 2009), and refers to employees' physical, mental, and emotional health and happiness in their work environment (Warr, 2002), including job satisfaction, low-stress levels, cohesion, respect, dignity, and equal opportunities for all employees (Harter et al., 2010) that shape and enhance the perceived WWB among employees (Goetzel et al., 2014). A workplace environment that promotes work-life balance, positive relationships, and healthy habits has been identified as crucial to employees' overall well-being and adds value to the organization (Zwetsloot & Leka, 2010).

Much research has been done recently to explore the facets that can promote WWB. Bakker et al. (2007) found that employees who experienced high levels of job resources, such as opportunities for growth and development, social support, and feedback, reported greater job satisfaction and work engagement, which have been linked to higher levels of WWB. Similarly, Saks and Gruman (2014) found that supportive work climates, which promote teamwork, trust, and respect among colleagues, were associated with WWB.

Numerous workplace interventions have been identified as effective in promoting WWB, such as mindfulness training (Jamieson & Tuckey, 2017), health promotion programs (Danna & Griffin, 1999), and workplace interventions that focus on promoting job crafting or allowing employees to shape their job duties and responsibilities (Wrzesniewski & Dutton, 2001). This approach allows employees to have greater control over their work environment and fosters a sense of ownership, which leads to greater WWB.

ETL enhances WWB for many reasons: the mutual trust and respect between leaders and followers due to EII forms the basis for a good social relationship, enhancing WWB (Bradburn, 1969). Moreover, ETL, through their EIM, provides motivational energy to the employees in order to strengthen their understanding of environmental interest and attributes the meaning to do the right things, which, in turn, contributes to positive emotions among them (Ryff & Keyes, 1995), and enhances WWB (Chaiklin, 1989). Additionally, the ETL, through their EIS, offers employees the opportunity to shape their workplace and further personal development, which influences WWB (Bradburn, 1969). Finally, ETL activates EIS by assigning employees tasks they can perform, increasing WWB (Chaiklin, 1989).

Moreover, leadership is concerned with employee performance and determines WWB (Bakker & Demerouti, 2018; Fransen et al., 2020; Inceoglu et al., 2018). Therefore, based on JD-R theory, leadership is an organizational resource that can significantly enhance WWB (Bakker & de Vries, 2021; Salas-Vallina et al., 2021). This highlights the significance of leadership as a tool for sustaining attention on WWB. TL improves WWB by making the job demand, and available resources complement each other. (Klaic et al., 2018). Based on these arguments, the following hypothesis is formulated:

H2: *ETL is positively related to WWB.*

## Work Meaningfulness and Workplace Well-being

WM is a concept that refers to the degree to which employees find their work personally meaningful and significant (Rosso et al., 2010). WM is an important factor in promoting WWB as it positively impacted job satisfaction, work engagement (Steger et al., 2012), employee performance (Grant et al., 2008), organizational commitment, low burnout (van Wingerden & van der Stoep, 2017), task completion, commitment to work, and social support (Harzer & Ruch, 2014), where all of these are aspects of WWB.

For instance, Rosso et al. (2010) found that employees who perceive their work as meaningful are more likely to be satisfied, productive, creative, innovative, and experience less stress. Therefore, they are more likely to stay with their organization and have lower turnover intentions. Van Wingerden and van der Stoep (2017) found that WM was related to high levels of work engagement and low levels of burnout. Similarly, Harzer and Ruch (2014) found that WM was positively related to task performance, job dedication, interpersonal facilitation, and organizational support, which in turn predicted higher levels of WWB (Caesens et al., 2016; Narainsamy & van Der Westhuizen, 2013; Robinson & Spitze, 1992; Sortheix & Lönnqvist, 2015).

In addition to these psychological outcomes, WM has also been linked to physical health outcomes, such as less stress and better physical health, because WM allows individuals to feel a sense of control and purpose in their work, which can translate to lower stress levels and better health outcomes (Roepke et al., 2014), which in turn increase WWB (Kerckänen et al., 2004). Based on this argument, the following hypothesis is presented:

H3: *WM is positively related to WWB.*

## The Mediating Role of Work Meaningfulness

As previously discussed, both ETL and WM are important predictors of WWB. However, little is known about the mediating role of WM in the relationship between ETL and WWB. Therefore, knowing the underlying mechanisms that link these two variables is crucial.

ETL creates a positive work environment that values employees' well-being, safeguards organizational resources, and fosters environmental sustainability (Eisenbeiss et al., 2008) by influencing organizational members' perceptions, attitudes, and behaviors to create environmentally responsible outcomes (Althnayan et al., 2022). Numerous studies indicate the positive association between ETL and various employee outcomes, including job satisfaction (Berson & Linton, 2005), organizational commitment (Koo et al., 2017), innovative behavior (Zhu et al., 2022), and environmental performance (Sobaih et al., 2022). On the other hand, WM is considered vital for employees' WWB. According to Rosso et al. (2010), when employees derive meaning from their work, they experience reduced stress and absenteeism while displaying increased organizational commitment and job satisfaction. Research suggests that employees' appraisals of WM are influenced by the degree to which they perceive their work-related values and goals to align with the organization's mission (Rosso et al., 2010). WM has been shown to moderate the relationship between work characteristics and job satisfaction, with job resources being more effective in enhancing job satisfaction when employees find their work meaningful (Tims et al., 2013). WWB is a multidimensional concept that includes several dimensions: job satisfaction, organizational commitment, work engagement, and work-life balance (Breevaart et al., 2016).

As literature and empirical studies assert, work characteristics partially mediated the relationship between TL and WWB in the short term and fully mediated it in the long run (Nielsen et al., 2008). Munir et al. (2012) outlined the positive perception of work-life balance in the relationship between TL and WWB because TL, through the distinct feature of IC, attends to the followers' needs by playing the role of a mentor. Ghadi (2017) suggests that WM mediates the positive association between TL and job satisfaction.

