The Construct and Predictive Validity of the Mental Fitness and Resiliency Inventory

And

Positive Leadership Inventory of the Positive Workplace Framework

by

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ABSTRACT

This dissertation explores the construct and predictive validity of the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI), questionnaires of the Positive Workplace Framework (PWF). The PWF is a strengths-based approach that promotes mental health, well-being (mental fitness and resiliency), and positive leadership at the group level in workplace settings, with the goal of fostering healthy organizational cultures. By integrating evidence- and strengths-based practices over time, the PWF enhances long-term well-being and leadership capacity, positively impacting employee flourishing and productivity

The MFRI and PLI serve as key tools for assessing workplace well-being and leadership effectiveness. These questionnaires may be particularly valuable in resource-limited settings, such as small- and medium-sized enterprises (SMEs), where access to structured well-being programs is limited and external interventions may be challenging to implement (Lloyd et al., 2025).

This quantitative research examined the psychometric characteristics of the French versions of the MFRI and PLI and their relevance for fostering well-being and positive leadership in the workplace. The objectives were to: 1) validate the French versions of the MFRI and PLI; 2) deepen understanding of the relationship between well-being (mental fitness and resiliency) and positive leadership; 3) evaluate the structural validity of the French PWF; and 4) identify optimal interventions based on team-level results.

This work also addressed key research gaps: a) validating French-language group-level measurements for assessing collective well-being and positive leadership; b) generating empirical insights into the impact of positive leadership on well-being; c) validating the overall PWF framework; and d) informing the use of these measures to promote a workplace culture grounded in well-being and positive leadership.

Data were collected from 96 Francophone schools in New Brunswick, including 6,017 educator responses to the MFRI and PLI during the 2020–2021 and 2021–2022 school years. Analyses using Classical Test Theory (CTT), Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) supported the reliability, validity, and structural integrity of the French MFRI and PLI. The results underscore the PWF's predictive value in identifying interventions that enhance mental fitness, resiliency, and positive leadership in workplace teams, particularly in educational contexts.

DEDICATION

I dedicate this dissertation to:

God — Father, Son, and Holy Spirit — source of all wisdom, love, faith, and providence.

Jesus, my Savior and Lord; to Mary, my Blessed Mother; and to Saint Joseph, faithful guardian and protector — my spiritual anchors.

My beloved grandmother Celita (Abi), whose care, love, and faith in us remain a guiding light.

My dear parents, Thelma and Jorge, and my sisters, Ana Karina, Karla Michelle, and Maria Fernanda, for their unwavering support, strength, and love throughout this journey.

My cherished niece, María José, and nephew, Ángel Adrián, whose joy and curiosity inspire me

every day.

And to every person and learner I've ever met — thank you for being part of this path.

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CHAPTER 1. INTRODUCTION

1.1. Introduction

Education is a universal human right and one of the strategic areas in countries focused on sustainable development and innovation (United Nations, 1948, 1966, 1989; United Nations Development Programme, 2020). In that effort, preparing students with a quality education becomes a relevant goal (UNESCO, 2015; United Nations, 2015). School organizational structure and adequate curriculums are essential for providing students with a high-quality education (World Bank, 2019), but also significant are the human resources that enact the educative experience for learners, which is key to students' education success. The teacher's role is essential because each cohort's educational needs are different based on differences among students. The teacher creates an environment unique to each cohort and class that characterizes the educational dynamic to learn and succeed (Bardach et al., 2022; Murray, 2021; Vissczher & Coe, 2003).

Educational theorists have long identified the different leadership roles of principals and teachers (Bellibaş et al., 2020; Cameron, 2008, 2012; Haynes et al., 2015; Lynch, 2012; Munby, 2020; Northhouse, 2016b; Oplatka, 2017; van Schaik et al., 2020), and researchers have studied the impact of these roles on various aspects of learning and climate in schools (Datnow, 2020). Research has provided evidence about the best leadership role to promote educational efficacy and the ideal environment to learn and succeed (Bellibaş et al., 2020; van Schaik et al., 2020). Transformational leadership has been identified as the best leadership style to promote the teachers' work and lead a school to succeed socially and academically (Anderson, 2017; Bonsu & Twum, 2019;

Burns, 2001; Sayyadi et al., 2015). The main characteristic of principal transformational leadership is that this style focuses on promoting the best among a school's team of teachers through promoting their independence and the unique contributions they can make to the school's success. Transformational leaders also work diligently to provide teachers with the resources they need, not only to succeed in delivering the curriculum, but also to succeed in their relationship with students and promoting overall classroom and school well-being (English, 2015; Kelloway et al., 2012; Montano et al., 2017; Northhouse, 2016b; S. Taylor & Ladkin, 2014).

There is research on developing strategies, policies, and programs to promote school wellness and well-being. The prevailing approach is based on individual interventions applied individually to students and teachers and focusing on promoting wellness, health, and happiness (Hood et al., 2013; Lai et al., 2016; Stiefel et al., 2017). However, some challenges have been identified regarding the inclusion or implementation of integrating well-being strategies at the group-based or class-based levels rather than at the individual level (Hager et al., 2016; McIsaac et al., 2017; Miller et al., 2008; Russell-Mayhew et al., 2007; Soutter, 2011). This concern echoes findings from Joyce and colleagues' (2025) inclusive workplace research demonstrating that well-being strategies developed for the general population may not always be suitable for diverse employee groups, including those with intellectual disabilities, unless adapted to context-specific needs Click or tap here to enter text..

Educative research in schools has studied the additive impact of positive psychology practices for promoting school efficacy (Aelterman et al., 2007; Zhen et al., 2017). Relevant contributors to positive leadership theory such as Kim Cameron, have provided evidence from positive practices that promote the optimal environment for teams to flourish and develop deviant organizations (Cameron, 2008, 2010a; Cameron et al., 2017; Cameron & Caza, 2002). Deviant organizations are based on the understanding and application of positive psychology in which organizations, including schools, engage in 'deviant' behaviors or act outside the typical, usual, or normal ways of doing things to influence positively and transform workplace environments. These transformed environments are optimal for human development, performance, and well-being (Perry & Cameron, 2010; Spreitzer & Sonenshein, 2003).

Evidence supports that promoting a school's culture of well-being benefits students and teachers. Programs developed for students and teachers worldwide focus on promoting wellness and well-being in the school. These programs are based on psychology and in particular a positive psychology approach given the evidence promoting an educative culture that supports learning in an environment that fulfils psychological needs and promotes effective education (Aelterman et al., 2007; Dreer, 2021; Laurie, 2019a; Soutter, 2011). An effective school culture focuses on developing everyone's full potential by fulfilling their psychological needs to thrive and to flourish (Deci et al., 2001; Deci & Ryan, 2008; Ryan & Deci, 2017; Vansteenkiste & Ryan, 2013).

The PWF is on the above principles and theoretical frameworks that a Canadian company developed its Positive Workplace Framework (PWF) predicated on a strengths-based approach to optimizing staff and student well-being, engagement, and performance, with a focus on mental fitness, resilience, and positive leadership (WMA Wellness, 2024). The PWF Framework relies on two questionnaires to measure the mental fitness, resilience, and positive leadership in a workplace. The extent to which practices related to the first two components of mental fitness and resiliency are present in the workplace are measured by the Mental Fitness and Resiliency Inventory (MFRI) questionnaire. Similarly, the extent to which practices related to positive leadership are present in the workplace are measured by a second questionnaire called the Positive Leadership Inventory (PLI). The MFRI and PLI questionnaires were developed in French but are reported here in English (as this is an English dissertation).

Individuals within a workplace team such as a group of educators complete both questionnaires anonymously online. Results of the assessments are aggregated so they are examined only at the team level–never at the individual level–given the focus of the PWF on workplace *team* well-being. Results of both questionnaires are conveyed to workplace leaders and include a range of recommended actions and interventions designed to strengthen team well-being in areas such as team cohesion, employee mental health, and other actions that capitalize on individual's strengths and promote team resiliency. Workplaces then have the option of implementing the recommendations on their own or engaging a PWF consultant to guide their implementation. For most workplaces the PWF is a longer-term investment so their progress can be reassessed intermittently for monitoring purposes to determine whether the interventions and strategies employed are achieving the positive influences intended. Recent research further supports the role of team-level dynamics in shaping well-being, showing that emotional contagion within workplace teams can significantly influence how stress and positivity are shared among members (Hernandez Grande et al., 2025).

Substantial research has been conducted on several aspects associated with the English version of the PWF such as questionnaire validity studies, construct validity studies, reliability studies, and so on (Bolaños, 2021; Laurie, 2021a; Peterson et al., 2020; WMA Wellness, 2024). To date, however, PWF developers have yet to conduct the same comprehensive level of validating the translated questionnaire versions used in Francophone schools. The purpose of this research is fourfold: 1) to perform the necessary data analyses to validate the French versions of the Mental Fitness and Resiliency Inventory (MFRI) and Positive Leadership Inventory (PLI) questionnaires of the PWF; 2) to deepen the understanding of the relationship between well-being—comprised of mental fitness and resiliency—and positive leadership once the questionnaires are validated; 3) to validate the entire French PWF framework through further data analysis; and 4) to identify optimal workplace interventions based on a team's results from the questionnaire scores. It is important to gain a thorough understanding of the correlation between well-being and positive leadership since the virtues and actions of leaders play an integral role in driving team performance. Moreover, it is also important that the PWF accurately predicts these relationships to promote other well-being-associated strengths such as mental fitness and resiliency.

For carrying out this study, the research relied on extant quantitative data collected from Francophone educators in 96 New Brunswick schools. This work used contemporary quantitative scientific methods to validate the instruments and ascertain their validity, reliability, and generalizability (Hughes, 2020; Irwin & Hughes, 2020; Kane, 2016; Lane et al., 2016). Accordingly, this research undertook the analyses required to provide quantitative evidence of the validity of the two French questionnaires constituting the French version of the Positive Workplace Framework (PWF), one of which is the Mental Fitness and Resiliency Inventory (MFRI) and the other of which is the Positive Leadership Inventory (PLI). Furthermore, this research sought to provide quantitative findings of the relationship between positive leadership and well-being and the degree to which leadership has an impact on workplace and employee well-being. The mental fitness, resiliency, and positive leadership domains and their respective subdomains were also analyzed to assesses the capacity to identify which subdomains workplaces and employers can target for interventions toward achieving the goal of optimal workplace well-being.

The research focused on analyzing the accuracy of scores and information obtained from the Mental Fitness and Resiliency Inventory (MFRI) and Positive Leadership Inventory (PLI). These two instruments are analyzed together to promote well-being and positive leadership in the workplace of interest in this study, Francophone school settings. It included both theoretical and applied methodologies. Although the PWF makes intuitive sense and is well-grounded in the literature, the framework in general and the French version of its questionnaires in particular have not been studied quantitatively together. Thus, their psychometric properties remain largely unknown.

Validity and reliability are central to psychometrics as they both refer to the quality of a test or questionnaire, the scores they produce, and how these are used. If the purpose of the PWF and its questionnaires is to provide information leading to the improvement of workplace well-being and positive leadership practices, it follows that both need to be of high quality and accuracy. As such, the statistical methods this research employed include Classical Test Theory (CTT), Exploratory Factor Analysis

(EFA), and Confirmatory Factor Analysis (CFA) to answer the four primary research questions detailed below about the validity of the scales and subscales constituting each of the two questionnaires. Additionally, the study assessed the theoretical assumptions of the PWF using empirical evidence.

This research is both relevant and timely because it focuses on researching the application of the PWF in promoting positive leadership practices and increased well-being (WMA Wellness, 2024). This research provided new evidence related to the framework itself and quantify and measure team well-being and its relationship with the promotion of a positive leadership team culture. This research, grounded in the Positive Workplace Framework (PWF), contributed to expanding the knowledge and practice of positive psychology to promote well-being and positive leadership evidence applied in schools. It also developed an understanding of implementing interventions at the group or team level to foster a collective identity and culture, which in turn impacts the overall school culture rather than focusing solely on the individual, as is typically the case when addressing aspects of a person's mental fitness, resiliency, and overall well-being.

This research aims to address a critical knowledge gap in the literature on positive psychology, specifically focusing on the relationship between well-being and positive leadership practices within workplace cultures developed by teams. It seeks to explore how leadership practices influence collective well-being and how these dynamics contribute to fostering a positive and sustainable workplace environment. Including: a) validating group-level French measurements to assess collective well-being and positive leadership strengths; b) generating empirical insights into the impact of positive leadership on well-being within the context of the PWF and its associated questionnaires;

c) ascertaining empirical knowledge of the impact of positive leadership on well-being with respect to the PWF and its questionnaires; d) informing the use of these measurements to target enhanced well-being and foster a positive workplace culture.

1.2. Research Questions

In the light of the above, this research answered four main questions to validate and provide the evidence needed to assess the feasibility of the PWF theoretical model. classical test theory, exploratory and confirmatory factor analysis were performed on an extant data set consisting of 6,017 participants from 96 New Brunswick Francophone schools who completed the MFRI and PLI to answer the following research questions.

i. **Question 1.** What are the MFRI's and the PLI's internal consistency and validity evidence?

Hypothesis 1a: The internal consistency in the MFRI and the PLI scales, domains, and subdomains as measured by McDonald's Omega is greater than the widely accepted threshold value of 0.70 (1).

$$H_0\text{: } \omega \text{ MFRI} \;\&\; \omega \text{ PLI} > 0.70 \tag{1}$$

Hypothesis 1b: The structural evidence from exploratory and confirmatory factor analysis supports the relationships among items reflected in the theoretical framework. The quantitative evidence from exploratory and confirmatory factor analysis models is statistically significant (2).

$$H_0\text{: } p < 0.05 \tag{2}$$

ii. **Question 2a:** What quantitative relationship exists between the PLI's Positive Leadership practices?

Hypothesis 2a: The quantitative relationships among subdomains in the Confirmatory Factor Analysis (CFA) model are greater than 0.20 (4).

$$H_0: r > 0.20 \tag{3}$$

iii. **Question 2b:** What quantitative impact do the PWF Positive Leadership practices have on workplace Well-Being?

Hypothesis 2b: The underlying conceptual Positive Leadership impact on the Well-Being model and each of the predictive indicators (items) are statistically significant (5).

$$H_0: p < 0.05 \tag{4}$$

iv. **Question 3.** What quantitative relationships exist between the domains and subdomains in the PWF?

Hypothesis 3: The quantitative relationships among the domains and subdomains in the Confirmatory Factor Analysis (CFA) model are greater than 0.20 (3).

$$H_0: r > 0.20 \tag{5}$$

v. **Question 4.** Can the PWF and its questionnaires be used to identify which subdomains to target for optimizing workplace interventions?

Hypothesis 4: The predictor models to identify optimal workplace interventions are statistically significant (6).

$$H_0: p < 0.05 \tag{6}$$

This dissertation is presented in five chapters. Chapter 2 explores the theoretical and contextual foundation for understanding workplace positive mental health and the application of positive psychology principles to foster well-being and positive leadership in organizational settings. It examines key concepts, frameworks, and their evolution to establish the basis for this study. The first section highlights the importance of addressing mental health in Canadian workplaces by presenting data on its prevalence and challenges. It outlines the societal and organizational implications of workplace mental health concerns, emphasizing why fostering positive mental health environments is crucial. The second section delves into the conceptual development of positive mental health in workplace settings. It explores the transition from traditional approaches to more proactive and positive frameworks aimed at enhancing employee well-being and organizational culture. It is divided into five subsections: a) The Transition from Humanistic to Positive Psychology, b) the Emergence of Positive Psychology, c) the Growth of Positive Psychology and Workplace Mental Health, d) Positive Well-Being Frameworks Applied in Workplaces, and e) The PWF's Capacity to Promote Well-Being in the Workplace. In addressing these five thematic areas, previous research is examined from the fields of education administration, industrial psychology, universal mental health applied to the workplace relative to the relevance of mental health in a workplace environment, and positive psychology.

The transition from a humanistic to a positive psychology orientation was predominantly facilitated by the works of Rogers (1959, 1961, 2007), Maslow (1943, 1954, 1962), and Bandura (1977, 1986, 1995, 1997, 2000). They established the three major concepts fundamental to positive psychology and its emergence as the prevailing approach employed in the field of applied psychology. These concepts, respectively, include the need and role of self-actualization in fulfilling one’s positive mental health and well-being, the fundamental need for individuals to function holistically and fully in developing a positive sense of worth and well-being, and the importance of self-efficacy and belief in one's own capabilities.

Critical to the field’s evolution has been their positioning of mental illness and mental health along a continuum rather than situating these two extremes dichotomously and classifying individuals in the extreme of experiencing either mental health or, in the face of any mental health concerns, mental illness (Allport, 1937a, 1964). Considering mental health from a continuum perspective situates mental health as a health factor that can be dynamic, fluid and changing depending on an individual’s personal circumstances. This section also considers that positive emotions are necessary for a person to flourish, as proposed by the Broaden-and-Build Theory of Positive Emotions Model (Fredrickson, 2001, 2013a), and the Mental Health Continuum offered as a Dual-Dimensional Model (Keyes & Ryff, 1995; Westerhof & Keyes, 2010).