As illustrated by the COR theory, Employees working to maximize the ETL's resource gains will eventually produce a resource canvas (WM), which will, in turn, contribute to the organization's WWB as a whole. Hobfoll (2001) identified the 'feeling that my life is meaningful' as a personal resource under COR theory. Accordingly, ETL enhances WWB by helping employees gain WM as a resource. Therefore, the following hypothesis is formulated:

H4: *WM mediates the relationship between ETL and WWB.*

### **The Moderating Role of Leader–follower Value Congruences in the Relationship between Environmental Transformational Leadership and Work Meaningfulness**

Although ETL leads to a workplace environment that fosters a sense of purpose and impact among employees, promotes a positive work effect toward the environment, enhances the beliefs that align with employee's values and goals, and develops a sense of pride in their work, which all are leading to an increase in WM. The literature indicates that TL is significantly associated with various positive outcomes, including job satisfaction, organizational commitment (Sudiarta, 2018), and WM. Moreover, ETL, as an expansion of TL, creates a sense of shared purpose and commitment among followers toward achieving environmental goals, which leads to better organizational performance (Rahmatullah et al., 2022). However, sometimes more than ETL is needed to ensure WM due to contextual factors. This led to the question of which contextual factors may enhance the ETL's positive impact on WM. In this case, the LFVC acquires special importance.

LFVC refers to the degree of similarity between the values and beliefs of leaders and their followers (Ashkanasy & O'Connor, 1997). When there is high-value congruence, leaders and followers have similar values, attitudes, and beliefs, creating an environment where individuals feel valued and respected. These conditions foster increased job satisfaction and organizational commitment (Byza et al., 2019), trust, and overall job performance (Locke & Latham, 2013) and enhance communication and cooperation between leaders and followers (Boonzaier, 2008).

Research has also identified three mechanisms that may explain how LFVC moderates the relationship between ETL and WM. First, LFVC may enhance the sense of psychological safety among followers, facilitating communication and cooperation with their leader (Boonzaier, 2008). Second, it may create a more positive social relationship between ETL and his followers, facilitating learning and growth (Locke & Latham, 2013). Finally, it may give followers a sense of personal validation and purpose, contributing to greater WM (Rosso et al., 2010). Based on this argument, the following hypothesis is presented:

H5: *LFVC moderates the positive relationship between ETL and WM, such that the positive relationship is stronger when LFVC is high (vs. low).*

## The Moderating Role of Person-group Fit in the Relationship between Work Meaningfulness and Workplace Well-being

PGF refers to the degree to which a person's characteristics, including values, personality, and work style, match the characteristics of the group or organization they are a part of (Kristof-Brown et al., 2005).

As previously discussed, employees who perceive their work as meaningful are more likely to be satisfied, productive, creative, and innovative, experience less stress (Rosso et al., 2010), have higher levels of work engagement and low levels of burnout (van Wingarden & van der Stoep, 2017), enhance task performance, job dedication, interpersonal facilitation, and organizational support (Harzer & Ruch, 2014), which in turn predicted higher levels of WWB (Caesens et al., 2016; Narainsamy & van Der Westhuizen, 2013; Robinson & Spitze, 1992; Sortheix & Lönnqvist, 2015). On the other hand, PGF is an important factor in WWB (Kristof-Brown et al., 2005).

While there is no empirical evidence examining the moderation role of PGF in the WM impact on WWB, it can be argued that PGF moderates and strengthens this impact. Firstly, employees with higher PGF are more likely to perceive their work as meaningful because this fit can provide a sense of purpose and fulfillment, leading to higher levels of WM. Secondly, higher PGF offers better coping with the stressors and demands that may threaten WWB. The support provided by a compatible work group, job requirements, and organizational values can buffer against stress and burnout, leading to increased WWB. Based on these assumptions, it can be hypothesized that PGF may act as a moderator in the relationship between WM and WWB. Specifically, the positive relationship between WM and WWB may be more robust due to the impact of PGF and vice versa:

*H6: PGF moderates the positive relationship between WM and WWB, such that the positive relationship is stronger when PGF is high (vs. low).*

### The Dual-Stage Model

Based on the earlier arguments, an integrated research model is suggested where WM is a mediator between ETL and WWB, LFVC is a moderator between ETL and WM, and PGF is a moderator between WM and WWB. The researcher suggests a moderated HE mediation hypothesis that LFVC and PGF moderate the indirect effect of ETL on WWB via WM and that this indirect effect is stronger when LFVC and PGF are higher.

Specifically, when the congruence between leader and followers is high, this would increase the meaning of work that ETL has already created for the employees. This meaningfulness leads to more well-being at the workplace, especially if employees enjoy fitting in with their colleagues. Accordingly, the researcher proposes the following hypotheses.

*H7: LFVC moderates the positive indirect relationship of ETL with WWB via WM, such that the positive indirect relationship is stronger when LFVC is high (vs. low).*

*H8: PGF moderates the positive indirect relationship of ETL with WWB via WM, such that the positive indirect relationship is stronger when PGF is high (vs. low).*

*H9: LFVC and PGF moderate the positive indirect relationship of ETL with WWB via WM, such that the positive indirect relationship is stronger when LFVC and PGF are high (vs. low).*

## Research Model

The main objectives of this study are to examine the indirect impact of ETL on WWB through the WM, the moderating the role of LFVC in the relationship between ETL and WM, and in the indirect relationship between ETL and WWB through WM, the moderating the role of PGF in the direct relationship between WM and WWB, and the indirect relationship between ETL and WWB through WM. The following figure (Fig. 1) illustrates the conceptual model.

## Research Methodology

### Sample and Data Collection

The study focuses on industrial firms in the USA, with participants being full-time employees aged 18 and above, all possessing at least a high school diploma. They are integral to companies that have investments in the industrial sector. Our research methodology is quantitative in nature, with a questionnaire serving as the primary tool for data collection and the collected data subsequently undergoing statistical analysis. The main focus of our analysis is on currently employed full-time employees across varied organizational tiers.