This thesis also reviews the evidence in the academic literature on the promotion of well-being and positive leadership through positive psychology from work psychology scholars studying wellness and well-being (Boudreau et al., 2019; Fleischer, 2018; Hayward, 2019; Ho, 2017; Jansen, 2011; Marsden, 2002; Michaels & Greene, 2013; Steeves, 2018; Strazewski, 2012). The evidence of using targeted effective interventions to develop a positive workplace environment in the PWF is also examined (Bolaños, 2020, 2021; Laurie, 2021; Laurie et al., 2021a; Peterson et al., 2020).

Chapter 3 describes the methodology employed to assess and validate the theoretical relationships between the Positive Workplace Framework's (PWF) domains and sub-domains and its two French questionnaires: the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI). Extant data obtained during the 2020-2021 and 2021-2022 school years from 96 New Brunswick Francophone Schools was used. Chapter 4 presents the study results derived from data analysis, while Chapter 5 examines and discusses these findings within the context of the relevant research and applied literature and identifies potential avenues for future studies aimed at fostering well-being and positive leadership in organizational settings.

This research aimed to address a gap in the measurement and evaluation of well-being and positive leadership at the team level within workplace settings. Additionally, it sought to analyze empirical data to enhance the scientific understanding of the relationship between well-being and positive leadership within the context of a positive workplace culture. The study provided a source of validity from the French versions of the MFRI and PLI scores and how the French PWF can be used with confidence to identify areas for workplace interventions. The study used the PWF and its questionnaires to identify specific workplace practices that can be targeted for improvement. In conclusion, this research validated the effectiveness of the Positive Workplace Framework's (PFW) instruments in promoting well-being and positive leadership in Francophone schools, aiming to deepen the understanding of the relationship between well-being (mental fitness and resiliency), and positive leadership. Through quantitative analysis, this research provided evidence of the efficacy of the PWF's questionnaires, the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory

(PLI) in promoting well-being and positive leadership. Furthermore, this research assessed each questionnaire's capabilities in identifying subdomains essential for optimizing workplace interventions to promote positive educational work environments that foster growth and flourishing among teachers and staff, thus embedding a culture of well-being.

CHAPTER 2. LITERATURE REVIEW

This chapter provides a comprehensive exploration of workplace mental health and the theoretical foundations of positive psychology. It examines the evolution of psychological approaches, the development of positive well-being frameworks, and the application of the Positive Workplace Framework (PWF) to foster organizational culture and collective well-being. By establishing the foundational context for understanding the relationship between positive leadership practices and workplace well-being, this chapter lays the groundwork for the study's focus on fostering positive and sustainable workplace environments.

The chapter is organized into two main sections. The first section addresses the significance of workplace mental health in Canada, highlighting its societal and organizational implications while emphasizing the importance of promoting positive mental health in professional settings. The second section delves into the conceptual development of positive mental health, tracing its evolution into positive frameworks designed to enhance well-being and foster positive leadership within team organizational cultures. This second section is further divided into five subsections, each addressing critical themes: a) The Transition from Humanistic to Positive Psychology, b) the Emergence of Positive Psychology, c) the Growth of Positive Psychology and Workplace Mental Health, d) Positive Well-Being Frameworks Applied in Workplaces, and e) The PWF's Capacity to Promote Well-Being in the Workplace.

2.1. Significance and Prevalence of Workplace Mental Health Concerns in Canada

According to the World Health Organization (WHO), health is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." (2006, p.1). This means, that well-being is holistic to involve physical, mental, and social health and not only the absence of sickness. Canada's National Mental Health Strategy has adopted this definition to emphasize the importance of creating work environments that support optimal mental health and well-being and recognize the diverse individual, psychological, and social factors within different communities, groups, and regions (Mental Health Commission of Canada, 2009, 2021b; World Health Organization, 2006). This emphasis on inclusive and responsive approaches aligns with recent evidence showing that many workplace well-being programs fail to address adequately the needs of low-wage and historically underrepresented populations, thereby highlighting an urgent need for more equitable models (Gupta et al., 2025).

The importance of social diversity and relationships in various workplace environments where people experience well-being highlights that well-being is a collective effort. The pursuit of well-being is based on constantly evolving understandings and decisions (Sointu, 2005). People actively participate in well-being by making conscious, self-directed choices, including emotional, spiritual, occupational, intellectual, physical, and social dimensions (National Wellness Institute, 2020).

In Canada, promoting workplace mental health is crucial as statistics indicate that mental health conditions are the primary cause of disability nationwide. At least 20% of the population experiences a mental health condition at any given time (Mental Health Commission of Canada, 2017). The United States also faces a similar situation, with seven out of ten individuals experiencing stress and anxiety and a mental health disorder (National Center for Chronic Disease Prevention and Health Promotion, 2019). Mental health concerns are prevalent in workplaces, with two out of ten employees experiencing mental health challenges and over half of individuals in general experiencing some form of mental health concern in their lifetime (Organization for Economic Co-operation and Development, 2012).

Studies conducted in the United Kingdom over the past twenty years have found that nine out of ten employees have reported feeling unwell while at work, even if they do not miss any days (Mind, 2020; Procter et al., 2016). The World Health Organization (2020) reports that over 264 million individuals experience mental health concerns annually (World Health Organization, 2020a). These findings suggest that the risk of encountering health issues at some point during one's career is significant for all workers.

According to recent national reports, workplace stress poses a significant risk to mental health, with 47% of employees reporting that the hours spent in their workplaces are the most stressful part of their day. Moreover, two out of ten employees feel comfortable discussing potential mental health-related concerns or issues with their employer (Government of Canada, 2016, 2017, 2019). Employee burnout can have negative impacts on personal well-being and organizational productivity. Prolonged absences from work and interruptions in team continuity can cause delays in meeting critical goals. Additionally, unhealthy workplace environments can harm emotional well-being, resulting in increased costs for employee assistance programs and other services (Gurchiek, 2018; Heinemann & Heinemann, 2017; JAMA, 2008; Maslach & Leiter, 1997; Moss, 2019; Schaufeli et al., 2002).

The financial impact of mental health problems in Canada has been calculated at about $51 billion each year. Of this total, $20 billion is directly attributed to work-related factors (Mental Health Commission of Canada, 2017). Additionally, stress-related absenteeism costs employers $16.6 billion annually (Human Resources Director, 2013), and the frequency of depression and anxiety at work represents a universal cost of a trillion American dollars annually according to the World Health Organization (Kestel, 2019; World Health Organization, 2019, 2020a, 2022).

The COVID-19 pandemic also highlighted the need to address mental health concerns in the workplace. The crisis led to decreased workplace productivity, job loss, financial strain, and psychological issues like anxiety and depression. COVID-19's impact on mental health in the workplace was most likely worse for those with pre-existing conditions or a perception of physical vulnerability (Giorgi et al., 2020; Hamouche, 2020).

In contrast to expenditures related to mental health, WHO estimates that, for every dollar invested in treating mental illness, there is a return of four dollars due to improved health and productivity in workplaces (Brunier, 2016). For every dollar invested, medical costs decrease by about $3.27, and absenteeism costs fall by approximately $2.73 (Baicker et al., 2010). When companies integrate actions in their workplace culture to promote the well-being of their employees, the gains and opportunities are significant in comparison with those organizations that choose not to undertake such efforts (Pan American Health Organization & World Health Organization, 2018; World Health Organization, 2015, 2019).

Numerous studies have identified ways to promote employee well-being and mitigate the adverse effects of mental health issues in the workplace. One effective method is fostering employee engagement and active participation through participatory practices that promote well-being (Sakakibara et al., 2017). Engagement denotes employee's emotional connection to their work and their organization (Truss et al., 2014) and entails a sense of satisfaction, well-being, vigour, vitality, energy, and focus, even in the face of adversity (González-Romá et al., 2006; Schaufeli et al., 2002). In essence, engagement is a continuous state of motivation that drives a person to be mentally and physically present, focused on achieving their job and organizational objectives, and leveraging their emotional and cognitive abilities to achieve meaningful accomplishments (Byrne, 2015). Engagement, then, is the glue that binds an organization together and is expressed through continuous physical, cognitive, and emotional involvement (Kahn, 1990). Recent research underscores the role of leadership in fostering this environment; servant leadership, in particular, has been linked to enhanced psychological well-being, happiness, and engagement through its emphasis on support, empowerment, and follower development (Jonker et al., 2025).

Canada has made significant strides toward addressing workplace mental health concerns by creating a national mental health strategy focusing on workplace settings (Mental Health Commission of Canada, 2009). The initiative, *Changing Directions, Changing Lives*, is an evidence-based strategy developed by mental health experts and workplace representatives from across the country. It aims to promote mental wellness, prevent mental health issues, and address social stigma and discrimination associated with mental health conditions. The strategy outlines 26 priorities and 109 recommendations for action across six strategic directions, with the first direction highlighting the importance of creating mentally healthy workplaces in all sectors. This benefits workers, their families, and employers while contributing to Canada's economic prosperity. To achieve this, as outlined in the Mental Health Commission of Canada's Framework for Action (2017-2022), workplaces must implement comprehensive initiatives and programs for promotion, prevention, anti-stigma, and support for employees with mental health problems and illnesses. This framework includes strategic pillars and objectives for leadership, funding, promotion, prevention, access to essential supports and treatment services, and data collection and research (Mental Health Commission of Canada, 2012, 2021a, 2021b).

Evidence shows that workers in Canada experience mental health issues to the extent that it is impacting the national economy and organizations and individuals. In Canada, mental health in the workplace is given importance through various policies such as the National Mental Health Strategy, the Framework for Action, and other such initiatives. These policies aim to increase awareness and encourage actions to enhance school well-being by improving the work environment. Diverse organizations, particularly WMA Wellness, a Fredericton-based workplace wellness company and the first Canadian initiative to promote collective well-being and positive leadership while striving to improve employee engagement and productivity and create a flourishing work environment, play an essential role in achieving this goal.

Over the past decade, the National Mental Health Strategy, the Framework for Action, and other policies have raised awareness about mental health as an essential issue in mainstream and social media. Programs such as Bell Canada's Let's Talk have gained widespread nationwide recognition (Bell, 2020). There is a growing emphasis on incorporating wellness and well-being programs in and outside workplace organizations. Several programs, such as those managed by Alberta Blue Cross, The Canadian Directory About Getting Better, Wellness Works Canada, and WMA Wellness, are working towards promoting mental health in different settings with particular emphasis on the workplace. These programs include implementing mindfulness practices; workplace safety measures; ergonomic policies; workplace diversity; managing emotions, stress, and anxiety; and developing resilience practices and an overall culture of well-being.

Noteworthy are the efforts of WMA Wellness, an innovative Canadian organization that developed the Positive Workplace Framework (PWF) to foster workplace positive mental health. Their approach seeks to promote positive leadership and employee well-being at the group or workplace team level such that all members in an organization are involved. This successful initiative has been implemented in diverse workplace settings, including schools, using evidence-based practices to promote engagement, productivity, and flourishing opportunities inside the organization. Implementing the PWF in schools can foster a positive mental health environment. This, in turn, improves the well-being and positive leadership of teachers and administrators, ultimately impacting their decision-making regarding learning plans and promoting well-being among students (Alberta Blue Cross, 2020; The Canadian Directory About Getting Better, 2019; Wellness Works Canada, 2020; WMA Wellness, 2024).

2.2. Emergence of Positive Mental Health in the Workplace

The section above examined the concept of well-being, its defining characteristics, and the research that supports its relationship with engagement, productivity, success, effectiveness, and flourishing. It also emphasized the importance of prioritizing well-being in the workplace, particularly in educational institutions, where it is crucial in guiding administrator's and educator's decisions regarding curriculum development and student well-being initiatives. This next section identifies the key elements, constructs, and qualities constituting a positive workplace environment. Discussions also delve into the emergence of positive psychology as an emerging field of research and the central theoretical models and conceptual frameworks underpinning the field's development, specifically in relation to workplace environments.

Positive psychology emerged from humanistic psychology and its emphasis on the importance of focusing holistically on the whole person, concentrating on helping people fulfill their potential, and maximizing their well-being rather than focusing squarely on aspects of dysfunction, such as depression or low self-esteem. Positive psychology similarly emphasizes psychological strengths and positive social interactions. The perspective draws from the works of influential psychologists, addressed in brief here and elaborated below, such as Rogers (1959, 1961, 2007), Maslow (1962), and Bandura (1977-2000). Three concepts were critical to the emergence of positive psychology:

1) the Continuum of Mental Illness and Mental Health (Allport, 1937b, 1964); 2) the Broaden-and-Build Theory of Positive Emotions and the view that positive emotions have a broadening effect to influence positively thought and action and build

internal resources over time (Fredrickson, 2001, 2013b); and 3) the four-stage dual-dimensional Mental Health Continuum that positions health and illness at opposite ends and supports the contemporary view of mental health and mental illness as separate and distinct conditions rather than predicated on the assumption that the presence of mental health or mental illness assumed the absence of the other (Keyes & Ryff, 1995; Westerhof & Keyes, 2010).

The growth of positive psychology has also been influenced by Seligman and Csikszentmihalyi's important theoretical contribution of flow (Csikszentmihalyi, 2008; Csikszentmihalyi & LeFevre, 1989) and a person’s complete non-self-conscious involvement in an activity such that positive emotions and flourishing are heightened (Seligman, 1990, 2013). Positive organizational psychology has also expanded in the past two decades to include the concept of resiliency (Ungar, 2004, 2011; Ungar et al., 2019) and the capacity to recover quickly from obstacles and challenges, as well the Competing Values Framework (Cameron et al., 2006) and the emphasis on promoting a positive culture and positive change within an organization. The research and theory underpinning positive psychology has also expanded to include the Positive Organizational Scholarship (POS; Cameron et al., 2003a, 2003b; Cameron & Spreitzer, 2012b), which encompasses primarily four key components to teach employees for collectively fostering greater organizational success: self-efficacy, hope, optimism, and resiliency.

To foster the dimensions of well-being and flourishing in workplaces, three theoretical models have been crucial to developing applied positive mental health and well-being frameworks in workplaces: 1) The Intrinsic Motivation and Self-Determination Theory (SDT), and the characteristics of intrinsic motivation and self-determination in achieving workplace success (Deci et al., 2017; Deci & Ryan, 2008; Ryan & Deci, 2001, 2017); 2) the PERMA model comprised of the five components of Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment as the main drivers contributing to well-being (Donaldson et al., 2022; Seligman, 2018); and 3) the Positive Workplace Framework (PWF; (Laurie et al., 2019; Peterson & Morrison, 2016; WMA Wellness, 2024). These frameworks aim to help individuals and workplace teams become fully functioning, resilient, and motivated to develop creatively their full potential.

2.2.1. The Transition from Humanistic to Positive Psychology

Positive psychology is a field that has its roots in humanistic psychology. It emphasizes human strengths, positive emotions, motivations, psychological well-being, resiliency, and flourishing (Harvard Health Publishing, 2008). Humanistic psychology, the third wave or force in psychology (Grob & Bossis, 2017), came about after the growth of theoretical models and investigations centred on disease or psychopathology constructs and behaviors. This emerging field of psychology highlighted how individuals themselves, through their own thoughts and actions, shape their identity and find meaning through interactions with their surroundings. Humanistic psychology emphasized the importance of motivation and realizing one's full potential (Moss, 2015; Taylor & Martin, 2015).

Maslow's Theory of Hierarchy of Needs, initially proposed in 1943 as the Theory of Human Motivation, is well-known. According to his theory, human needs are arranged in a hierarchy that progresses from the basic towards higher-level needs and ultimately leads to self-actualization, which Maslow defines as realizing one's potential. When individuals become self-actualized, they function optimally, adapt well, and reach their full potential. They possess several qualities, such as accurate perspectives, autonomy, self-acceptance, appreciation of new experiences, positive dispositions, and openness to others' participation in tasks (Maslow, 1954, 1962).

Maslow's research has influenced a wide range of settings including workplaces. Maslow maintained that organizations and leaders needed to ensure that the multiple needs of the hierarchy are met within the workplace environment since, he maintained, meeting these needs worked continuously to enhance employee motivation, personal growth, and optimal functioning. As needs are met, starting from the physiological and progressing to self-actualization, they create the necessary conditions for individuals to realize their full potential and become more creative (Krems et al., 2017; Maslow, 1943, 1954, 1962, 1998).

In line with Maslow's (1954) theory, Rogers (1961), in the Fully Functional Individual Theory, believed that individuals have an inherent drive towards actualization–the process of becoming a fully functioning individual (Perera, 2020; Rogers, 1961, 2007). According to Rogers, one must attain congruence or shared levels of consistency between one's perceived image of one's ideal self and one's actual behaviors if they are to achieve self-actualization. Roger's contribution to the field of psychology was his belief that people naturally evaluated their experiences concerning their inherent tendency for actualization (Rogers et al., 1989). This process highlights an individual's innate ability to recognize and pursue what they need for a fulfilling life (Proctor et al., 2016). However, the actualizing process can be hindered by conditions of self-worth, whether positive or negative, that individuals encounter in their environment and interactions with others (Rogers, 1959). Conversely, individuals who experience unconditional positive regard in social settings and interactions tend to grow positively in directions that align with their actualizing tendencies. Roger's theory suggests that optimal personal development is achieved through positive growth in self-actualization and enhanced relationships with others. He refers to this as "the good life," where individuals continuously progress toward their full potential through person-centred approaches to helping others (Proctor et al., 2016; Rogers, 1951, 1959; Rogers et al., 1989).