We sourced our respondents through a cloud research website, recognized by Douglas et al. (2023) as one of the premier online platforms delivering high-quality data for surveys. The choice of random sampling ensures that every potential respondent has an equitable chance of participating. Out of 271 participants, 72.3% were male and 27.7% were female. A significant portion, 67.2%, hold a bachelor's degree or a higher qualification. Furthermore, 66.4% of these respondents have accumulated nine or more years of professional experience. Additionally, while 24% have worked under their current leadership for over six years, 37.3% have remained with their present employer for a similar duration.

We have included a more structured representation of the sample demographic details in Table 1. This table presents a breakdown of the sample characteristics, helping to contextualize our findings and offering insights into their generalizability.

### Variables Measurement and Questionnaire Design

In order to evaluate and analyze the descriptive and inferential relationship between all constructs under consideration, this study uses SPSS 21 software. The questionnaire

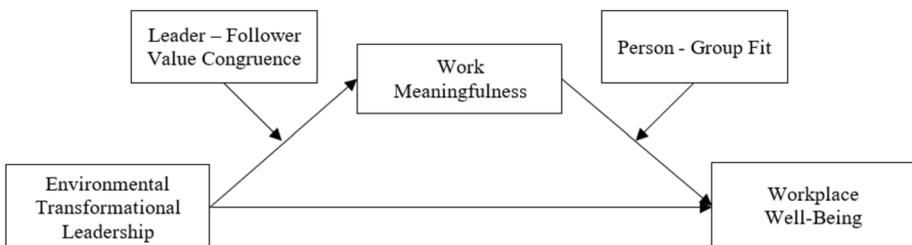


Fig. 1 Research model

**Table 1** Sample Characteristics

	Frequency (N=271)	Percentage
<b>Gender</b>		
Male	196	72.3%
Female	75	27.7%
<b>Age</b>		
20–29	63	23.2%
30–39	107	39.5%
40–49	59	21.8%
50–59	32	11.8%
60 and above	10	3.7%
<b>Educational Level</b>		
High School	61	22.5%
Associate Degree	28	10.3%
Bachelor	136	50.2%
Master	35	12.9%
Doctorate	11	4.1%
<b>Work Experience</b>		
Less than 1	1	0.4%
1–9 years	90	33.2%
10–19 years	91	33.6%
20–29 years	55	20.3%
30 years and more	34	12.5%
<b>Tenure With Leader</b>		
Less than 6 months	0	0.0%
6 months – 1 year	36	13.3%
1 – 3 years	106	39.1%
3 – 6 years	62	22.9%
More than 6 years	67	24.7%
<b>Tenure With Company</b>		
Less than 6 months	0	0.0%
6 months – 1 year	24	8.9%
1 – 3 years	71	26.2%
3 – 6 years	74	27.3%
More than 6 years	102	37.6%

employed a 5-point Likert scale extending from 1 ‘strongly disagree’ to 5 ‘strongly agree’ so that participants could indicate how much they agreed or disagreed with each statement. Participation was optional, and the responses of participants were kept anonymous.

*ETL Measure:* The Robertson (2018) twelve-item scale was used in this study. Sample items include ‘My leader acts as an environmental role model’ and ‘My leader encourages me to think about environmental issues in different ways.’ The Cronbach’s Alpha ( $\alpha$ )=0.97.

*LFVC Measure:* Cable and Derue (2002) developed a three-item scale that Yue et al. (2022) applied. Items include ‘The things that I value in a job are very similar to the things that my immediate manager values.’ and ‘My work values match my immediate manager’s work values.’ ( $\alpha$ )=0.94. *WM Measure:* The study used the Ten-item scale developed by

Steger et al. (2012). The sample items include 'I have found a meaningful career.' and 'The work I do serves a greater purpose.' ( $\alpha$ )=0.95. *PGF Measure*: Vogel and Feldman (2009) developed Five items for PGF. The sample items include 'Working with my group is one of the best parts of this job.', Furthermore, 'If I had more free time, I would enjoy spending more time with my co-workers socially.' ( $\alpha$ )=0.88. *WWB Measure*: Zheng et al. (2015) developed six items for WWB. The items include 'I am satisfied with my work responsibilities' and 'I can always find ways to enrich my work.' ( $\alpha$ )=0.93. *Attitude Toward the Color Blue (ATCB) Measure*: Miller and Simmering (2022) developed a Seven-item scale that is a crucial statistical tool used in this study as a marker variable to evaluate the Common Method Variance (CMV) in the questionnaire. ( $\alpha$ )=0.95.

*Control Variables*: The demographic data included in the questionnaire, such as employees' age, gender, education, work experience, tenure with the leader, and tenure with the company, were used as control variables.

## Data Analysis

IBM SPSS Statistic 21 software was used for all analysis procedures. All variables are analyzed in terms of mean, standard deviation, correlation, and reliability. Using the ATCB as a marker variable, the researcher also performed a partial correlation analysis to assess the CMV bias. The research hypotheses were tested by applying the hierarchical regression analysis procedure, simple slope test, and bootstrapping approach.

## Result

### Descriptive Statistics

The means, standard deviations, correlations (under reliability), and reliabilities, as well as the CMV correlation above the reliability for all variables, are displayed in Table 2. It is not surprising that a positive association was found between ETL and WM ( $r=0.56$ ,  $p<0.01$ ) and with WWB ( $r=0.60$ ,  $p<0.01$ ). In addition, WM was associated with WWB ( $r=0.77$ ,  $p 0.01$ ).