Like Maslow's and Roger's belief in people's self-actualization needs, Bandura proposed the Self-Efficacy Theory, a framework for people's further growth potential based on self-efficacy (Bandura, 1997). This framework highlights an individual's capacity for enhanced mastery, competence, and confidence when a strong self-efficacy is realized. Self-efficacy is defined as the belief in one's capability to organize and execute the necessary courses of action to achieve specific goals (Bandura, 1997), which is not the same as level of self-esteem and perceptions of one's own worth, personal competence, or performance achievement (Fearon et al., 2013; Pescosolido, 2003; Van Vuuren et al., 2007). Expectations of perceived self-efficacy determine an individual's resilience and coping behavior and the extent to which they can sustain themselves in the face of obstacles or challenges. It is related to performance and a healthier life. Higher self-efficacy among employees is associated with lower levels of anxiety and an increased capacity to manage their environment and achieve their expected goals or outcomes. In the workplace, collective efficacy refers to a group's belief in their collective ability to undertake selected courses of action, which moves beyond an individual’s strengths or performance (Gully et al., 2002) to reflect an interdependency among employees (Bandura, 1995). Shared beliefs foster collective motivation and commitment towards common goals, enhance communal coping, and heighten group resiliency to adversity (Bandura, 1977, 1986, 1995, 1997, 2000).

2.2.2. The Emergence of Positive Psychology

The construct "positive psychology" was first coined by Maslow in his 1954 book *Motivation and Personality*. Maslow and his peers sought to shift psychology's focus from challenges and dysfunction to exploring the human potential for growth, development, and resilience in the face of adversity. Positive psychology therefore emerged as an alternative approach to the traditional and singular method of diagnosing and treating mental illness Maslow (1954) introduced the term *positive psychology* in Chapter 18 of *Motivation and Personality* (Chapter 18, pp. 353–363).

Three significant theoretical perspectives played a crucial role in developing the field of positive psychology (Day et al., 2014). The first was proposed by Allport (1937a), who positioned mental illness and mental health as co-existing on a continuum rather than simply situating an individual as having, or not having, mental illness or mental health, and recognized instead that individuals can fluctuate between these two extremes (Allport, 1937b). This perspective reduced the stigma associated with mental illness and emphasized an individual’s intrinsic abilities and knowledge. As Allport (1937b) noted, a healthy functioning individual had a mature understanding of both their internal and external world and developed the ability to take responsibility for their actions while navigating the mental health continuum with autonomy (Allport, 1937b, 1964; Chowdhury, 2019).

The second theoretical perspective positioned positive emotions as instrumental in promoting well-being and flourishing (Fredrickson, 1998). Positive Psychology gained momentum through this emphasis on the importance of positive emotions. This perspective fostered a deeper insight into how positive emotions can broaden an individual's ‘thought-action repertoire’ of cognitive responses to emotional stimuli. An individual’s thought-action repertoire becomes restricted and limited in emotional response when viewed through a negative emotional lens but expands to a broad range of potential thoughts and actions when seen through a positive emotional lens.

Positive emotions produce thought-action repertories that create personal resources to adapt and flourish. Joy, for example, is a positive emotion that inspires playfulness, pushing limits, and creativity. Accomplishments often lead to a sense of achievement and a desire to share with others, thereby fueling the motivation to envision and pursue new initiatives (Vacharkulksemsuk et al., 2011).

Individuals can expand their thought and action capabilities by engaging in positive thought-action responses. This expansion leads to more diverse and long-lasting thoughts and behaviors that can improve personal resources, coping skills, and overall psychological well-being and flourishing (Vacharkulksemsuk et al., 2011). Those who adopt a positive mindset tend to have more energy, show greater engagement in their activities, and demonstrate greater flexibility, creativity, and problem-solving abilities. As a result, they are more active and better equipped to navigate challenges and make sound decisions (Fredrickson, 1998, 2013b).

As per Fredrickson's (2001) Broaden-And-Build Model of Positive Emotions, emotions prompt individuals to interact with their surroundings and pursue activities that help them adapt positively. Positive emotions are crucial in generating positive thoughts and actions that result in engagement. However, negative emotional states, like fear, can also trigger negative responses such as the fight or flight response essential for survival. Essentially, both positive and negative actions play a role in survival. However, positive emotions can expand an individual's thought and action capabilities–their ‘thought-action repertoire’–which ultimately promotes personal growth. Experiencing positive emotions not only facilitates survival but also contributes to overall well-being and flourishing. A crucial indicator of flourishing is the presence of optimal well-being, which is characterized by positive emotions such as joy, interest, contentment, and love (Fredrickson, 1998, 2001, 2013a, 2013b; Fredrickson et al., 2000; Fredrickson & Branigan, 2005).

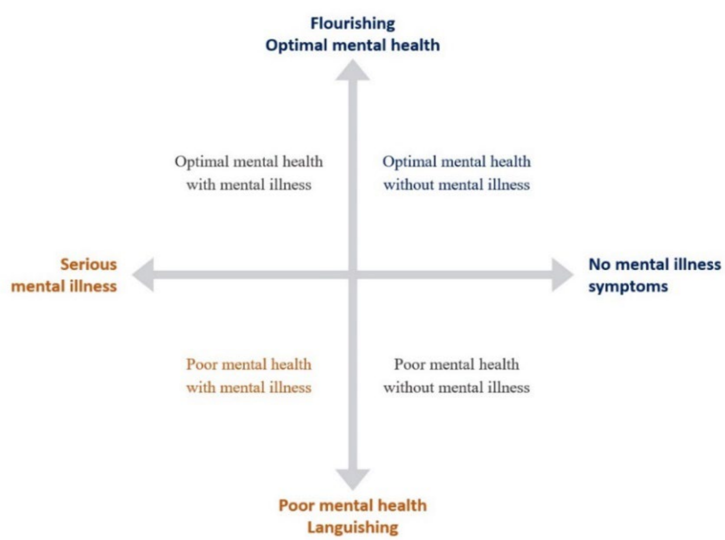
According to Fredrickson and her colleagues (2011), organizations are realizing the importance of creating positive work environments. By adopting the Broaden-And-Build Model organizations enhance employees’ thinking and develop their personal and social resources through fostering positive emotions and contributing to creating collaborative work environments. This, in turn, leads to improved organizational functioning and better team performance. When small groups within an organization utilize Appreciative Inquiry processes of working collaboratively using a strengths-based rather than deficit-based problem-solving approach to overcome challenges, they foster transformative collaboration within and between workplace teams and foster growth in organizational development and change. Transformative collaboration involves individuals and teams working to create significant changes by cultivating a shared positive mindset or vision. By connecting collective positive emotions, teams can energize, engage, and sustain organizational transformation. Positive emotions have a far-reaching impact, extending beyond a single action to create dynamic, innovative cultures that focus on overcoming challenges (Sekerka & Fredrickson, 2008; Vacharkulksemsuk et al., 2011).

In the same vein, appreciative inquiry involves sharing positive memories, testimonials, and discussions about team capabilities and potential and using these perspectives to develop solutions for addressing adversities. By focusing on team strengths, problems or difficulties are reframed as opportunities for thriving and growing. This approach encourages team members to envision new and innovative ways to apply their strengths and potential (Fredrickson, 2000; Sekerka & Fredrickson, 2008; Vacharkulksemsuk et al., 2011). Studies conducted in organizational settings have shown that positive emotions fostered through appreciative inquiry can lead to transformative collaboration among individuals and teams, resulting in corporate growth and change (Cooperrider, 2019; Cooperrider & Whitney, 2000, 2005).

The third significant theoretical perspective important to the emergence of positive psychology is the Dual-Dimensional Mental Health Continuum Model introduced by Ryff (1989) and Keyes (Keyes, 2002, 2005, 2006; Keyes & Grzywacz, 2005; Keyes & Ryff, 1995; Ryff, 1989; Westerhof & Keyes, 2010). This model reflects Fredrickson's premise about the significance of positive emotions in personal adjustment to include six dimensions of wellness, including autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance (Keyes & Ryff, 1995).

Keyes's model expands on the traditional view of mental health and the focus solely on the presence or absence of mental illness. Instead, this model conceptualizes mental health as occurring on two continua, as Figure 1 shows in Keyes's two-continuum or dual-dimensional model of mental health. Keyes maintains that mental health and mental illness are neither discrete nor independent from one another since the absence of mental illness does not consequently mean the presence of mental health, and the absence of mental health does not imply the presence of mental illness. Instead, these two dimensions coexist and occur along two intersecting continua (Keyes, 2002, 2005; Robitschek & Keyes, 2009).

Figure 1
Keyes's Dual-Dimensional Model



Note. Keyes, C. (2002). The mental health continuum: From languishing to flourishing in life. *Journal of Health and Behavior Research*, 43, 207–222.

The vertical continuum represents high to low mental illness; the horizontal continuum represents high to low mental health. The horizontal continuum embodies the conventional medical approach to mental health. The second continuum is linked to constructive emotions and emphasizes an individual's capability to flourish or thrive. Keyes identifies the ideal state of well-being as a syndrome of symptoms of positive functioning, which he refers to as flourishing. People's mental health can vary from being completely healthy with no signs of illness to experiencing severe mental illness and symptoms. The most desirable condition falls on the end of the continuum where there are no mental health issues. Conversely, the opposite end of this spectrum entails acknowledging significant mental health concerns that necessitate tailored assistance, intervention, or therapy (Keyes, 2005).

Regarding the workplace, the dual-dimensional well-being model of mental health emphasizes the advantages of promoting employee flourishing. These benefits include fewer missed workdays, increased personal resilience, stronger team cohesion, improved productivity, and even positive impacts on physical health and healthcare utilization (Keyes, 2005, 2007a, 2007b).

2.2.3. The Growth of Positive Psychology and Workplace Mental Health

The field of Positive Psychology has seen a surge of interest from researchers based on evidence suggesting that positive emotions and actions contribute to overall health and foster growth, efficacy, resiliency, and flourishing. Individuals with positive mental health are fully functional and able to engage with internal and external realities, resulting in positive outcomes even in adverse situations. They are also more efficient, have better relationships, positively impact their environments, and create better

workplace environments. In positive psychology, several concepts have been instrumental in promoting well-being for individuals and communities alike. Five of the more important contributing concepts particularly relevant to positive mental health research and practice in the workplace are discussed in the following:
1) Csikszentmihalyi’s concept of flow (Csikszentmihalyi, 1978, 2008), 2) Seligman’s concept of learned optimism and authentic happiness (Seligman, 1990, 2002), 3) Seligman and Csikszentmihalyi’s combined work on the concept of positive traits (Seligman & Csikszentmihalyi, 2000), 4) Ungar’s concepts of resiliency and positive environment (Ungar, 2008, 2011, 2023), and 5) Cameron’s concept of positive deviant leadership (Cameron, 2006, 2008, 2010b, 2013; Perry & Cameron, 2010). Each of these concepts are discussed in turn.

2.2.3.1. Flow (Csikszentmihalyi, 1978, 2008)

According to Csikszentmihalyi, happiness and positive emotions are achieved through conscious and meaningful actions that lead to exhilarating and enjoyable experiences, even when facing challenges or trying new things. When actions and emotions are meaningful, these actions create a sense of what he calls "flow," meaning a heightened experience of motivation, creativity, and productivity. Flow is associated with positive affect, job satisfaction, more enjoyable work routines, and positive workplace relationships. Experiencing a sense of flow benefits employee’s mental health and well-being and contributes to a more positive and productive workplace culture (Csikszentmihalyi, 1978, 2008; Csikszentmihalyi & Asakawa, 2016; Csikszentmihalyi & LeFevre, 1989; Gardner et al., 2001; Ilies et al., 2017). Csikszentmihalyi (1978, 1999, 2008) describes flow as the combination of meaningful activities and emotions that result in optimal experiences and good work(Csikszentmihalyi, 1978, 1999, 2008). Flow has significant implications for workplace engagement with work-related tasks and routines. Workplace interactions can enhance employees' potential to experience a sense of flow by providing increased opportunities for creativity and flexibility and intrinsically rewarding or motivating activities. This can result in greater joy and engagement in the workplace setting (Csikszentmihalyi, 1978). No matter what kind of work employees engage in, experiencing a state of flow has several advantages for their mental health and overall well-being. In particular, flow has been linked to positive emotions, job satisfaction, more engaging and rewarding work tasks, and improved workplace relationships, all of which contribute to a more positive and productive work environment (Csikszentmihalyi & Asakawa, 2016; Csikszentmihalyi & LeFevre, 1989; Gardner et al., 2001; Ilies et al., 2017).

2.2.3.2. Learned Optimism and Authentic Happiness (Seligman, 1990)

Seligman's concept of learned optimism is a well-known construct in positive psychology. It suggests that a persistent and hopeful approach to life can lead to a more optimistic outlook. People who adopt this style of living are better equipped to handle challenges and adversity, recognizing that these experiences are often temporary, and that life is constantly evolving. Research suggests that those who live optimistically enjoy better emotional and physical health than those with a more pessimistic view of life. Conversely, individuals who adopt a negative perspective may experience learned helplessness, leading to a tendency to give up or quit (Seligman, 1990). The concept of learned optimism is more than just about positive thinking. It involves utilizing non-negative thinking when faced with failure. According to Seligman, learning how to be optimistic, or, conversely, helpless, is possible. Everyone has their habitual way of interpreting their experiences. If one concentrates on negative thoughts and believes that a challenging situation is unchangeable and will persist, helplessness is reinforced (Seligman, 2013). In workplace environments, learned optimism suggests that team members who positively approach situations can spread that energy and emotion to others through shared successes. Understanding this idea can help employees view challenges as opportunities and create new goals or options for progress (Peterson et al., 2009). Another positive psychology concept proposed by Seligman is the concept of authentic happiness. According to him, happiness involves three crucial elements: experiencing positive emotions, feeling engaged in life, and living purposefully or meaningfully (Seligman, 2013).

2.2.3.3. Positive Traits (Seligman & Csikszentmihalyi, 2000)

Seligman and Csikszentmihalyi (2000) posit that developing positive habits and traits requires a continuous exercise of flow (consciousness) and engagement in positive emotions and actions throughout daily activities. These traits are the outcome of a learning process (learned optimism) rooted in positivity and a state of authentic happiness. Csikszentmihalyi and Seligman's research demonstrates that positive emotions such as optimism, joy, and flow can lead to the development of positive traits in individuals and groups within workplace teams or groups (Seligman & Csikszentmihalyi, 2000). Peterson and Seligman (2009) expanded this idea by creating a classification of six primary and commonly held cross-cultural virtues that are valued and embedded within societies. Collectively, these six virtues consist of 24-character strengths that promote positive traits in people. These virtues and their corresponding characteristics include: 1) wisdom and knowledge (creativity, curiosity, judgment, love of learning, perspective), 2) courage (bravery, persistence, honesty, and zest), 3) humanity (love, kindness, and social intelligence), 4) justice (teamwork, fairness, and positive leadership), 5) temperance (forgiveness, modesty, prudence, and self-control), and 6) transcendence (appreciation of beauty, gratitude, hope, humour, and spirituality). When promoted in the workplace, these virtues and character strengths benefit employees and enable them to grow and to flourish and allow for optimal functioning and performance as they pursue achieving their organization's goals and outcomes (Peterson et al., 2009).

2.2.3.4. Resiliency and a Positive Environment (Ungar, 2008, 2011, 2023)

As discussed earlier, positive psychology focuses on utilizing the strengths of individuals and their environments. While a supportive environment can contribute to overall well-being, individuals can adopt adaptive behaviors that help them become more resilient when faced with challenges or changes in different situations. According to Ungar (2013), adaptive behavior is the ability of individuals to find and utilize psychological, social, cultural, and physical resources that sustain their well-being. Additionally, it involves their ability to negotiate for these resources individually and collectively, ensuring they are culturally relevant and meaningful (Ungar, 2004, 2010, 2011, 2013, 2023). Ungar (2011, 2013, 2023) explores the role of ecological variability (diversity of, and in, one's environment) for building resilience. His approach stresses the significance of considering resiliency at a group level, viewing it as a developmental process that involves both physical and cognitive aspects, particularly when faced with changes in social and physical environments. Furthermore, his description highlights individual and group-level approaches to securing resources to promote human development in various systems where people interact (Ungar, 2011, 2023; Ungar et al., 2013). According to Ungar's definition of resiliency (2011), navigating through resources is crucial. This implies that individuals should be motivated to access community resources that are available, accessible, and aligned with their culture. The community can effectively promote resilience by creating an environment that supports the development and adoption of adaptive coping patterns among individuals. Ungar's ecological resiliency theory (2008, 2011, 2023) stresses the importance of social-ecological factors in fostering positive coping, adaptation, and development and has contributed significantly to positive psychology by recognizing the impact of the environment on people's growth and development, especially during times of change and difficulty. In the workplace context, Ungar's theory highlights the importance of developing organizational policies and processes that promote team resiliency and adaptation. Organizations can foster a positive workplace culture and improve employee well-being by incorporating resiliency-related policies and procedures and utilizing team-level resources that support positive growth and development.