### Common Method Bias Assessment

In order to control and reduce the potential CMV that might happen due to the nature of the data collection method, the researcher applies both procedural and statistical methods (Podsakoff et al., 2003). Procedurally, the researcher (1) Warrants the participation confidentiality and data anonymity for all participants, and (2) Added two attention check questions and reordered some items to reduce the possibility of artificial or deceptive responses by participants (Podsakoff et al., 2003; Salancik & Pfeffer, 1977). Statistically, the researcher (1) Used the ATCB (Miller & Simmering, 2022) as a marker variable and (2) Applied EFA to 77 items constituting the five composite scales to Harman's single-factor test (Podsakoff & Organ, 1986). As seen in Table 2, There is no difference in the correlation between variables before and after ATCB was applied, either in value or significance. ATCB and other substantive variables have the lowest correlations and have no significant changes.

Moreover, Harman's single-factor test shows that the first component accounted for 32.4% of the total variance, indicating that the single common factor did not account for

**Table 2** Means, Standard Deviations, Correlations, Reliabilities, and CMV Correlations, (N=271)

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender	1.27	.45	-	.03	.1	.04	-.05	-.03	-.01	.03	-.05	-.12*	-.04	.05
2. Age	2.33	1.07	.03	-	-.02	.81**	.38**	.42**	.03	.06	.05	.13*	.08	-.10
3. Edu	2.65	1.09	.1	-.02	-	-.12	-.15*	-.10	.1	.06	.11	-.06	.06	.00
4. Exp	3.11	1.02	.04	.81**	-.12	-	.41**	.44**	-.04	.03	-.00	.11	.04	-.08
5. TWL	2.49	1.11	-.05	.38**	-.15*	.41**	-	.68**	.06	.09	.09	.12*	.15*	.06
6. TWC	3.90	1.06	-.03	.42**	-.10	.44**	.68**	-	.07	.11	.14*	.14*	.16**	.04
7. ETL	3.11	1.01	-.01	.03	.1	-.04	.06	.07	<b>(.97)</b>	.60**	.56**	.41**	.60**	.14
8. LFVC	3.64	1.19	.03	.06	.06	.03	.09	.11	.60**	<b>(.94)</b>	.57**	.50**	.67**	.22
9. WM	3.52	1.22	-.05	.05	.11	-.00	.09	.14*	.56**	.57**	<b>(.95)</b>	.39**	.77**	.19
10. PGF	3.66	1.07	-.12*	.13*	-.06	.11	.12*	.14*	.41**	.50**	.39**	<b>(.88)</b>	.53**	.19
11. WWB	3.75	1.15	-.04	.08	.06	.04	.15*	.16**	.60**	.67**	.77**	.53**	<b>(.93)</b>	.14
12. ATCB	4.25	.78	.05	-.10	.00	-.08	.06	.04	.14	.22	.19	.19	.14	<b>(.95)</b>

*M* Mean, *SD* Standard Deviation, *ETL* Environmental Transformational Leadership, *LFVC* Leader–Follower Value Congruence, *WM* Work Meaningfulness, *PGF* Person-Group Fit, *WWB* Workplace Well-Being, *ATCB* Attitude Toward Color Blue, *Edu* Education Level, *Exp* Experience

( $\alpha$ ) presented in the boldfaced diagonal elements is reliability. Correlations above the reliabilities are when ATCB is controlling

\*\*  $p < .01$ . \*  $p < .05$

the majority of the variance because the total variance extracted by one factor is less than the recommended threshold of 50% (Podsakoff & Organ, 1986). Further, the VIFs and the tolerance levels were within acceptable ranges (Hair et al., 2018). These results negate any presence of CMV bias in the data collected for this study (Spector, 2006).

## Testing Hypotheses

The hypotheses' testing process was done by applying the hierarchical regression analysis. Table 3 explains this process after controlling the gender, age, educational level, work experience, tenure with leader, and tenure with the company.

H1 predicted that ETL positively impacts WM. Model 2 illustrates that ETL positively and significantly affects WM ( $\beta = 0.52$ ,  $p < 0.01$ ). Therefore, H1 was supported. Moreover, H2 predicted that ETL positively impacts WWB. Model 5 supports this hypothesis since ETL positively and significantly affects WWB ( $\beta = 0.50$ ,  $p < 0.01$ ). Similarly, H3 predicted that WM positively impacts WWB, and model 6 supports this hypothesis since WM positively and significantly affects WWB ( $\beta = 0.68$ ,  $p < 0.01$ ).

H4 predicted that WM play mediates the positive impact of ETL on WWB. To test this hypothesis, the researchers ran a mediation analysis using the PROCESS procedure (Hayes, 2022). Model 8 shows support for this hypothesis since ETL impact on WWB was still significant ( $\beta = 0.21$ ,  $p < 0.01$ ), and WM positively impacted WWB ( $\beta = 0.56$ ,  $p < 0.01$ ), asserting the partial mediation role of WM in the impact of ETL on WWB (Baron & Kenny, 1986). Additionally, the mediating effect was estimated using bootstrapping procedures, where Table 4 shows that the indirect effect of ETL on WWB via WM is significant = 0.29, 95%, CI = [0.13, 0.28], and the direct effect of ETL on WWB was also

**Table 3** Summary of the Hierarchical Regression Results (Unstandardized Coefficients) (N = 271)

Variables	WWB										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
Intercept	2.98**	1.56**	.97**	3.19**	1.83**	1.18**	.15	.97**	1.6**	3.07**	3.56**
Gender	-.11	-.11	-.13	-.08	-.07	.00	.05	-.01	-.01	.03	.03
Age	.08	.01	.02	.05	-.01	-.00	-.02	-.02	-.02	-.03	-.03
Edu	.11	.06	.06	.06	.02	-.01	.01	-.04	-.02	-.00	-.00
Exp	-.13	-.03	-.04	-.07	.02	.02	.01	.04	.04	.03	.03
TWL	.02	-.01	-.01	.07	.05	.06	.06	.05	.05	.06	-.05
TWC	.14	.12	.09	.09	.06	-.01	-.01	-.00	-.00	-.01	.01
ETL		.52	.31**		.50**			.21**	.31**	.26**	.21**
LFVC			.38**						.42**		.42**
ETL*LFVC			.12**						.13**		.11**
WM						.68**	.64**	.56**	.56**	.51**	.50**
PGF							.37**			.26**	.25**
WM*PGF							.24**			.14**	.13**
R <sup>2</sup>	.04	.33	.43	.04	.38	.60	.66	.38	.64	.68	.68
ΔR <sup>2</sup>	-	.29	.10	-	.34	.22	.06	-.28	.26	.04	-
F	1.99	18.60**	21.78**	1.76	22.55**	56.78**	56.40**	22.55**	58.76**	55.67**	55.67**
df	270	270	261	270	270	270	270	267	266	264	263

*Edu*/ Educational level, *Exp* Work Experience, *TWL* Tenure with leader, *TWC* Tenure with Company, *ETL* Environmental Transformational Leadership, *LFVC* Leader-Follower Value Congruence, *WM* Work Meaningfulness, *PGF* Person-Group Fit, *WWB* Workplace Well-Being, *Edu* Education Level, *Exp* Experience

\*\*  $p < 0.01$ . \*  $p < 0.05$

**Table 4** Bootstrap Analysis Result for the Indirect Effect of ETL on WWB via WM

	Effect	Boot SE	Boot Lower CI	Boot Upper CI
Direct effect	.21	.04	.13	.28
Indirect effect	.29	.05	.20	.38

CI=95% confidence interval (two-tailed). Bootstrap sample size = 5,000;  $N=271$

significant = 0.21, 95%, CI = [0.20, 0.38]. As a result, WM partially mediated the positive impact of ETL on WWB, and H4 was supported.

H5 predicted that LFVC moderates the ETL impact on WM. Model 3 supports this hypothesis where the interaction effect of ETL and LFVC on WM was significant ( $\beta=0.12$ ,  $p<0.01$ ). Additionally, the moderating effect was estimated using bootstrapping procedures, as shown in Table 5, where the effect on WM was significant when LFVC is low (effect = 0.23, 95% CI = [0.10, 0.37]) and when LFVC is high (effect = 0.38, 95% CI = [0.29, 0.51]). Consequently, LFVC moderates the positive impact of ETL on WM.

The relationship between ETL and WM is depicted in Fig. 2 for different values of LFVC without interaction effect. The intercept increases with increasing LFVC values. As the statistical procedures do not reveal any significant differences in the ETL impact under increasing values of LFVC, the LFVC could be described as a 'leadership supplement,' which means that a high LFVC does not affect the impact of the ETL, but results in a higher WM level (Howell et al., 1986).

H6 predicted that PGF moderates the WM's positive impact on WWB. Model 7 supports this hypothesis since the interaction effect of WM and PGF on WWB was significant ( $\beta=0.24$ ,  $p<0.01$ ). Additionally, the moderating effect was estimated using bootstrapping procedures as shown in Table 6, where the WM effect was when PGF is low (effect = 0.41, 95% CI = [0.21, 0.35]) and when PGF is high (effect = 0.63, 95% CI = [0.43, 0.57]). Consequently, PGF moderates the positive impact of WM on WWB.

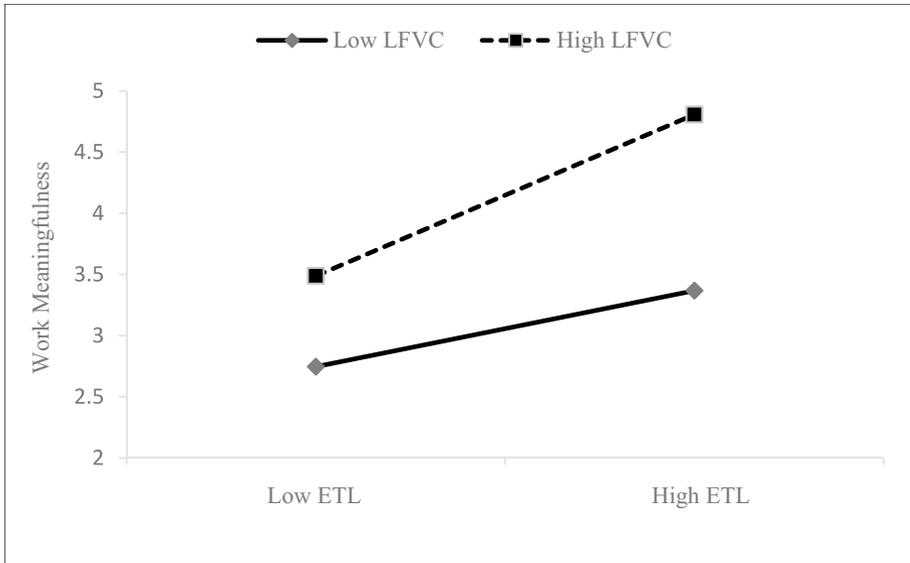
The intercept increases with increasing PGF values. Therefore, PGF moderates the relationship between WM and WWB by strengthening the positive impact of WM on WWB. The relationship between WM and WWB is depicted in Fig. 3 for different values of PGF without interaction effect.