2.2.3.5. Positive Deviant Leadership in the Competing Values Framework (Cameron, 2006)

Deviance in the context of Cameron’s Competing Values Framework refers to individuals who behave in highly unique and positive ways that deviate from the norm or typically expected behavior. positive leadership in general plays a vital role in promoting well-being in various workplaces and other environments. Positive deviant leadership is the concept of leaders with the ability to engage in uncommon practices, behaviors, and strategies that facilitate finding atypical or uncommon, though positive, solutions to typical workplace problems even compared with when they only have access to the same resources as, and face challenges comparable to, their peers. As such, a positive leader is crucial in nurturing a culture of shared well-being practices, possesses an optimistic outlook, and skillfully guides communities or teams in utilizing their collective resources toward building resilience, growth, and conditions conducive for flourishing. Their actions and decisions can impact significantly the mental health of employees and practices within an organization. Studies show that implementing well-being practices leads to positive job performance outcomes (Kaluza et al., 2020; Montano et al., 2017). By working together, leaders and their staff can promote collective well-being. According to Cameron, such leadership is indispensable in creating positive organizations that strive for excellence, resilience, abundance, strength, virtuousness, and outstanding performance. Effective leaders therefore prioritize enabling high performance and striving for extraordinary outcomes that deviate from the norm (Cameron, 2013; Cameron et al., 2006, 2017).

Positive leaders follow five fundamental positive leadership principles to create a positive work environment based on values. These principles include fostering exceptional performance, promoting positive relationships, encouraging positive communication, establishing positive meaning at work, and implementing them through a Personal Management Interview program (Cameron, 2008, 2010a, 2010b) of regularly held and ongoing meetings between leaders and employees so leaders can coach and mentor them to improve their skills and ultimately realize strengthened workplace performance. These practices are consistent with recent research highlighting how benevolent leadership cultivates a climate of forgiveness and promotes emotional well-being, which strengthens employees' sense of belonging and organizational identification (Mahmoud & Mousa, 2025). They utilize positive enablers–processes, techniques, and practices that sustain exceptional success and promote collective resourcefulness through teamwork. These enablers drive the development, implementation, and production of positive outcomes, thereby strengthening the adaptive capacity of organizations (Perry & Cameron, 2010).

Positive leaders possess a distinctive ability to perceive the world without limitations. They tackle challenges and opportunities while acknowledging traditional norms and striving for exceptional outcomes and performance (deviance) (Cameron et al., 2017). Their contribution is crucial in promoting well-being and a fulfilling and virtuous life, as well as fostering healthy and meaningful relationships that cultivate flourishing, nobility, and vitality (Cameron, 2007, 2010a; Cameron et al., 2003b, 2011; Cameron & Spreitzer, 2012a).

Leadership can have a positive or negative impact on deviance. At an individual level, positive deviance can lead to improved health and productivity. At the organizational level, under normal circumstances, organizations can be effective, efficient, reliable, ethical, helpful, and adaptable. However, positive deviance takes performance and outcomes to a level of excellence. In this situation, organizations exhibit perfection, benevolence, honest relationships, adaptability, and flourishing. Conversely, negative deviance leads to ineffective, inefficient organizations, unethical and destructive relationships, and a rigid approach that makes adaptation impossible. By promoting virtuous leadership and positive deviance, organizations can enhance individual and group performance, increase productivity, and foster mutual creation (Cameron & Caza, 2002).

When organizations implement positive practices, their effectiveness is most strongly linked to how well they prioritize the well-being of their employees and teams. Studies have shown that a combination of positive practices, such as compassion, integrity, forgiveness, kindness, and optimism, impacts organizational performance most (Cameron et al., 2011). Research conducted in the financial services industry in 2017 demonstrated that implementing and improving these positive practices led to higher performance and explained 45% of the variance in economic success (Cameron et al., 2017). Conversely, organizational dysfunctions can result in employee turnover, decreased performance quality, and reduced productivity (Cameron & Caza, 2002). Additional research has revealed that corporate forgiveness plays a significant role in performance and voluntary employee turnover (Cameron & Caza, 2002). Throughout her career, Cameron's research has demonstrated the intrinsic relationship between organizational productivity and the promotion of well-being in the workplace. He emphasizes the importance of virtuous leadership in fostering positive deviant performance. Cameron's research also considers mental health a combination of integral health and various factors such as work, education, insight, love, growth, and play (Cameron & Caza, 2002; Seligman & Csikszentmihalyi, 2000).

2.2.4. Positive Well-Being Frameworks Applied in Workplaces

Positive psychology has become a widely recognized approach with a diverse range of proponents and research applications spanning over 40 years. The field has been enriched by extensive research including in the workplace, which, for Cameron, led to the emergence of the Positive Organizational Scholarship (POS) field in 1980. POS focuses on the characteristics of, and strategies for, creating positive environments in workplaces, thereby enabling employees to achieve their optimal workplace performance. POS arose from a decline in organizational studies, which had previously focused primarily on growth in workplace outcome variables such as profitability, competitive advantage, problem-solving, and economic efficiency (Cameron & Spreitzer, 2012a; Weber, 1997).

The POS framework integrates positive approaches in organizational studies and different theories and research related to excellence, thriving, flourishing (well-being), abundance, resilience, or virtuousness to develop ideas and evidence about positive dynamics, and seeking the best human condition for employees in the workplace (Cameron & Spreitzer, 2012a). Research interests within the POS framework are organized into four domains: centred on a positive perspective, extraordinary positive outcomes, affirmative bias, and focus on virtuousness or the best of the human condition (Cameron & Spreitzer, 2012a). This section examines three central organizational frameworks that promote positive well-being in the workplace: the Intrinsic Motivation and Self-Determination Theory (SDT), the PERMA model, and the Positive Workplace Framework (PWF).

2.2.4.1. Intrinsic Motivation and Self-Determination Theory (SDT)

Self-Determination Theory (SDT), also known as Intrinsic Motivation and Self-Determination Theory, was developed by Deci and Ryan beginning in the 1980s. It is an integrated theory that combines both physiological and psychological aspects. SDT views humans as naturally curious, physically active, and highly social beings and, as such, takes a holistic organismic perspective of individuals and how they function within their environment (Ryan & Deci, 2017). SDT aims to encourage people's growth (flourishing) and well-being in social settings by exercising their innate motivation (Deci & Ryan, 1985). It explores factors that promote or deter well-being and flourishing, such as motivation, social integration, well-being, fragmentation, antisocial behaviors, and unhappiness (Ryan & Deci, 2017). In essence, the theory revolves around three key relationships: the connection between intrinsic motivation and fulfilling psychological needs, the link between motivated behavior and personal growth (development), and the relationship between functional living and collective flourishing (well-being) (Deci & Ryan, 1985).

An SDT approach emphasizes the individual's active role in making decisions and taking actions that promote their well-being. It involves making choices based on personal interests and initiating behaviors that lead to significant achievements. This motivational approach focuses on energizing and directing behavior, utilizing constructs that organize cognitive, affective, and behavioral variables rather than relying solely on cognitive processes (Deci & Ryan, 1985). In their work, Ryan and Deci explain that motivation arises from the drive to fulfill basic needs and achieve personal growth. As humans enhance their abilities, they naturally tend to progress toward organismic or holistic environmental integration, which leads to a sense of overall well-being (Ryan & Deci, 2017). Well-being is the product of an individual and collective engagement with a process of growth through dynamic behavior to satisfy needs and reach increasing states of wellness in themselves and others (Deci & Ryan, 1985).

According to Deci and Ryan's (1985) theory, a fully functional person engages in continuous volitional behavior to fulfill their basic psychological needs both individually and as part of a team. These needs include relatedness, competency, and autonomy, and when these needs are met, the individual can flourish and experience well-being. Relatedness entails establishing meaningful relationships with others and feeling accepted and loved. Competence involves feeling capable and compelling in one's environment and developing specific skills, mastery, capacities, and talents. Autonomy is the desire to experience self-endorsement and take ownership of one's actions. This need is closely tied to self-regulation, which involves taking control of one's efforts to satisfy personal needs or build relationships with others (Ryan & Deci, 2017). Through dynamic behavior and growth, individuals and teams can achieve increasing wellness for themselves and others, leading to flourishing and well-being (Deci & Ryan, 1985).

Before the advent of Deci and Ryan’s Social Determination Theory, behavioral motivation was explained solely by the urge to fulfill physiological needs and meeting biological aspects ranging from the basics for survival to the desire for love and esteem. SDT instead highlights the need to control one's internal and external environment and choose the best options for satisfying one's basic psychological needs. SDT theory (Deci & Ryan, 2000b) is characterized by the need for individuals to develop strengths to fulfill one's needs and interact socially by assuming volitional actions to make choices that will lead to individual and collective well-being. Creating the conditions for psychological need fulfillment is critical for fostering well-being among people in various settings, including workplaces and educational contexts. When the development of such diseases is impeded, individuals may not realize their full potential to grow and flourish and may subsequently experience more significant psychological distress (Deci & Ryan, 2000b; Rogers, 1959).

SDT research in workplace settings has demonstrated that feelings of autonomy and competence can impact intrinsic and extrinsic motivation (Deci et al., 2017; Howard et al., 2018). Autonomous motivation is linked to persistence, better performance, and improved well-being over time (Howard et al., 2018) and is affected by leadership styles, work conditions, and pay structures (Deci et al., 2017). Autonomous motivation is a crucial factor in predicting employee outcomes. It combines intrinsic and internalized extrinsic motivation since individuals who recognize the value and significance of their work are more likely to be highly motivated (Deci et al., 2017). Research has shown that autonomous motivation in the workplace leads to lower levels of burnout (Fernet et al., 2010), stress (Trépanier et al., 2013), exhaustion (Van den Broeck et al., 2008), and employee turnover (Richer et al., 2002). Moreover, autonomy is linked to greater work satisfaction (Foss et al., 2009; Kuvaas et al., 2016), work commitment (Fernet et al., 2012), and job performance (Preenen et al., 2016). In contrast, controlled motivation tends to produce opposite results (Deci et al., 2017). Creating the conditions for psychological need fulfillment is critical for fostering well-being among people in workplace settings since, when development is impeded, individuals may not realize their full potential to grow and flourish and may subsequently experience more significant psychological distress (Deci & Ryan, 2000a; Rogers, 1959; Ryan & Deci, 2000b).

2.2.4.2. PERMA Model

The PERMA Model, an acronym characterized by its five positive well-being components of positive emotion, engagement, relationships, meaning, and accomplishments, was developed by Seligman (1990, 2013) to conceptualize the core factors he attributed to achieving authentic happiness and enhanced well-being, which includes positive emotion like happiness, joy, love, and gratitude in the present moment to engender being fully absorbed, engaged, and sharing a state of flow with others. Meaning comes from feeling connected to something greater than oneself or contributing to a bigger purpose. It also incorporates the elements of relationship, which is characterized by positive and mutually beneficial connections with others (being loved, supported, and valued or appreciated by others) and accomplishment (pursuing and achieving personal, often challenging, goals) (Donaldson et al., 2022; Seligman, 2013).

Collectively, these model factors contribute to an individual's well-being and promote flourishing in their personal and professional settings (Seligman, 2002, 2013, 2018). The PERMA model has been used as the basis for designing intervention programs targeting high-stress work environments to improve employee well-being and promote flourishing, with research indicating that the model’s workplace application can aid institutional leaders in promoting and facilitating employee well-being and positively transforming workplace culture (Mayer, 2019; Slavin et al., 2012). The PERMAH (with health added) model has also been the foundation for developing workplace interventions in healthcare settings such as the CU-Flourish framework in which mindful awareness and psychological flexibility strategies were implemented aimed at increasing workplace well-being and flourishing among healthcare professionals (Beacham, 2020). Programs designed based on the PERMA model to enhance employee well-being have also been adapted successfully for online delivery (Neumeier et al., 2017).

Seligman's five-dimensional framework has since been enriched by the research of Donaldson and his team (Donaldson et al., 2019) in an effort to determine additional elements that specifically contribute to work-related well-being and performance. They identified four additional elements in their PERMA framework to include (Donaldson et al., 2019, 2021, 2022) 1) good physical health (high levels of biological, functional, and psychological assets), 2) a growth mindset (adopting an optimistic, future-oriented view of life), 3) a positive work environment (quality of the environment and a positive psychological climate) and 4) economic security (perceptions of financial security and stability critical to positive health and satisfying individual needs). Collectively, these additional elements can promote positive physical health and well-being. This model has various applications in workplace environments, particularly in promoting well-being, flourishing, and positive leadership.

Seligman used his model to develop the PERMA profiler to measure and therefore monitor group perceptions of the PERMA model's application in workplace settings for predicting workplace outcomes. The profiler is administered in the form of a questionnaire to measure the general well-being of adults based on their degree of positive and negative emotions, engagement, relationships, meaning, accomplishment, and health before, during, and after intervention programs are implemented. The profiler has been used globally and validated successfully using large participant populations in countries such as Korea (Choi et al., 2019), Japan (Watanabe et al., 2018), and Brazil (Vanni, 2021). Studies on the mediating effects among and between various dimensions of PERMA when applied in workplace settings have also been carried out in countries such as Hungary (Kun et al., 2017; Kun & Gadanecz, 2022), Japan (Watanabe et al., 2018), China (Huang et al., 2018), and Australia (Howard, 2008; Seligman, 2007) to explore workplace well-being. These studies showed that positive relationships and a sense of purpose play a significant role in workplace achievement and further determined that meaning is a stronger mediator for positive emotions and accomplishment than positive relationships, which suggests that meaning in one's work is important to intrinsic motivation (Goh et al., 2022).

The subsequent PERMA+4 version of the profiler enhanced the original positive emotions, engagement, relationships, meaning and accomplishment questionnaire with the four physical health, mindset, environment, and economic security dimensions also added for measurement. The enhanced PERMA+4 test comprised of a 29-item self-report measure was subsequently used to develop the Positive Functioning at Work (PFW) Scale to measure all nine dimensions of the PERMA+4 model and ascertain workplace well-being. This test has been shown to accurately predict workplace outcomes, such as employee turnover and attrition, the effect or well-being of employees, and individual team and organizational adaptivity, operational proficiency, and overall success. This test can be particularly beneficial for assessing workplace
well-being and performance from a psychological and behavioral perspective (Donaldson et al., 2019, 2021).

According to empirical research, PERMA and PERMA+4 building blocks of well-being strongly predict subjective well-being. Research has also found that higher scores on these measures were linked to positive outcomes and improved well-being led to positive functioning. The research also indicated that PERMA positively correlated with vitality, quality of life, better sleep quality, financial self-efficacy, workplace happiness, and organizational commitment. Similarly, the PERMA+4 was associated with positive work outcomes such as positive psychological capital, proficiency, proactivity, adaptivity, and lower turnover intentions (Cabrera & Donaldson, 2023). Among the PERMA evidence in workplace research, strong well-being promoted resiliency, productivity, and engagement with fewer motivational problems (Kun et al., 2017). Research evidence equally supports the use of the PERMA+ 4 as a robust framework for designing, measuring, and evaluating work-related well-being programs and interventions (Donaldson et al., 2021).

2.2.4.3. Positive Workplace Framework (PWF)

The PWF Framework is a pioneering Canadian approach to workplace mental health that emphasizes positive practices and interactions rooted in positive psychology principles (Laurie et al., 2019; Laurie & Bolaños, 2019). Developed by researchers at the University of New Brunswick, Morrison, and Peterson (2016) developed their framework based on the research of Seligman, Deci, and Ryan by designing and executing the PWF program across Canada and beyond. The PWF Framework significantly enhances workplace mental health, well-being, engagement, and performance (Laurie et al., 2019; Peterson & Morrison, 2016). By taking a strength-based approach, the PWF Framework promotes practices that support primary mental fitness needs and team resiliency assets, creating an environment where organizations can thrive and perform at their best (Laurie et al., 2021). This framework evaluates and promotes well-being and engagement in the workplace (Morrison, 2021).

The PWF stresses the importance of adopting a "dual pathway" approach to creating desired working conditions while recognizing that the absence of mental health issues alone do not solely influence psychological well-being since well-being is equally impacted by the presence of positive mental health. The latter pathway concentrates on an individual's strengths contributing to team well-being (Morrison, 2018; Peterson et al., 2020). Peterson and Morrison (2016) assert that positive mental health necessitates the implementation of workplace practices that foster well-being, engagement, and strong performance (Peterson & Morrison, 2016).

In the PWF, positive leadership is a construct of practices and virtues such as leadership virtues, positive communication, energizing skills, motivational knowledge and skills, and operational tasks (Morrison, 2018a; Peterson & Morrison, 2016). Figure 2 depicts the components of the PWF.

Figure 2
The Positive Workplace Framework, PWF (2016)

Note: WMA Wellness. (2024). WMA Wellness. https://www.positiveworkplaceframework.com/

The PWF provides leaders and managers with the skills and resources necessary to apply, model, and train others in positive workplace practices (Peterson et al., 2020). well-being practices involve how we interact, believing that treating each other well can significantly impact well-being, engagement, and overall team resiliency and success (Morrison, 2021).

The PWF was developed to enhance organizations' capacity to promote and integrate evidence-based positive workplace practices for long-term duration. It incorporates strategies gradually over time to foster sustained well-being practices in the workplace. Practices implemented in such environments significantly affect a team's capacity to thrive and flourish. Morrison (2021) emphasizes that individual relationships and interactions characterize workplace environments, so a positive workplace environment prioritizes positive mental health needs. In such settings, individuals are more likely to be engaged, motivated, and committed to personal and team activities, performing at their best (Morrison, 2021; Peterson et al., 2020).

This framework was designed to promote the mental health status of individuals collectively at the group level, as situated within workplaces and their well-being practices (consisting of mental fitness and resiliency) and positive leadership practices (Peterson & Morrison, 2016; WMA Wellness, 2024). Fostering a team's capacity to flourish, thrive, and experience hope, even in the face of challenging situations, promotes positive emotions, life satisfaction, a sense of purpose in life, positive psychological coping and adaptation, social-emotional competencies, and positive relationships and attitudes (Peterson et al., 2020). Research shows that practices aligned with the PWF domains are critical for optimizing employee commitment and productivity (Laurie, 2020, 2021a; Laurie et al., 2019; WMA Wellness, 2024).

Mental fitness practices are the foundation of workplace relationships, which Morrison calls an organization's relationship hygiene (Morrison, 2021). These practices promote three critical conditions for building effective workplace environments: 1) relatedness, 2) competency, and 3) autonomy support (Morrison, 2021; Ryan & Deci, 2017):

i. The first condition–relatedness or connectedness among employees–is present in workplace environments where interactions include friendly exchanges and contributing to a sense of knowing others and being known. Increased relatedness develops a sense of positive connections and the capacity to experience sensitivity to others and provide mutual support when additional assistance is needed. Promoting three essential practices–unconditional welcoming, meaningful exchanges, and genuine check-ins–is crucial for workplaces. When team members feel unconditionally welcomed, it fosters more profound and meaningful relationships. Meaningful exchanges within the team create opportunities to share valuable information. People with strong relationships are comfortable checking in with others and offering genuine support.

ii. The second condition is a sense of competency among employees. It is present in the workplace when teams recognize and value everyone's strengths, skills, and potential and foster awareness of how people's strengths contribute to their productivity and well-being. According to Peterson and Morrison (2016), this condition contributes to developing supportive expressions of appreciation and gratitude among employees and managers for the strengths that all members bring to the team, in contrast to environments that involve gossip or destructive conversations. Competency practices are summarized as recognizing strengths and building confidence (Morrison, 2021; Peterson & Morrison, 2016).

iii. The third condition is the promotion of effective workplaces through autonomy support, which is present in the workplace when teams value people's voices, perspectives, and diverse ideas. Autonomy-supportive workplace routines involve collaborating with colleagues or peers to develop strategies or address challenges or goals. Autonomy support contrasts with bullying environments and focuses on making psychologically safe workplace cultures for all team members (Peterson & Morrison, 2016). Autonomy-supportive practices are summarized as: voice, choice, and collaboration (Morrison, 2021).

Resiliency is the ability to persist in the face of adversity and to 'bounce back' when challenges are encountered (Peterson et al., 2020). Positive leadership significantly impacts an organization's growth and improvement and provides personal benefits for psychological health, emotional well-being, optimal functioning, improved interpersonal relationships and learning (Laurie, 2019a, 2019c; Laurie et al., 2021; Laurie & Bolaños, 2020). Within the PWF framework, the construct of resiliency is actualized at the team level through five core assets considered most beneficial to fostering strong resiliency attitudes and skills among employees:

i. A core premise of the PWF is that building strong social support networks and sense of community is crucial in any workplace. Such networks are referred to as *relationship assets* that form when teams have a caring attitude toward their colleagues and provide social support to one another particularly when confronted with challenges.

ii. Similarly, *professional assets* involve building confidence, capacity, and problem-solving skills among employee teams and are present in workplaces where teams use their collective knowledge and skills to ensure that learning opportunities are available and utilized.

iii. *Attitudinal assets* are characterized by optimism and positive dispositions, even when facing challenges while emotional intelligence assets refer to a team's ability to understand and manage emotions so positive and respectful communication is maintained.

iv. *Emotional intelligence assets* involve the team's ability to understand and manage emotions and communicate in positive and respectful ways. Examples of emotional intelligence assets are the ability to understand the emotions of self and others and practicing positive communication skills.

v. Finally, *adaptation assets* refer to a team's ability to adjust to changing situations through positive coping and strategies that allow them to grow, move beyond challenges, and engage in new opportunities.

Positive leadership practices are also a core domain of the PWF and encompass five competencies in leaders: 1) virtues, 2) positive communication, 3) energizing skills, 4) motivational knowledge and skills, and 5) operational tasks (Laurie et al., 2019; Peterson & Morrison, 2016). Practices aligned with these domains are critical for creating positive workplace cultures (Cameron, 2011; Cameron et al., 2003b, 2006; Cameron & Spreitzer, 2012b). Positive leadership practices are exhibited through:

i. *Leadership* virtues such as respecting employees and teams, accepting honest mistakes, and showing appreciation for others.

ii. To foster *positive communication* in the workplace, leaders use supportive and affirmative language instead of negative and critical language. This means being honest, specific, and reflective while focusing on solutions.

iii. It is also crucial for leaders to possess the *motivational knowledge and skills* needed to inspire and encourage their employees. Understanding and engaging employee strengths and interests in daily routines and activities is a hallmark of a successful leader. Leaders who promote a shared vision and encourage their teams to be part of organizational success demonstrate motivational knowledge and skills.

iv. *Energizing skills* are also essential and reflective of leaders who are enthusiastic, open, and optimistic. These leaders listen to their teams, value their contributions, and keep their promises.

v. Finally, *operational tasks* are necessary for leaders to keep their staff engaged. This involves clarifying roles and expectations and providing opportunities for professional growth.

The PWF seeks to determine an organization's mental fitness, resiliency, and positive leadership practices by ascertaining employee team's perspectives on the full range of operationalized domains and constructs of the three mental fitness conditions (relatedness, competency, and autonomy support), the five core resiliency assets (relationship, professional assets, attitudinal, emotional intelligence, and adaptation assets), and the five positive leadership competencies (virtues, positive communication, energizing skills, motivational knowledge and skills, and operational tasks).

To gauge these perspectives, two questionnaires are used for assessing and defining the extent to which employee teams perceive the practices in each domain are present in a workplace. One questionnaire, the Mental Fitness and Resiliency Inventory (MFRI), assesses the prevalence of mental fitness and resiliency practices, while the second questionnaire, the Positive Leadership Inventory (PLI), assesses positive leadership practices. Complementary findings in healthcare teams also show that shared leadership practices foster positive psychological capital among team members—enhancing optimism, collective efficacy, and engagement (Lee et al., 2025). Recent evidence also shows that servant leadership behaviors, such as those included in the PLI, generate psychological resources for leaders themselves—boosting vitality, engagement, and a sense of purpose—further affirming the regenerative potential of positive leadership in organizational contexts (Stotler et al., 2025).

The presence of mental fitness, resiliency, and positive leadership practices in a workplace are measured based on employee responses to the MFRI questionnaire and the PLI questionnaire. Both questionnaires are accessed through a confidential and secure online computer link and combined, take approximately 15-20 minutes to complete. Responses are reported on 5-point Likert scales (e.g., 'least like my workplace' to 'most like my workplace') so responders can provide a clear indication of the extent to which they perceive each of the practices presented in the questionnaires are present and practiced in their workplace.

All questionnaire responses are confidential and anonymous and fully aggregated for reporting at the team level. Collective questionnaire results are used to generate two detailed team-level reports for providing organizations with a comprehensive mental fitness and resiliency profile, and a comprehensive positive leadership profile.

The MFRI report sets out an organization's team-level mental fitness and resiliency strengths (those comprehensive practices already embedded in the workplace) and the areas they can target for further development (practices requiring promotion and capacity building). The positive leadership report equally sets out a team's perceptions of their leadership's strengths along with those areas leaders can target for strengthening positive leadership practices in their workplace. As such, leaders use their evidence-informed reports both to recognize and to reinforce their existing strengths that align with overall well-being while targeting those areas requiring strengthening and further development (Peterson et al., 2020).

In addition to the detailed results reported for each of the eight mental health and resiliency sub-domains, the MFRI report also combines these two sets of results to provide workplaces with an overall aggregate or composite score of each workplace team's well-being, with levels of well-being reported on the PWF's Well-Being Index (WBI). The WBI communicates a team's overall level of workplace well-being using a score range of 1 through 9, with a WBI of 9 signifying a workplace environment where mental fitness and resiliency practices are strongly embedded. The WBI is particularly beneficial for aiding leaders with setting improvement actions and targets given that the ability to address change is a central feature of the PWF when organizations seek to build their capacity and guide their workplace teams to sustain positive change over time (Morrison & Peterson, 2015).

The above discussion highlights the nature and significance of aspects associated with personal growth, development, and the role of relationships in fostering individuals who are fully functional (Bandura, 1977; Maslow, 1962; Rogers, 1959, 1961, 2007). Maslow's and Rogers's concept of self-actualization combined with Bandura's concept of self-efficacy is a desirable outcome for workplace employees since it means they can realize their full potential, which enhances mastery, confidence, and resilience.

2.2.5. The PWF's Capacity to Promote Well-Being in the Workplace

The PWF program has been implemented successfully in various locations across Canada and other international contexts including France. It has been applied to general workplace settings, including schools. As Laurie et al. (2019) have noted, the PWF work has been ongoing for several years, leading to a substantial research program with multiple studies being conducted. This section overviews some of the research conducted demonstrating the PWF's positive effects in promoting improved change in workplace cultures and performance.

According to research conducted by Bolaños (2021) aimed at identifying effective interventions to develop a positive workplace environment, findings support the predictability of improved workplace well-being through evidence-based interventions. The study analyzed the quantitative relationship between the MFRI's factors and confirmed that evidence-based interventions can improve workplace well-being. Analyses were conducted using a study sample of 1,721 participants from 59 organizations implementing the PWF. The study found that the PWF framework effectively identified an organization's existing strengths and their impact along with areas needing development from which strength-based targeted interventions were designed to improve workplace well-being. This approach helps everyone thrive and be fully engaged in their work (Bolaños, 2021).

The Well-Being Index (WBI) provides a holistic assessment of overall well-being in a workplace environment (Laurie, 2021a, 2021b; Laurie et al., 2021; WMA Wellness, 2024). The WBI offers several advantages for organizations, including a comprehensive description of well-being in the workplace, additional information perspectives within the MFRI report, and ease of interpretation. The WBI allows for assessing and comparing team and organizational well-being over time, thereby promoting sustainable motivation for implementing positive mental health practices (Laurie et al., 2019; Laurie & Bolaños, 2020). Furthermore, for organizations seeking to measure their progress with other similar organizations, the WBI offers valuable insights into workplace initiatives geared towards fostering positive leadership and promoting well-being. By enabling data analysis and comparison based on various organization types, including government units, schools, and national levels, the WBI facilitates a comprehensive assessment of well-being indicators (WMA Wellness, 2024).

Research conducted by Laurie (2021) on implementing the PWF in Canadian workplaces has focused on positive outcomes of implementing the PWF in New Brunswick schools, specifically toward reducing teacher absenteeism. The study analyzed data from the Department of Education and Early Childhood Development teacher absenteeism records between the 2014-2015 and 2017-2018 academic years. The study focused on eight reasons for absenteeism such as sick days, emergencies, and family care. Results demonstrated that, between 2014 and 2018, schools implementing the PWF had a reduction in average teacher's days absent from work (Laurie, 2021a).

Laurie (2021) also examined the correlation between workplace WBI and student achievement in the same 56 New Brunswick schools during the 2018-2019 school year. The goal was to study the relationship between, and the predictability of, the WBI in schools applying the PWF. Regression analysis showed a positive correlation between school performance and the WBI, indicating that students in schools with a higher WBI tended to perform better. The research affirmed that a higher WBI was associated with better student performance on provincial exams, thereby demonstrating that a positive work environment can positively impact student achievement.

Research conducted on the PWF aligns with other studies showing that workplaces can benefit significantly by implementing practices promoting positive mental health and overall well-being (Bubonya et al., 2017; Deci & Ryan, 2000a; Diener & Seligman, 2004; Fredrickson, 2013b; Great Place to Work Institute Canada, 2012; Hazelton, 2014; Lalitha, 2020; Pomaki et al., 2012; Procter et al., 2016; World Health Organization, 2020b). Programs that prioritize wellness and positive emotions can help cultivate a thriving workplace culture, boost productivity by achieving a state of flow, and foster positive leadership to transform organizations. Prioritizing evidence-based practices helps leaders identify and support the strengths that promote well-being, engagement, and success within their organization (Peterson et al., 2020). The PWF emphasize adapting to change to build capacity and maintain positive progress over time (Morrison & Peterson, 2015). Organizations can promote well-being practices by utilizing the MFRI and PLI reports generated from their team-level employee survey data to develop evidence-based policies and practices. The survey results aid in both the strategic planning of interventions and the continuous progress monitoring of the embedded well-being and positive leadership intervention effects on workplace climate and culture (Bolaños, 2021; Laurie, 2021a; Peterson et al., 2020).

2.3. Conclusion

This comprehensive literature review explored the growing recognition of mental health in Canada with particular emphasis given to the workplace. It highlighted the crucial role of mental health in workplaces and presented effective strategies for large-scale targeting of positive mental health practices based on the positive psychology scientific field. The review emphasized the benefits of positive psychology, including enhanced productivity, team cohesion, personal resilience, and well-being in the workplace.

The first section highlighted the significance and prevalence of mental health in Canada, where it is the leading cause of disability, impacting 2 out of 10 individuals and costing at least $20 billion in resources. It also discussed how the COVID-19 pandemic has worsened workplace environments, leading to job losses, financial strain, and psychological problems. However, it provided evidence of how investing in mental health can lead to a four-fold increase in productivity using proven strategies like the Positive Workplace Framework (PWF) in Canada, which promotes well-being and positive leadership in workplace environments.

The second section explored the transition from humanistic to positive psychology, initiated by Maslow in 1954 emphasizing the human potential for growth, development, and resilience, as the prevailing orientation to examining and researching mental health, including theories such as Maslow's Hierarchy of Needs, Rogers's Fully Functioning Individual Theory, and Bandura's Self-Efficacy Theory. The review further outlined positive psychology's progressive growth and discussed several essential concepts for workplace engagement, including flow, learned optimism, positive traits, resiliency, and positive deviant leadership. In turn, three crucial well-being frameworks for workplace mental health were highlighted: the intrinsic motivation and Self-Determination Theory (SDT), the PERMA Model, and the Positive Workplace Framework (PWF). Lastly, the Positive Workplace Framework's capacity to promote well-being in the workplace was examined.

The next chapter details the study's design and data collection methods aimed at exploring the relationship between well-being and positive leadership using the French versions of the PWF questionnaires–the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI). Additionally, chapter 3 establishes the psychometric and statistical techniques utilized to answer four central research questions about the accuracy of the scales and sub-scales constituting each questionnaire. The chapter furnishes empirical evidence to evaluate the theoretical assumptions of the PWF, which is divided into six sections to cover aspects of the Positive Workplace Framework (PWF) and its measures, study participants and data collection, research methodology and data analysis, data assumptions and quality, research questions and hypothesis, and concluding comments.

CHAPTER 3. METHODOLOGY

This research sought to validate the French version of the Positive Workplace Framework (PWF) questionnaires, the Mental Fitness and Resiliency Inventory (MFRI), and the Positive Leadership Inventory (PLI). A key study aim was also to deepen understanding of the relationship between well-being and positive leadership. The research used quantitative extant data from Francophone educators consisting of 6,017 participants from 96 New Brunswick Francophone schools toward providing evidence of the measure's validity and the ability to make valid generalizations. Participants included school staff and leadership from K–12 educational institutions. The study used psychometric and statistical methods such as Classical Test Theory (CTT), Exploratory Factor Analysis (EFA), and Confirmatory Factor Analysis (CFA) to analyze the accuracy of the scores and the information obtained from the MFRI and PLI to promote well-being and positive leadership in Francophone school settings.

This study was designed to address the following five research questions:

1. What are the MFRI's and the PLI's internal consistency and validity evidence?

2a. What quantitative relationship exists between the PLI's Positive Leadership practices?

2b. What quantitative impact do the PWF Positive Leadership practices have on workplace Well-Being?

3. What quantitative relationships exist between the domains and subdomains in the PWF?

4. Can the PWF and its questionnaires be used to identify which subdomains to target for optimizing workplace interventions?

The validated French versions of the Mental Fitness and Resiliency Inventory (MFRI) and Positive Leadership Inventory (PLI) offer a range of potential applications across educational and organizational settings. Within K–12 schools, these instruments can be used to assess team-level strengths and guide targeted interventions aimed at enhancing teacher well-being, leadership effectiveness, and overall school climate. The PWF tools can also support professional development initiatives by identifying key leadership competencies and resiliency assets that may be cultivated further through training. Additionally, these inventories may inform organizational decision-making and policy development by providing data-driven insights into workplace well-being and leadership culture. Their utility extends beyond education to broader workplace environments, including healthcare, public administration, and community organizations, where fostering positive leadership and mental fitness are critical for sustainable team performance and employee flourishing.

The chapter is organized into six distinct sections, each addressing a critical aspect of the research. The initial section provides an overview of the Positive Workplace Framework and its associated measures. The subsequent section delves into the study participants and the data collection process. The third section elucidates the research methodology and data analysis. Section four covers data assumptions and data quality, including Likert items and scales, measurement and data quality, reliability, validity, and factor analysis. The ensuing details the methodologies employed to answer the four research questions. Section five outlines the methodologies employed to address the research questions and test the hypotheses, while the final section provides a concluding summary for the chapter.