According to H7, LFVC moderates the indirect effect of ETL on WWB via WM so that a high LFVC will result in a stronger indirect effect than a low LFVC. Model 9 supports this hypothesis since all relationships in this hypothesis are significant as ETL positively impacts WWB ( $\beta=0.31$ ,  $p<0.01$ ), LFVC positively impacts WWB ( $\beta=0.42$ ,  $p<0.01$ ), the interaction impact (ETL\*LFVC) also impact EGB ( $\beta=0.13$ ,  $p<0.01$ ), WM positively impact WWB ( $\beta=0.56$ ,  $p<0.01$ ), and WM partially mediate the relationship between ETL

**Table 5** Bootstrap Analysis Result for the Conditional Effect of ETL on WM

LFVC	Boot Effect	Boot SE	Boot Lower CI	Boot Upper CI
1 SD below the mean	.23	.05	.10	.37
Mean	.30	.06	.20	.42
1 SD above the mean	.38	.07	.25	.51

CI = 95% confidence interval (two-tailed). Bootstrap sample size = 5,000;  $N=271$



**Fig. 2** The moderating effect of LFVC on the relationship between ETL and WM

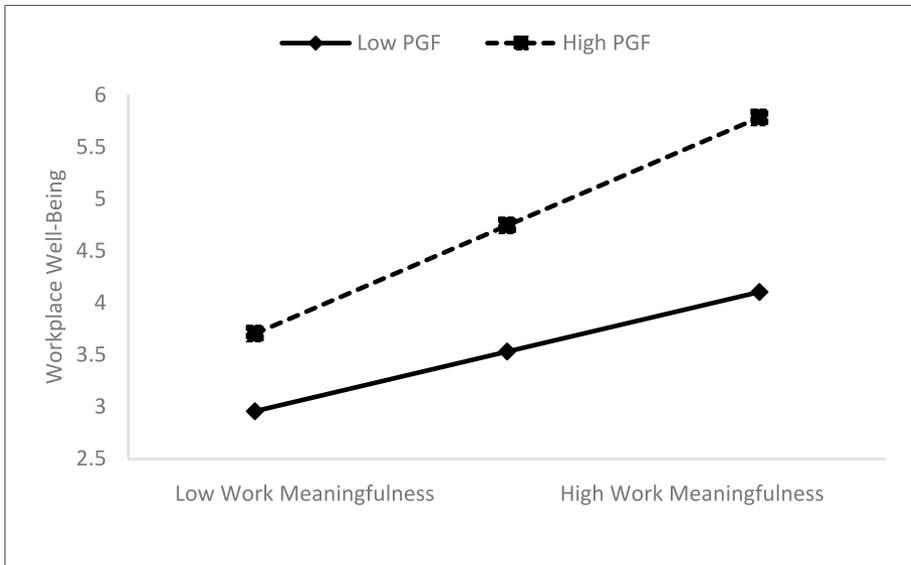
**Table 6** Bootstrap Analysis Result for the Conditional Effect of WM on WWB

PGF	Boot Effect	Boot SE	Boot Lower CI	Boot Upper CI
1 SD below the mean	.41	.02	.21	.35
Mean	.52	.03	.33	.47
1 SD above the mean	.63	.04	.43	.57

CI = 95% confidence interval (two-tailed). Bootstrap sample size = 5,000;  $N = 271$

and WWB since ETL-WWB relationship still significant ( $\beta = 0.31$ ,  $p < 0.01$ ). Additionally, the moderating effect was estimated using bootstrapping procedures, as shown in Table 7, where the ETL impact on WWB via WM was significant when LFVC was low (indirect effect = 0.12, 95% CI = [0.03, 0.23]) and when LFVC is high (indirect effect = 0.21, 95% CI = [0.14, 0.30]). Moreover, Table 7 shows that the Index for the moderated mediation model for this hypothesis is a fit. Consequently, LFVC moderates the relationship between ETL and WWB via WM.

According to H8, PGF moderates the indirect effect of ETL on WWB via WM so that a high PGF will result in a stronger indirect effect than a low PGC. Model 10 supports this hypothesis since all relationships in this hypothesis are significant as ETL positively impacts WWB ( $\beta = 0.26$ ,  $p < 0.01$ ), WM positively impacts WWB ( $\beta = 0.51$ ,  $p < 0.01$ ), PGF positively impacts WWB ( $\beta = 0.26$ ,  $p < 0.01$ ), the interaction impact (WM\*PGF) also impacts WWB ( $\beta = 0.14$ ,  $p < 0.01$ ), and WM partially mediate the relationship between ETL and WWB since ETL-WWB relationship still significant ( $\beta = 0.26$ ,  $p < 0.01$ ). Additionally, the moderating effect was estimated using bootstrapping procedures, as shown in Table 8, where the ETL impact on WWB via WM was significant when PGF was low (indirect effect = 0.24, 95% CI = [0.20, 0.32]) and when PGF is high (indirect effect = 0.28,



**Fig. 3** The moderating effect of PGF on the relationship between WM and WWB

**Table 7** Bootstrap Analysis for the Conditional Indirect Effect of ETL on WWB

LFVC	Boot Indirect Effect	Boot SE	Boot Lower CI	Boot Upper CI
1 SD below the mean	.12	.04	.06	.23
Mean	.17	.05	.12	.27
1 SD above the mean	.21	.06	.14	.30
Index for Moderated Mediation Model	.12	.04	.10	.28

CI=95% confidence interval (two-tailed). Bootstrap sample size=5,000;  $N=271$

**Table 8** Bootstrap Analysis for the Conditional Indirect Effect of ETL on WWB

PGF	Boot Indirect Effect	Boot SE	Boot Lower CI	Boot Upper CI
1 SD below the mean	.24	.04	.20	.32
Mean	.26	.04	.25	.40
1 SD above the mean	.28	.05	.37	.52
Index for Moderated Mediation Model	.11	.05	.22	.49

CI=95% confidence interval (two-tailed). Bootstrap sample size=5,000;  $N=271$

95% CI=[0.37, 0.52]). Moreover, Table 8 shows that the Index for the moderated mediation model for this hypothesis is a fit. Consequently, PGF moderates the relationship between EA and WWB via WM.