3.1. The Positive Workplace Framework (PWF) And Its Measures

This section provides an in-depth explanation of the PWF and its role as a comprehensive strategy for measuring, monitoring, and designing targeted interventions to enhance workplace well-being and positive leadership. The PWF serves as a theoretical framework that integrates two key tools: the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI). Together, these instruments assess team dynamics and the positive latent traits that underpin the behaviors captured by their respective questionnaires. The MFRI and PLI questionnaires were originally developed in French but are reported in English because this is an English dissertation

The PWF posits that positive organizational leaders and teams promote positive leadership practices, and that mental fitness and resiliency (well-being) practices are aligned with those positive leadership practices (WMA Wellness, 2024). These three constructs, (positive leadership, mental fitness, and resiliency) constitute the PWF's theoretical foundation. A construct is a theoretical concept (Brown, 2015) which, in psychology, represents an attribute, proficiency, ability or skill in an individual's cognitive framework. For example, the concepts of self-esteem, job satisfaction, motivation, and resiliency occur internally as part of a person's cognitive functioning and the way that an individual thinks about those constructs in relation to the self rather than occurring as an external and overtly observable phenomenon. Definitions applied to these constructs and used to explain their characteristics are determined on the basis of established theories (Brown, 2016b), which then, in turn, establishes the definitional characteristics of a phenomenon, or construct, to be measured psychometrically (Hughes, 2020).

To measure constructs, researchers must consider:

a) the psychometric procedures and their integrity when used to develop a test (measurement instrument) based on the theoretical framework informing construct definitions, and b) what psychometric analyses must be performed to analyze whether the scores derived from the measurement scales of a construct actually do measure and represent the intended and underlying construct. In the context of the PWF, for example, the most appropriate psychometric analyses must be used to establish that the assessment scales characterizing the measure for the construct of resiliency establishes that those characteristics accurately reflect the theoretical and defined construct of resiliency.

There are different psychometric ways to perform the analysis to analyze whether the test scores measure and represent the underlying construct, which includes Classical Test Theory (CTT), Item Response Theory (IRT), Common Factor Model (CFM), and Structural Equation Modeling (SEM). Confirmatory Factor Analysis as a type of CFM is the desired method (Irwin & Hughes, 2020) to analyze models such as the PWF since there are latent traits, or domains and subdomains, constituting the manifest behaviors or workplace practices measured by the assessment instruments used in the PWF.

The PWF comprises two primary constructs: well-being, measured by the Mental Fitness and Resiliency Inventory (MFRI), and positive leadership, measured by the Positive Leadership Inventory (PLI). Both primary constructs are considered third-order factors (or domains) in the PWF (see Figure 3). Well-being is composed of the two second-order factors (or two sub-domains) of mental fitness and resiliency. Positive leadership does not have second-order factors.

Mental Fitness is composed of three first-order factors or subdomains:

i. relatedness practices (Rel),
ii. competency practices (Comp), and
iii. autonomy-support practices (Aut).

Resiliency is composed of five first-order factors or subdomains:

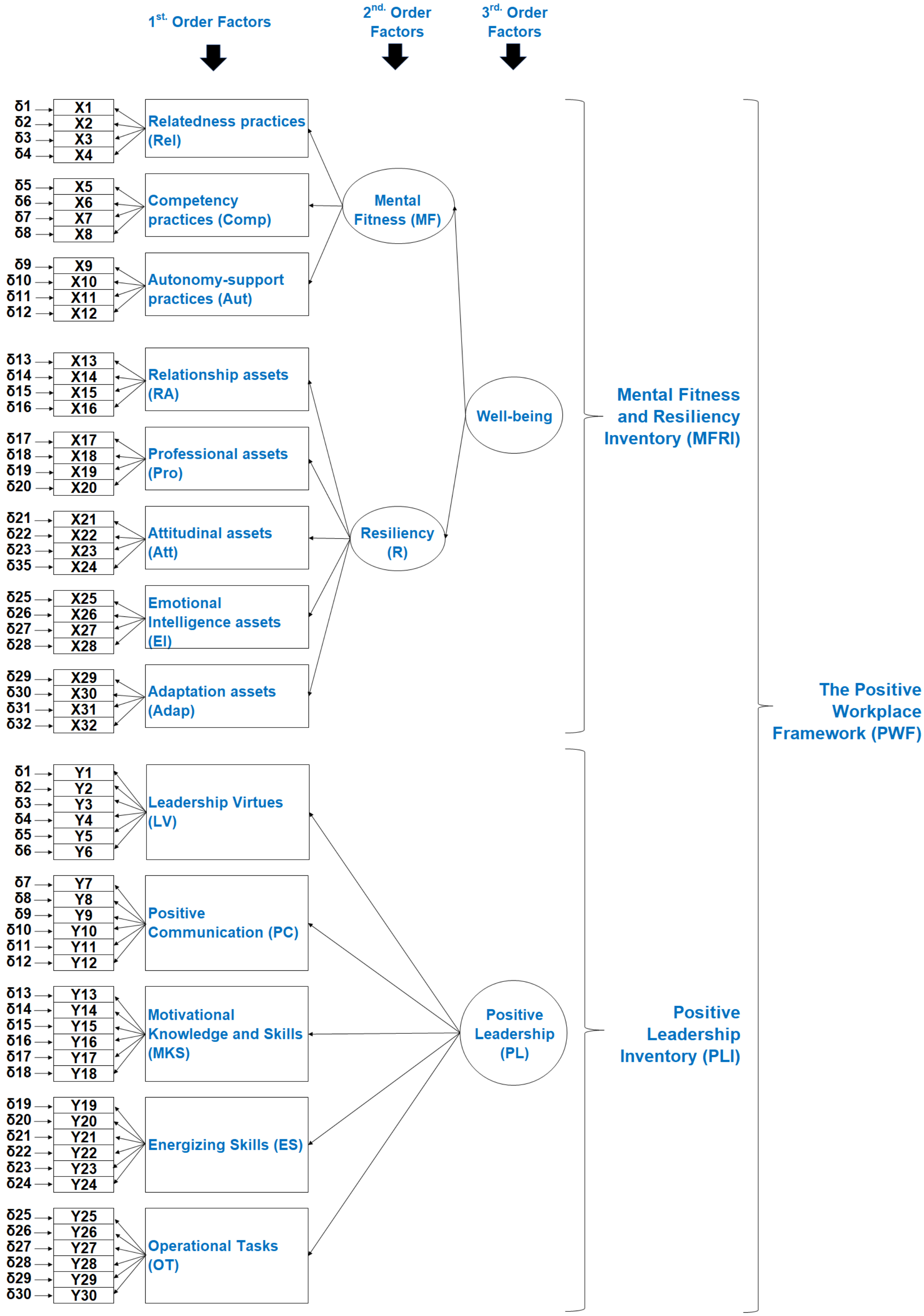
i. relationship assets (RA),
ii. professional assets (Pro),
iii. attitudinal assets (Att),
iv. emotional intelligence assets (EI), and
v. adaptation assets (Adap).

Positive leadership is composed of five first-order factors or subdomains:

i. leadership virtues (LV),
ii. positive communication (PC),
iii. motivational knowledge and skills (MKS),
iv. energizing skills (ES), and
v. operational tasks (OT).

Figure 3

The Positive Workplace Framework (PWF) Theoretical Model



The MFRI and PLI consist of statements developed by subject matter experts that describe practices aligned with each of the combined 13 PWF sub-domains. Initial drafts of the PWF were reviewed and revised by experts in the field who ensured questionnaire items were of high quality based on the following criteria outlined by Irwin and Hughes (2020): a single aspect of their intended construct is measured; they are short and written using clear and straightforward language; they are positively phrased; they use clear and consistent grammar and punctuation; their meaning is not ambiguous; they do not create specific biases, attitudes, or responses; they do not require previous knowledge; and they have the same meaning for all respondents. Example statements in the MFRI include:

i. My workplace is characterized by respectful interactions.
ii. My workplace recognizes the strengths of employees.
iii. People know what is expected of them in their workplace.
iv. People have others who care about them in their workplace.

Example statements in the PLI include:

i. Managers notice when employees are preoccupied.
ii. Managers are open to new ideas.
iii. Managers clarify employee expectations and roles.
iv. Managers explain the reasons for specific tasks.

Respondents indicate the frequency with which each of these practices is observed in their workplace using a 5-point scale ranging from 1, “least like my workplace,” to 5, “most like my workplace.”

3.2. Study Participants and Data Collection

This research used extant data from New Brunswick Francophone schools that completed the French versions of the MFRI and PLI questionnaires during the 2020-2021 and 2021-2022 school years. The participants were drawn from schools that implemented the Positive Workplace Framework. These schools included a variety of educational settings serving students from kindergarten through grade 12 (K–12). WMA Wellness administered the questionnaire in collaboration with the Francophone sector of the New Brunswick Department of Education and Early Childhood Development and each of the three Francophone school districts. Participants consisted of school administrators, teachers, teacher assistants, administrative assistants, custodians, and other full-time staff. Each school administered the two questionnaires in the context of implementing the PWF well-being strategy in their schools.

The MFRI data set consists of 6,017 participants, with 96 Francophone schools contributing to the MFRI data set in 2020-2021 and 93 Francophone schools contributing to the data set in 2021-2022. The PLI data set also consists of 6,017 participants obtained from the same 96 schools in 2020-2021 and the same 96 schools again in 2021-2022. The online administration procedures for the MFRI and PLI, each taking 8-10 minutes to complete, ensured that all the data was entered such that there was no missing data.

Participants were not compensated for their participation and willingly agreed to participate. Questionnaire responses were aggregated to generate group-level reports. No individualized data reports were generated at any time. The MFRI and PLI do not collect personal identifying information, thus ensuring that all participant responses are anonymous and confidential. MFRI and PLI responses were collected and stored using a secure online platform held in the WMA Wellness offices. All data were stored in Canada (WMA Wellness, 2024). The following describes the study's research design methodology, which includes sample size, data assumptions, data quality, and the data analysis procedures employed for each research question.

3.3. Research Methodology and Data Analysis

This quantitative research examined the psychometric characteristics of the French versions of the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI) and in the Positive Workplace Framework (PWF) and their appropriateness to promote well-being and positive leadership in workplaces.

A minimal sample size of 100 subjects is necessary to calculate reliability and obtain an appropriate item analysis when using Likert scales and Likert items (Spector, 1992). A minimum of 10 participants per latent construct for each item scale and between 200-300 participants for factor analysis are required (Boateng et al., 2018). The study sample size of 6,017 ensures that all minimum requirements and criteria were met.

Structural Equation Modelling (SEM) and confirmatory factor analysis (CFA) are methods used to confirm a feasible theoretical model based on the information collected and measured. In the context of this research the theoretical model examined is the PWF. The null hypothesis in this study is that the PWF theoretical model does not explain the variation observed in the data. In other words, the null hypothesis assesses whether the SEM/CFA model estimates, variance, and covariance matrix differ from the observed sample variance/covariance. If the theoretical model shows the data to be statistically significant, then the null hypothesis is rejected, and the theoretical model is confirmed.

SEM applications consist of five iterative steps undertaken until the model is mathematically acceptable and interpretable: 1) model formulation (specifies the model's structure), 2) model identification (determines that there is a solution for all the free parameters), 3) model estimation (estimates the model parameters that generate the model fit), 4) model evaluation (assesses that the theoretical model fits the data and the results are interpretable), and 5) model modification (modifies the model if it does not fit based on theory and previous findings), (Wang & Wang, 2020).

After formulating or describing the model, the model identification step determines if there is a unique value to estimate every unknown parameter from the observed data. The model parameters are the information elements one needs to estimate the model, such as each of the factor loadings (calculated from the item contribution to the structure), the factor variances and covariances (relationships between the elements in the structure), and the error variances and covariances (the information we do not know from each component). In other words, the model parameters are all the relationships and the data (known and unknown) in the proposed model (structure).

The CFA information refers to the available data from the score matrix or model structure set out in Table 1 and the ensuing discussion about the proposed models and the model identification for each in this research.

Table 1

Proposed CFA Models and Model Identification to Answer Research Questions 1, 2, 3, and 4

CFA Models	Question	Hypothesis	Parameters known	Number of items	Unique variance (error)
MF&R	1	1b	528	32	32
MF	1	1b	78	12	12
R	1	1b	210	20	20
WB	1	1b	528	32	32
PL	1	1b	993	30	30
PL-Rel	2	2a	993	30	30
WB-PL	2	2b	1521	62	62
PWF	3	3	1521	62	62
PWF Predictive Models	4	4	993	62	62

CFA Models	Number of factors	Variances	Covariances	Freely estimated parameters	Model identification
MF&R	11	43	0	72	456
MF	4	16	3	30	48
R	6	26	3	50	160
WB	9	41	0	72	456
PL	6	36	0	65	928
PL-Rel	5	35	3	70	923
WB-PL	6	68	0	129	1392
PWF	18	80	0	141	1380
PWF Predictive Models	13	75	0	137	856

Factors: Model 1: Mental Fitness (MF), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut). Model 2: Resiliency (R), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 3: Mental Fitness and Resilinecy (MF&R), Mental Fitness (MF), Resiliency (R), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 4: Well-Being (WB), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 5: Positive Leadership (PL), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 6: Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 7: Well-Being (WB), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 8: Positive Workplace Framework (PWF), Well-Being (WB), Positive Leadership (PL), Mental Fitness (MF), Resiliency (R), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Models 9: Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT).

The model identification step is crucial since it is essential to confirm if there is enough information to perform the analyses or that a researcher has the information necessary to estimate each free unknown parameter (each element of the proposed model) and complete the expected model (estimating the data for all parameters).

A model is said to be "identified" when estimating a unique value for every unknown parameter is possible or "over-identified" when the necessary information to analyze the model is exceeded. As such, this research answered the four questions using CFA in addition to the methods used to analyze reliability in question 1. Table 1 describes the models proposed for answering the CFA questions in this research.

The models are detailed in each column, as follows:

i. **CFA Model 3. Mental Fitness and Resiliency (MF&R).** This model was developed to address Research Question 1 by testing Hypothesis 1b and incorporates measures of both mental fitness (MF) and resilience (R). Mental fitness is assessed through three key measures: relatedness practices (Rel), competency practices (Comp), and autonomy-support practices (Aut). Similarly, resilience is evaluated using five measures: relationship assets (RA), professional assets (Pro), attitudinal assets (Att), emotional intelligence assets (EI), and adaptation assets (Adap).

ii. **CFA Model 1. Mental Fitness (MF).** This model was designed to address Research Question 1 by testing Hypothesis 1b and incorporates the mental fitness (MF) measures: relatedness practices (Rel), competency practices (Comp), and autonomy-support practices (Aut).

iii. **CFA Model 2. Resiliency (R).** This model was developed to address Research Question 1 and incorporates the resiliency (R) measures: relationship assets (RA), professional assets (Pro), attitudinal assets (Att), emotional intelligence assets (EI), and adaptation assets (Adap).

iv. **CFA Model 4. Well-Being (WB).** This model was designed to address Research Question 1 and incorporates the domains of mental fitness (MF) and resiliency (R) without distinguishing between them as separate categories. The included subdomains are relatedness practices (Rel), competency practices (Comp), autonomy-support practices (Aut), relationship assets (RA), professional assets (Pro), attitudinal assets (Att), emotional intelligence assets (EI), and adaptation assets (Adap)

v. **CFA Model 5. Positive Leadership (PL).** This model was developed to address Research Question 1 and test Hypothesis 1b. Positive workplace leadership is measured through five key practices: leadership virtues (LV), positive communication (PC), motivational knowledge and skills (MKS), energizing skills (ES), and operational tasks (OT).

vi. **CFA Model 6. Positive Leadership Relationship (PL-Rel).** This model was designed to measure each individual positive leadership practice as predicted by the other four positive leadership practices. It was developed to address the second research question and to test Hypothesis 2a

vii. **CFA Model 7. Well-Being and Positive Leadership (WB-PL).** This model was designed to analyze the impact of each positive leadership practice on well-being. These models answer research question 2 and test hypothesis 2b.

viii. **CFA Model 8. Positive Workplace Framework (PWF).** This model was developed to analyze the comprehensive theoretical Positive Workplace Framework, which integrates well-being (encompassing mental fitness and resiliency) and positive leadership. It was designed to address the third research question and to test Hypothesis 3.

ix. **CFA Model 9. PWF Predictive Models.** These models were developed to address Research Question 4 and evaluate the predictive capacity of the Positive Workplace Framework (PWF). The models include: relatedness model (MF-Rel), competency model (MF-Comp), autonomy-support model (MF-Aut), relationship assets model (R-RA), professional assets model (R-Pro), attitudinal assets model (R-Att), emotional intelligence assets model (R-EI), adaptation assets model (R-Adap), leadership virtues model (PL-LV), positive communication model (PL-PC), motivational knowledge and skills model (PL-MKS), energizing skills model (PL-ES), and operational tasks model (PL-OT).

The rows in Table 1 identify the question and hypothesis that every model addresses. They also describe:

i. The number of known parameters, i.e., the number of relationships between the items or questions answered in the questionnaire.

ii. The number of freely estimated parameters, i.e., the number of parameters in the model. These parameters are the number of items with unique variance errors (statistics assumes there is an amount of information or variance we do not know or cannot measure perfectly with each item), the number of factors theorized in the model (each of the elements of the theoretical model or, the number of theoretical domains and subdomains measured by the items), and the number of factor variances and covariances in the model.

iii. The final model identification is the number of known parameters minus the number of freely estimated parameters.