Finally, H9 predicted that both LFVC and PGF moderate the positive indirect relationship of ETL with WWB via WM, such that the positive indirect relationship is stronger when both LFVC and PGF are high rather than low. Model 11 supports this hypothesis since all relationships in this hypothesis are significant where ETL positively impacts WWB ( $\beta=0.21$ ,  $p<0.01$ ), LFVC positively impacts EGB ( $\beta=0.42$ ,  $p<0.01$ ), the interaction impact (ETL\*LFVC) also impact WWB ( $\beta=0.11$ ,  $p<0.01$ ), WM impact WWB ( $\beta=0.50$ ,  $p<0.01$ ), PGF impact WWB ( $\beta=0.25$ ,  $p<0.01$ ), the interaction impact (WM\*PGF) also impacts WWB ( $\beta=0.13$ ,  $p<0.01$ ), and WM partially mediate the relationship between ETL and WWB since ETL-WWB relationship still significant ( $\beta=0.21$ ,  $p<0.01$ ). Additionally, to analyze the full moderated mediation model, the indirect relationships of ETL with WWB via WM under low and high LFVC and PGF were tested. As predicted, the indirect relationship was strongest when both LFVC and PGF were high ( $\beta=0.27$ , 95% CI [0.44, 0.5]). The findings of the integrated model test are reported in Table 9. Moreover, Table 9 shows that the Index for moderated mediation model for this hypothesis is a fit. Consequently, LFVC and PGF moderate the relationship between EA and WWB via WM.

## Discussion

The findings of this study are considered interesting. First, the ETL significantly predicts WM and WWB, respectively. Second, WM partially mediates the indirect impact of ETL on WWB, which means that WWB happens to somehow due to WM, which in turn arises due to ETL. These results are consistent with the JD-R model (Bakker & Demerouti, 2007) that postulates that a person's goal is to preserve resources by creating a sizable 'resource reservoir' that can be used to combat non-extenuating conditions such as stress and burn-out. That is, when job demands are high, and WM as a job resource is low, the WWB will be decreased. Conversely, higher WM can offset the effects of high job demands and enhance WWB (Bakker & Demerouti, 2007). In agreement with previous studies (Munir et al., 2012; Nielsen & Daniels, 2012; Nielsen et al., 2008; Schmidt et al., 2014), the JD-R model for decoding the relationship between TL and WWB suggested that (Nielsen et al.,

**Table 9** The conditional indirect effect of ETL on WWB via WM at low and high LFVC and PGF

Conditional effects at $M \pm 1$ SD	LFVC	PGF	Boot Indirect Effect	Boot Lower CI	Boot Upper CI
WM	- SD	- SD	.14	.13	.17
WM	- SD	Mean	.15	.16	.21
WM	- SD	+SD	.17	.17	.21
WM	Mean	- SD	.15	.16	.20
WM	Mean	Mean	.19	.22	.28
WM	Mean	+SD	.22	.31	.36
WM	+SD	- SD	.18	.16	.20
WM	+SD	Mean	.24	.30	.34
WM	+SD	+SD	.27	.44	.50
Index for Moderated Mediation Model			.10	.16	.47

CI = 95% confidence interval (two-tailed). Bootstrap sample size = 5,000;  $N = 271$

2008) job resources partially mediated the relationship between TL and WWB in the short run (Nielsen et al., 2008) and fully mediated this relationship in the long run (Nielsen & Daniels, 2012; Nielsen et al., 2008; Schmidt et al., 2014).

Moreover, these findings align with the COR theory (Hobfoll, 1989). When employees have high WM, they will be in a better position to invest in further resources. Conversely, when they have low WM, energy is expended on defending them rather than gaining new ones. Employees will strive to increase their WM, explaining the salient influence of the ETL. These positive resource gains instigated by the ETL will help to create a resource canvas (WM in this case) and enhance WWB. Hobfoll (2001) explains that the ‘feeling that my life is meaningful’ is a resource under COR theory. Accordingly, this study asserts that ETL enhances WWB by helping employees gain WM as a resource.

Third, this study suggested that LFVC moderates the positive impact of ETL on WM and WWB respectively, which could be described as a ‘leadership supplement’ because the statistical procedures do not reveal any significant differences in the ETL impact on WM and WWB under increasing values of LFVC, and intercept increases with increasing LFVC values. Fourth, PGF moderates the indirect effect of ETL on WWB via WM so that a high PGF will result in a stronger indirect effect than a low PGF. Finally, this study found that both LFVC and PGF moderate the indirect effect of ETL on WWB through WM.

## Theoretical Implications

This study provides various crucial theoretical contributions as it first contributes to the JD-R, TL, and COR theories by explaining how the WM plays a beneficial role in the indirect effects of ETL on the WB. Second, it contributes to the existing literature on ETL (Robertson & Barling, 2013) by introducing the WWB as a novel consequence and to the existing literature on WWB (Bakker et al., 2007; Jamieson & Tuckey, 2017; Saks & Gruman, 2014; Warr, 2002; Zwetsloot & Leka, 2010) as it defines ETL as an antecedent influencer.

Third, this research contributes to the literature by providing evidence for the mediating role of WM in the relationship between ETL and WWB. Previous studies have linked some aspects of the WWB to leadership styles (Edosomwan et al., 2023; Sjöblom et al., 2022). Surprisingly, ETL and WWB relationships have received little attention regarding the intervening mechanisms. Drawing on JD-R, TL, and COR theories, this study defines ETL as a predictor, WM as a key mediator, and WWB as a desired outcome. Moreover, this study demonstrates that ETL positively contributes to WWB by demonstrating ETL aspects, namely EII, EIM, EIS, and EIC. Put simply, fostering mutual trust and respect between leaders and followers promotes positive emotions among employees, providing opportunities for shaping the workplace and personal growth and ensuring the capability to perform job tasks effectively. Another benefit of using JD-R, TL, and COR theories as frameworks for explaining ETL’s impact is that it sheds light on the mechanism that connects ETL to WWB.

Fourth, given how little investigation has been done on the effects of ETL on WM and WWB, it is also unclear what happens when LFVC is factored in. As a result, we now know a boundary condition under which ETL can impact WM and WWB. This study confirms LFVC’s moderating function, shedding light on the circumstances when ETL affects WM and, eventually, WWB. While the ETL still has a beneficial effect on WM, the intercept rises with increasing LFVC values, suggesting that strong LFVC has no effect on ETL

effects but does result in greater WM levels and is therefore defined as a leadership supplement (Howell et al., 1986).

The final theoretical contribution is the introduction of PGF as a moderator between WM and WWB, where the positive impact of WM increases as the PGF increases. All of these contributions expand the JD-R, TL, and COR theories and the body of knowledge on the relationship between ETL and WWB and when and how various contexts and mechanisms enhance this relationship.

## Practical Implications

The findings of this research have several critical real-world applications. To begin with, the data demonstrated that ETL was able to improve both WM and WWB. Therefore, organizations that care about employee WM and WWB should promote an ETL to a position of leadership to create a workplace environment that fosters the employees' WM. Moreover, organizations should also educate their current leaders to perceive the importance of WM and make them aware of the consequences of traditional behaviors, processes, and procedures that might harm the WM.

Second, this study found that ETL predicts WWB through WM. Therefore, leaders are recommended to focus on the behaviors and techniques that enhance the employee's WM in order to achieve the desired level of WWB, such as encouraging employees to take ownership of their work and be proactive in finding solutions to organizational challenges (Harbridge et al., 2022), aligning the organizational goals with a higher purpose (Kubiak, 2022), fostering a culture of collaboration and innovation among employees to find creative solutions to organizational challenges (Zhang et al., 2022), providing opportunities to develop employees skills and knowledge (Robichau & Sandberg, 2022), and celebrating the organizational successes and acknowledging the contributions of each employee towards the larger goal (Walker et al., 2022). By doing so, ETL enhances the employee's WM because ETL enhances employees' perception that one's work has a positive effect on others or the world environment, creates a feeling of being a part of a larger innovative team, promotes the beliefs that employee's work is aligned with organization's values and goals and contributing to a larger cause beyond their individual roles, enhance the employees' feeling that they are growing both professionally and personally, and creates a sense of pride and meaning among employees who feel that their work is valued and appreciated. As this study asserts, ETL can enhance WWB by helping employees find meaning and purpose in their work. Enhancing WM enhances employees' WWB in various ways, as it enhances their job satisfaction, motivation, mental health, work engagement, and retention.

Third, the LFVC supplements the ETL effect on WM. Hence, organizations should take proper actions to increase LFVC and create an environmental culture. For instance, investing in leadership and employee development programs focused on environmental sustainability, holding training sessions, workshops, and online resources that aim to enhance employee's environmental awareness, encourage employee engagement and participation in environmental initiatives, and create a shared value culture by aligning employees' values and goals with the organizational value and objectives (Zonghua et al., 2022).

Last, this study showed that PGF strengthens the positive impact of WM on WWB. Accordingly, organizations are asked to promote PGF among employees in all divisions. This could be achieved by, for instance, shaping the jobs to better align with employees' strengths and interests by using person-job matching tools to identify the characteristics and skills required for specific roles (Roczniewska et al., 2022), match

employees with others who possess the same skills and characteristics (Guo & Hou, 2022), provide employees regular opportunities to provide feedback and input on their jobs and the work culture (Vleugels et al., 2023), and foster a culture of open communication by encouraging employees to voice their opinions, concerns, and ideas without fear of retribution (Narayanan & Nadarajah, 2022).

## Limitations and Future Research Recommendations

Like any other research effort, this study has its limitations. The first limitation is the results' generalizability to another context where the sample was the current full-time employees working in one sector and one social context, which limits the generalizations of the results. Hence, future research efforts are recommended to conduct the study in different cultural contexts and samples from various sectors that open an avenue to compare the outcome between these two contexts.

Second, the primary data for this research was collected at a single time without considering the hypothesized associations' temporal order (Bowen & Wiersema, 1999), creating another limitation related to the research design (Ployhart & Vandenberg, 2010). Therefore, re-examining the relationships with a time wave or longitudinal approach is encouraged in future research to lessen the impact of this limitation.

Third, the same participants provide ratings for ETL, WM, and WWB. However, this kind of rating is still acceptable because they are the most affected by their ETL (Bass, 1985), and they have a firm grasp on their own WWB. There is still an open question regarding whether ETL could be connected to WWB through the use of multisource data or not. Therefore, to overcome this limitation and comprehensively understand the relationship between ETL and WWB, future research efforts are recommended to investigate this relationship by collecting data from multiple sources, such as other internal or external stakeholders.

Fourth, the result revealed the moderating role of LFVC, which it described as a leadership supplement. Other potential moderators for future study may be taken into consideration, including environmental awareness and business environment.

Lastly, A potential limitation of our study relates to the risk of common method variance, given our sole reliance on self-report questionnaires. This might suggest that some observed relationships could be influenced by this method. However, the impact of common method bias is typically reduced when examining interactions, as outlined by Siemsen et al. (2010). Considering the introspective nature of the constructs assessed, they were all self-reported, which might raise concerns about common method variance (CMV), as pointed out by Podsakoff et al. (2012). However, in our study, both the VIFs and tolerance levels adhered to acceptable standards, as described by Hair et al. (2018). Furthermore, when adjusting for the marker variable, namely the attitude towards the color blue, the partial correlations among the study variables did not significantly diverge from zero-order correlations. This alleviated potential CMV-related apprehensions. Additionally, Fuller et al. (2016) highlighted that studies relying on a single source only sometimes lead to significant CMV influences; CMV can exist at elevated levels without having a notable impact.

## Conclusion

This research enriches JD-R and COR theories through five key contributions: (1) it positions WWB as an optimal outcome within ETL and WM literature, (2) it unveils WM's mediating role between ETL and WWB, (3) it introduces LFVC as a supplementary leadership factor influencing the ETL-WM-WWB sequence, (4) it identifies WM as a partial mediator linking ETL and WWB, and (5) it presents PGF as a moderator enhancing WM's positive impact on WWB.

**Data Availability** The datasets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

## Declarations

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of Interest** The authors declared that they have no conflict of interest.

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