Table 1 demonstrates that the use of complete data sets in this research fully satisfies the required conditions for the analyses. The five iterative application steps proposed by Wang and Wang (2020) and described above apply to large data sets. Small samples could cause problems in estimating the models, including failure of estimation convergence, improper solutions (e.g., negative variances, correlations greater than 1, reduced statistical power, and inappropriate model fit). To ensure the data set is large enough to perform CFA, it is necessary to guarantee that the sample has sufficient power to conduct the research. Researchers often follow guidelines that can best be considered rules-of-thumb to ensure the adequacy of the sample size. For example, Bentler and Chou (1987) recommended having a minimum of five cases by variable or per parameter, but Nunnally (1967) and Hoogland and Boomsma (1998) all recommended having at least ten cases per variable. Another way to guarantee the data set is sufficiently large is the

MacCallum-Browne-Sugawara method (MacCallum et al., 1996), which determines the minimum sample size based on the degrees of freedom and the Root Mean Square Error of Approximation (RMSEA) cut-off. Given the number of subjects in the available data sets, it is possible to use the MacCallum-Browne-Sugawara method to calculate the power analysis to determine the minimum sample size required (MacCallum et al., 1996).

Table 2 shows each model estimate's minimum sample size and power based on the different approaches used to identify the required minimum (Bentler & Chou, 1987; Hoogland & Boomsma, 1998; Nunnally, 1967) and most suitable sample size (Banfield, 1998; Preacher & Coffman, 2006; Wang & Wang, 2020).

Table 2
Minimum Sample Sizes and Power for the Actual Research

Summary of Information for CFA Models					
CFA Models	N of variables per model	N of known parameters	Freely estimated parameters	5 cases per variable	10 cases per variable
MF&R	43	528	72	215	430
MF	16	78	30	80	160
R	26	210	50	130	260
WB	40	528	72	200	400
PL	36	993	65	180	360
PL-Rel	35	993	70	175	350
WB-PL	68	1521	129	340	680
PWF	80	1521	141	400	800
PWF Pred	75	993	137	375	750

MacCallum-Browne-Sugawara's Method for Minimal and Power Sample							
CFA Models	Sample (N)	Alpha	Degrees of freedom	Desired power	RMSEA (Set to 0)	Minimum Sample Size	Power of sample
MF&R	6017	0.05	456	0.8	0	72	1
MF	6017	0.05	48	0.8	0	248	1
R	6017	0.05	160	0.8	0	126	1
WB	6017	0.05	456	0.8	0	72	1
PL	6017	0.05	928	0.8	0	50	1
PL-Rel	6017	0.05	923	0.8	0	50	1
WB-PL	1003	0.05	1392	0.8	0	40	1
PWF	1003	0.05	1380	0.8	0	40	1
PWF Pred	1003	0.05	856	0.8	0	52	1

Factors: Model 1: Mental Fitness (MF), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut). Model 2: Resiliency (R), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 3: Mental Fitness and Resilinecy (MF&R), Mental Fitness (MF), Resiliency (R), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 4: Well-Being (WB), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap). Model 5: Positive Leadership (PL), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 6: Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 7: Well-Being (WB), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Model 8: Positive Workplace Framework (PWF), Well-Being (WB), Positive Leadership (PL), Mental Fitness (MF), Resiliency (R), Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT). Models 9: Relatedness (Rel), Competency (Comp), Autonomy Support (Aut), Relationship Assets (RA), Professional Assets (Pro), Attitudinal Assets (Att), Emotional Intelligence Assets (EI), Adaptation Assets (Adap), Leadership Virtues (V), Positive Communication (PC), Motivational Knowledge and Skills (MKS), Energizing Skills (ES), Operational Tasks (OT).

From Table 2 we can determine that the sample for this research, 6,017 cases, is suitable to perform the CFA analyses while attaining optimal power. The software used to analyze the data and answer the research questions included SPSS 26, JMetrik 4.1.1, Mplus 8.4, and Excel 2022. However, before beginning the data analyses, it is crucial to ensure the data respects the requirements for each planned analysis. The following section presents the data assumptions for these analyses and discusses how data quality was guaranteed.

3.4. Data Assumptions and Quality

Before performing the analyses can be carried out to address the research questions and determine the empirical evidence of the PLI and MFRI and their appropriateness to promote well-being and positive leadership in workplaces, researchers

must first ensure their data set meets quality assurance criteria, such as data accuracy and completeness, its fitness for the study purpose, and its validity and reliability (DeSimone et al., 2015). For the purposes of the study, I focused on five key aspects of data assumptions and quality, along with specific statistical techniques that facilitated answering the research questions: 1) Likert items and Likert scales provide a standardized approach for measuring subjective constructs such as attitudes, perceptions, and mental states. These scales are widely used in social sciences and psychology since they allow for nuanced responses that capture the complexity of participants' views;
2) measurement and data quality ensures that constructs are accurately assessed, thereby reflecting participants' true responses. By minimizing errors such as response bias or data entry mistakes, high-quality data safeguards the validity of the findings and supports meaningful interpretations; 3) reliability guarantees that measurement tools produce consistent results across different occasions, samples, or items. This consistency is essential for replicability, as it increases confidence in the findings and ensures they are not influenced by random measurement errors; 4) validity determines whether the instruments effectively measure what they are intended to measure (e.g., well-being, positive leadership). Establishing validity ensures the accuracy and theoretical alignment of the research constructs; and, 5) factor analysis identifies the latent variables (e.g., leadership traits, resiliency factors) underlying the observed data. This technique provides a robust theoretical and empirical foundation by simplifying complex datasets and ensuring that constructs are appropriately measured and validated.

These five aspects collectively ensure that the data and methods used in research are of the highest quality and aligned with the study's goals. They contribute to the validity, reliability, and interpretability of the findings, which are essential for answering the research questions and supporting the theoretical framework of the PWF. Each of these five aspects are explained in the following discussion.

3.4.1. Likert Items and Likert Scales

A first aspect of ensuring data quality pertains to understanding the difference between Likert items and Likert scales used in the MFRI and PLI. Understanding this difference is important for selecting the methods and procedures to analyze them and discussing their measurement representations.

This research analyzed the questionnaire responses from two perspectives: Likert items, and Likert scales (Brown, 2016a; Prochaska, 2007; Prochaska et al., 2015; Spector, 1992). A Likert item is a type of question that asks people to rate their agreement or disagreement with a statement. They are the individual statements participants are asked to evaluate on a questionnaire. For example, the following item is included in the MFRI: My workplace is characterized by respectful interactions. Participants must then select one of five levels ranging from "least like my workplace" to "most like my workplace" to indicate the extent to which they see this practice in their workplace. Rating scales typically range from 1 to 5, with 1 being the lowest level and 5 the highest.

In contrast to Likert items, which obtain participant responses on a unique statement, Likert scales (Likert, 1932) are often used in the social sciences to measure attitudes, emotional stages, opinions, personalities and people's lives and environments (Spector, 1992). Thus, a Likert scale allows researchers to measure constructs instead of single items. Likert scales have five primary characteristics: they contain multiple items, each item measures an underlying construct in a quantitative measurement continuum, the items do not have a correct or incorrect answer, the items are statements, and the respondents give ratings about each statement (Brown, 2016a, 2016b; Spector, 1992).

When multiple Likert items measure the same construct, a Likert scale is formed from the sum of each participant's response in the Likert item. Likert scales are part of an underlying, conceptual, logical structure that brings the items together (Carifio & Perla, 2007). For example, the Positive Communication construct (Likert scale) in the PLI is comprised of six Likert items, the statement for each of which includes: "I express appreciation to my team members for their contributions," "I actively listen to my team members without interrupting," "I provide clear and constructive feedback to help my team improve," "I encourage open and honest communication within the team," "I address conflicts or misunderstandings in a respectful and timely manner," and "I use positive language to motivate and inspire my team members." Respondents then rate each statement on a 5-point Likert response scale ranging from "least like my workplace" to "most like my workplace". The scores from the six items are then summed to produce a single overall score for the Positive Communication construct.

As is the case for the MFRI and PLI, the additional information obtained by several items instead of a single item in each construct ensures a more reliable view of the prevalence of mental fitness, resiliency, and positive leadership practices for the total questionnaire and each of its domains and subdomains is obtained. Likert scales produce two kinds of information: the total number of persons endorsing each of the five response options for each item, and the total score sum of the answers to each item measured in each sub-domain.

The distinction between Likert items and Likert scales is relevant when selecting the different procedures for this research because the analyses and interpretations must be coherent with the purpose of the questionnaire. The MFRI and PLI each report the collective strengths in the workplace culture as the sum of the practices endorsed by the participants in each domain and subdomain using ordinal values to represent the level of embeddedness. Likert scales from the MFRI and PLI questionnaires were analyzed as the total scores or means of answers to multiple Likert items as required by the specific analyses. Therefore, questionnaire item responses were interpreted as a reflection of the prevalence of each workplace practice. The difference between Likert items, and Likert scales discussed above is relevant because Likert scales were analyzed with descriptive statistics as sums or averages of the results on a set of different Likert items. Thus, Likert scales were analyzed with means, standard deviations, and inferential statistics (Brown, 2016b).

3.4.2. Measurement And Data Quality

A second aspect pertains to ensuring the data quality in measurement, which is present in each statistical and mathematical procedure applied in this study's analyses and conclusions. According to McNamara (2000), data quality is obtained by the measurement process based on three conditions. The first is the quality of the process itself. The second condition is quantifying or assigning scores to the assessment outcomes, and the third is checking mathematical and statistical patterns within the matrix properties from the scale. Respecting these conditions can lead to meaningful and fair conclusions (Brown, 2016b; Brown, 2015; Freedman et al., 2007; Harrington, 2009; Mishra et al., 2019; Raudenbush & Bryk, 2002; Thompson, 2003; Wang & Wang, 2020).

The CFA models represent theoretical constructs measured by the questionnaires. The models were assessed based on their significance levels, coefficient of determination and other values and indices such as Chi-squared ($\chi 2$), degrees of freedom (df), the Standardized Root Mean-Square Residual (SRMR), the Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and the Tucker Lewis Index (TLI) such as suggested by Brown (2015); Freedman et al. (2007); Harrington (2009); McNamara (2000); Schreiber et al. (2006) and, Wang & Wang (2020).

For each data set, the scale distributions, underlying statistics, and assumptions necessary to perform the statistical analyses and interpret their statistical significance, meaningfulness, and p-value results were verified as suggested by Brown (2016b) and Mishra et al. (2019) to ensure their appropriateness before conducting the various analyses to answer the research questions. Empirical evidence was a source of validity to assess the use of MFRI and PLI to optimize workplace environments.

3.4.3. Reliability

The third aspect of data quality when analyzing the internal consistency of the MFRI and PLI pertains to the procedures to estimate the questionnaire's reliability. The assumptions for assessing the reliability are related to the best estimator for Likert scores and choosing between Cronbach's alpha (α) and McDonald’s Omega (ω).

Researchers classify a measure’s reliability according to four types: *test-retest reliability*, to evaluate reliability by administering the same test on two occasions; *parallel forms reliability,* to ascertain the coefficient of equivalence to assess reliability when administering two different but comparable assessment tools or parallel forms of the same test; *interscorer or interrater reliability*, which is the level of agreement between two or more scorers who rate or assess the same phenomenon or task; and the *internal consistency (score reliability)* to determine that multiple test items on a single test measure consistently measure the same phenomenon or construct. For internal consistency evaluation, a single test form is administered simultaneously (Brown, 2016b; Charter, 2003; Fitzner, 2007; Irwin & Hughes, 2020). Of these four types of reliability, internal consistency o has been determined to be the most critical type of reliability when interpreting examinee scores (Charter, 2003). This research, therefore, analyzed the MFRI's and PLI's internal consistency. Although the questionnaires were administered in French, the results are reported in English because it is an English dissertation.

Internal consistency reliability increases as a function of the number of questionnaire items and the average intercorrelation or covariance of the items. In other words, reliability is affected by the number of items and the potential error of items measuring the construct of interest.

An error comprises the factors or situations that produce a measurement error because there are differences between people, even when measuring the same people at different times. An error can also result from the instrument's capability to measure the construct well enough during the instrument application or be affected by conditions not controlled by the researcher when the subjects answer the instrument (Hughes, 2020; Revelle & Condon, 2020).

Possible sources of error variance among scores could be produced by (Hughes, 2020):

i. Learning, growth, fatigue, forgetting, senescence, biorhythms, maturation, motivation, and historical events,
ii. Quality of items,
iii. The extent to which items conform to the definition or trait,
iv. Situational factors: noise, incorrect timing, ambiguous instructions, random response,
v. Effects due to practice, rehearsal, and consistency.
vi. In psychology, sources of error could be the differences in affective traits such as variation in emotions and moods (momentary affective states), the tendency to respond to descriptions of conceptually distinct attributes or attitudes regardless of their content (acquiescence), and the moment of day-to-day fluctuations in alertness or motivation to answer (American Psychological Association (APA), 2023; Rammstedt et al., 2017; Revelle & Condon, 2020).

Reliability is the indicator that provides information about constant measures or intercorrelation between items. A questionnaire's reliability is high when certain conditions are true; for example, when it appears to fit the group measured, and the results are good enough to produce differences between the perceived or preferred behaviors; its scores reflect the population being studied; it is relatively long (at least 25-30 items); and is well written (Brown, 2016a). In Classical Test Theory (CTT), reliability is understood to be the integrity of scores (Spearman, 1904, 1910, as cited in Thompson, (2003), which is expressed using a reliability coefficient (McNamara, 2000; Thompson, 2003). According to Hayes and Coutts (2020), Cronbach's alpha (α) and McDonald's Omega (ω) can both be used to calculate reliability.

Two assumptions exist when using alpha (α). The first is that α assumes unidimensionality rather than relying on evidence of unidimensionality. This implies that alpha should not be reported as a measure of reliability unless it is confirmed that the items measure a single construct. The second assumption is that α can increase simply by increasing the number of test items or questionnaire items. This could result in alpha being statistically significant due to the number of items, even if the interitem correlation is small (Hayes & Coutts, 2020).

In contrast to Cronbach's alpha, MacDonald's omega (ω) does not assume essential tau-equivalence (true score equivalence or equal factor loadings), which means that ω does not assume that each item measures the latent variable with the same precision (Cho, 2016; Hayes & Coutts, 2020). Tau-equivalence is assumed with alpha, but it is not a condition to calculate omega accurately. Using omega makes it possible to assess more accurately the unidimensionality of the factors that represent different constructs in the PWF inventories, which is an advantage since not all factors contribute equally to the measured construct. Since data sets commonly do not have tau-equivalent data, ω has become the preferred reliability measure (Dunn et al., 2014; Goodboy & Martin, 2020).

Dunn et al. (2014) consider McDonald's Omega to be a superior estimate than the commonly used Cronbach's alpha because it has the advantage of giving more realistic assumptions than alpha, thereby reducing the possibility of inflation and attenuation of the internal consistency estimation and reflecting the true population estimates.

In this research, calculating omega coefficients for the MFRI and PLI increased the confidence in the reliability indicator in the total score test and the indicators obtained by the scores in each domain and subdomain. Calculating omega as a point and interval estimate calculated with factor loadings and error variances also allowed for more precise information about internal consistency. Therefore, internal consistency estimates in this study were reported using the McDonald's Omega (ω) coefficient. Omega coefficients were calculated using SPSS.

3.4.4. Validity

The fourth aspect of data quality pertains to validity. Validity is a judgement or estimate of how well a test or an instrument measures what it is designed to measure (Brown, 2016b; Hughes, 2020; Price, 2017). The Standards for Educational and Psychological Testing developed by the American Educational Research Association (AERA), American Psychological Association (APA), and the National Council on Measurement in Education (NCME; 2014) identifies five types of validity: test content, relations to other variables, internal structure, response processes, and consequences of testing (AERA et al., 2014). The internal structure (or construct validation) includes internal consistency (score reliability), dimensionality, and measure invariance (Rios & Wells, 2014; Sireci & Sukin, 2013).

This research applied construct validity, which is the type of validity that analyzes the internal structure and factors in the model that represent the theoretical evidence. It is defined as an evidence-based judgment about the appropriateness of inferences drawn from test scores regarding individual standings on a variable defined as a construct.[1] One

[1] For a detailed discussion on the evolution in the interpretation and understanding of validity see Zumbo (2023).

source of evidence in construct validity is factor analysis, which was applied in this research as exploratory and confirmatory factor analysis. Other sources of evidence are correlational, group differences, and multitrait-multimethod studies (Price, 2017).

The primary condition for making good decisions with the test's information requires that the results from the measure represent the intended construct. Answering this question requires interpreting the factors and the loadings from the test scores (Guilford, 1946) that represent common factors. In other words, validity evidence is obtained by analyzing how much a test's structure and factors match the proposed theoretical framework (Irwin et al., 2020; Sireci & Sukin, 2013).

By performing Exploratory Factor Analysis and Confirmatory Factor Analysis, it is possible to obtain "factorial validity" (Guilford, 1946) or construct validity. Identifying the factors when analyzing the test data is also possible, which is evidence of convergent and discriminant validity. If these factors are identifiable, then the structure matches the theoretical framework. Convergent validity refers to the extent to which the measures of the same construct correlate together. In contrast, discriminant validity refers to lower correlations between the different constructs that allow differentiation between them (Irwin & Hughes, 2020).

This research determined the extent to which the scales in the MFRI and PLI measure what they are designed to measure and analyze validity evidence from two sources of accuracy: the reliability of the scores and the test structure or dimensionality. Factor analysis techniques evaluated the convergent and discriminant validity of the data scores obtained from the MFRI and PLI scales and subscales and the evidence of matching between the theorized and actual content structure.

3.4.5. Factor Analysis

The fifth aspect of data quality pertains to factor analysis. Factor analysis is the method used to represent a set of variables with a smaller number of hypothetical factors. Factors are identified by combining variables or items to confirm their appropriateness to fit specific dimensions supported by theory. The variables in the factors are correlated with one another and are independent of other subsets of variables. Factor analysis synthesizes the information obtained from factors and the relative contribution of their observed variables (Price, 2017). This research used exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) to analyze the proposed models in the MFRI and PLI data sets.

3.4.5.1. Exploratory Factor Analysis (EFA)

EFA is a data-driven approach that specifies the number of factors or the relationships between *factors* (unobservable variables) and the *indicators* (observed measures). These relationships are called *factor loadings*. EFA analyzes the common variance or covariance of the variables with other variables (excluding the specific variance and the error variance). EFA is commonly used in scale development and construct validation (Brown, 2015). EFA identifies the items from the intended subscales by reducing the number of items by exploring and locating underlying subdimensions (Price, 2017; Spector, 1992).

Rotation in EFA is a mathematical transformation that fosters the interpretability of the structure, maximizing the larger factor loadings close to one and minimizing smaller factor loadings closer to zero (Brown, 2015). Brown (2015) defines rotation in factor analysis as making the pattern of loadings (item contribution) more precise or more pronounced to reveal the simplest structure possible to identify the factors. There are several types of rotations in factor analysis (e.g., varimax, quartimax, equamax, promax, and oblimin). The promax rotation is preferred when there is an expectation that the factors will be correlated based on previous knowledge and theory (Brown, 2015). Such anticipated correlations are indeed present in this research, and therefore, promax rotation was used in the analyses.

Factor analysis uses the term "load" to measure the correlation between factors representing theoretical constructs. Factors can be correlated if their loadings are higher than one and uncorrelated if they are less than one. When a value is near zero, it is not necessary for the model structure, but the correlations must be greater than 0.30 to represent a meaningful correlation between constructs. Assessing these correlations and deciding to include the factors in the model structure must be based on these loadings and the theoretical evidence about the constructs these factors represent (Brown, 2015).

The Kaiser-Meyer-Olkin measure (KMO) is utilized to evaluate models and determine if the sample is suitable for analysis and the models are not random and provide evidence to reject the null hypothesis. This indicator ranges from 0.00 to 1.00. An ideal indicator value is close to one. According to Kaiser (1960), the criteria in Table 3 provide the interpretive value ranges of the KMO measure.

Table 3
Criteria for Interpreting the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy

Criteria for Interpretation	Value Range
Unacceptable	≤ 0.50
Miserable	0.50 - 0.59
Mediocre	0.60 - 0.69
Middling	0.70 - 0.79
Meritorious	0.80
Marvellous	≥ 0.90

According to Kaiser, KMO values ≤ 0.50 are deemed "unacceptable;" those in the 0.50s range are considered "miserable;" values in the 0.60s are viewed as "mediocre;" results in the 0.70s range values are considered the desirable minimum; while a value of 0.8 is deemed "meritorious;" and values ≥ 0.9 are considered to be "marvelous" (Kaiser, 1960, 1974)

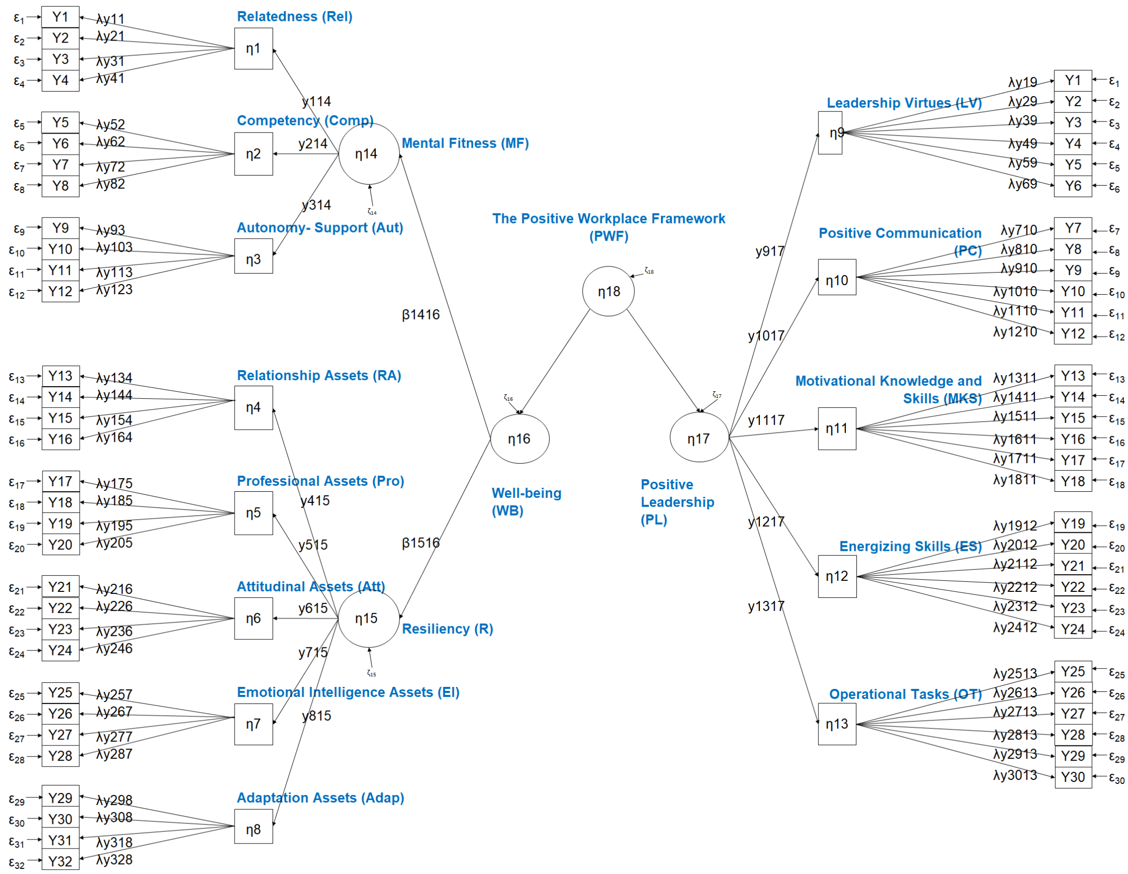
***3.4.5.2.* Confirmatory Factor Analysis (CFA)**

In CFA, the theoretical structure or measured model as measured by the questionnaire is confirmed. A CFA model proposes links or relations between the observed indicator variables and the underlying latent variables/factors to confirm the factorial structure (Wang & Wang, 2020). It is possible to identify factors that explain the variation and covariation among a set of indicators (Brown, 2015). Information on the number of factors, the patterns in the structure, and the variance and covariance of the factors is obtained.

In CFA, the theoretical structure is specified in advance based on established theories or previous research. In this research, the analyses performed with CFA was guided by the PWF theoretical model (see PWF path diagram in Figure 4).

Figure 4

The Positive Workplace Framework (PWF) Path Diagram



A Confirmatory Factor Analysis (CFA) was conducted to explore the relationships among the PWF domains and subdomains (Question 1, Hypothesis 1b) and to confirm the underlying dimensions or factors (theoretical variables, scales, and subscales) as well as the pattern of item-factor relationships (factor loadings).

The CFA also assessed the relationship and influence of the five positive leadership subdomains on workplace well-being (Question 2, Hypotheses 2a and 2b). Additionally, it validated the underlying dimensions within the PWF, namely positive leadership and well-being, alongside their subdomains and the item relationships outlined by the theoretical framework (Question 3, Hypothesis 3). Lastly, the CFA helped to identify the most effective workplace well-being intervention subdomains (Question 4, Hypothesis 4).

Using CFA models to answer questions 3b and 4 instead of linear regressions, which might be considered more common, is preferable because linear regression generates a standardized equation influenced by the unique variance from the subdomain's variance and covariance and assumes linearity and normality of data, and the relationship of one variable depending on several others (Raudenbush & Bryk, 2002). In contrast, CFA estimates the subdomain indicators by reporting fit indices and parameters as raw scores. In this study, CFA was used to ensure that results observed in regressions models did not overestimate the predictive value in each model tested. The fit indices are explained in the following section with the confirmatory factor analysis procedures.

The pattern of item-factor relationships showed which items load on each factor. In addition, CFA parameter estimates was used to calculate the internal consistency (McDonald's Omega) of the test instruments. CFA provided the evidence used to analyze the relationship between the observed measures or indicators (items, scores, ratings) and the latent variables or factors (Brown, 2015). Following the standard CFA procedures described by Brown (2015) and Wang and Wang (2020), the model estimation provided the indicators necessary to analyze the relationships between the domains and subdomains. The recommended CFA procedures are summarized as follows:

i. *Model specification or formulation* refers to correctly specifying the structural equation model based on theory and empirical knowledge. This procedure is based on the justification for the hypothesized models (see Annex A).

ii. *Model identification* determines a unique solution for each parameter in the specified model. This step includes the complete description of the measurement model, the structural model, and the demonstration of model identification, assuming it is not under-identified. A model is considered under-identified when the number of unknown (freely estimated) parameters exceeds the number of elements in the input variance-covariance matrix (Brown, 2015). The path diagram for the hypothesized general structural models in this research (see Annex B) illustrates the latent variables and their unobserved relationships, modeled without the direct influence of measurement error. The input matrix data shown in Table 1 presented earlier, indicate that variances and covariances among the nine CFA models range from 78 to 1521, while the free parameters (including unknown data and error variances) range from 30 to 141. The total number of freely estimated parameters exceeds the minimum required for an overidentified model, with an overidentification range between 48 and 1392 parameters. These freely estimated parameters include each indicator in the proposed model, encompassing the number of items, unique variances (errors), factors, and variances and covariances (Brown, 2015; Wang & Wang, 2020). As a result, the proposed PWF Model is overidentified, allowing for the analysis of variances and covariances within its structure.

iii. *Input data characterization* includes the description of sample characteristics, sample size, sampling method, the type of data used, the test of estimator assumptions, the extent of missing data, the method to manage missing data, and the sample correlation matrix and indicators. The data sets used in this study contain no missing data.

iv. *Model estimation* is the step that estimates the model parameters and generates the *proper function* to reach the *fitting function,* which is the point when the variance and covariance are minimized through a mathematical operation (maximum likelihood). Maximum Likelihood (ML) with Mplus Version 8.4 is used to find the model parameter that maximizes the probability of observing the parameter values if collected from the same population by minimizing the differences between the input matrix (data) and the predicted covariance matrix. ML is used in CFA because it provides standard errors for each model parameter's estimates. ML is used for normally distributed indicators. The Robust Maximum Likelihood estimator (MLR) and the Maximum Likelihood Mean-Adjusted (MLM) are used for non-normal, continuous, and large data samples. ML, MLR and MLM produce the same parameter estimates, but MLM and MLR's χ^2 (Chi-Square Test) and standard errors are corrected (Brown, 2015).

v. *Model evaluation* occurs after estimating the model parameters and the fitting function. In this step, I assessed whether the PWF Model fits the data by performing goodness-of-fit tests which are commonly used to show how closely the experimental data reflects the expected data based on the model. Goodness-of-fit tests generate goodness-of-fit indices, which quantify the experimental and expected data discrepancy. The following goodness-of-fit tests ($\chi 2$, df, p, SRMR, RMSEA, CFI, TLI) was performed for this research. Wang and Wang (2020), Brown (2015), Muthén and Muthén (2002), and Hu and Bentler (1998, 1999) define the indices and their commonly accepted cut-off values as follows:

a. Chi-Squared ($\chi 2$) is a test to assess the discrepancy between the sample and the model-estimated variance/covariance matrices. The $\chi 2$ statistic is sensitive to sample size and increased model complexity (Brown, 2015; Hu & Bentler, 1998, 1999; Wang & Wang, 2020) and can be used to show that the sample size is sufficiently large for the study (Kline, 2016). The ideal $\chi 2$ value is as small as possible and is usually reported with its degrees of freedom and associated *p* values.
b. Degrees of freedom (df) tests evaluate how well the model can reproduce the input variances and covariances in the matrix with fewer unknowns (freely estimated model parameters). The number of degrees of freedom is the difference between the number of known and unknown (free parameters) or independent observations associated with the $\chi 2$ statistic. A positive value suggests an expected overidentified solution (Brown, 2015).
c. The standardized root mean square residual (SRMR) is an absolute or "badness of fit" index. SRMR can be interpreted as the average discrepancy between the correlations observed in the input matrix and the correlations predicted by the model (Brown, 2015). SRMR values close to one indicate that the assessed model does not fit the data. In general, small values for absolute indices represent better-fitting models. For SRMR, a value below 0.05 indicates a good fit (Hu & Bentler, 1998, 1999).

d. The Root Mean Square Error of approximation (RMSEA) indicates how well the model fits the population covariance matrix (Steiger & Lind, 1980) and is considered one of the most informative fit indices (Diamantopoulos & Siguaw, 2000). This index measures the lack of fit per degree of freedom. It is an error of approximation index because it assesses how much a model fits reasonably well in the population (Brown, 2015). As was the case for the SRMR, the RMSEA is also an absolute index. A cut-off of 0.06 is recommended when interpreting the goodness-of-fit for a model, with smaller values being preferable (Hu & Bentler, 1998, 1999) with a definite upper limit of 0.07 (Steiger, 2016; Steiger & Lind, 1980).
e. CFI and TLI are comparative indices that evaluate the fit of the proposed model compared with the null model that assumes no covariances among the observed variables. CFI is a normed value and can take values from 0 to 1, and TLI is a non-normed value that can take numbers greater than one and below zero (Cross Validated, 2019). CFI values greater than 0.95 represent a model with a good or acceptable fit (Hu & Bentler, 1998, 1999). In TLI, a cut-off value of 0.95 with higher values suggests that the model is a good fit and lower than 0.90 indicates a need to re-specify the model (Hu & Bentler, 1998, 1999; Wang & Wang, 2020).

All these indices were used to determine the acceptability of the models in the analyses required to answer the research questions. Using several indices is preferable over using few indices because several factors could affect the model solution (Brown, 2015; Hoyle, 2012; Hoyle & Panter, 1995; Muthén & Muthén, 2002). Interpreting several indices instead of relying on a smaller number diminishes the temptation to come to a biased conclusion in the acceptability of a model and, hence, the quality of a questionnaire. In a one-time analysis study, such as with the MFRI and PLI, Schreiber et al. (2006) recommend reporting fit indices like the root mean square error of approximation (RMSEA), Comparative Fit Index (CFI), and Tucker-Lewis Index (TLI). They emphasize the importance of supporting the theoretical model with visual representations, matrices, and fit statistics, and presenting results in a structured, accessible manner accompanied by clear discussions of numerical outcomes (Schreiber et al., 2006). To enhance the interpretation of fit indices, additional indices such as the standardized root mean square residual (SRMR) were reported, along with the $\chi 2$ (Chi-Square) statistic, which forms the basis for many other fit indices (Hayduk et al., 2007).

3.5. Research Questions and Hypotheses

Having explained the theory supporting the various quantitative approaches and techniques used to answer the research questions, the next sections will briefly describe each research question, its null hypothesis, and how they were answered.

3.5.1. Question 1

What are the MFRI's and the PLI's internal consistency and validity evidence? Which proposes two hypotheses. The first hypothesis (1a) is that the internal consistency in the MFRI and the PLI scales, domains, and subdomains, measured by McDonald's Omega, is greater than the widely accepted threshold value of 0.70 (1).

$$H_0\text{: } \omega \text{ MFRI} \;\&\; \omega \text{ PLI} > 0.70 \tag{1}$$

The second hypothesis (1b) asserts that the structural evidence obtained from exploratory and confirmatory factor analysis supports the relationships among items reflected in the theoretical framework (Annex A presents the theoretical framework on which each questionnaire was constructed). The quantitative evidence from exploratory and confirmatory factor analysis models is statistically significant.

$$H_0: p < 0.05 \quad (2)$$

The second hypothesis was evaluated using a two-step procedure. The first step includes ensuring the data assumptions for Likert scales and items, measurement and data quality, and the internal consistency's evidence confirm the hypothesis proposed. Fit indices obtained with confirmatory factor analysis (CFA) were analyzed to determine the appropriateness of the MFRI and PLI models.

The second step involves analyzing the structural evidence of the MFRI and PLI data scores through both EFA and CFA. CFA was applied to five models: the mental fitness and resiliency model (MF&R), mental fitness model (MF), resiliency model (R), well-being model (WB), and positive leadership model (PL). Annex B provides the path diagrams for the hypothesized MFRI and PLI structures, aligned with their theoretical framework—the Positive Workplace Framework (PWF)—as shown in Figure 3 and Annex A.

3.5.2. Question 2

The procedures implemented to answer the first two questions were expected to confirm the reliability and validity of the scores measured by the MFRI and PLI. Several workplaces implementing the PWF promote well-being and positive leadership practices that strengthen workplace culture while using the MFRI and PLI to measure changes in workplace practices over time. In such situations, it would be advantageous to identify how each of the five positive leadership practices interacts with the other four positive leadership practices. It would also be advantageous to know how each of the five positive leadership practices differentially impact workplace well-being as measured by the workplace Well-Being Index (WBI).

Thus, question 2 had two parts. The first focusses on the impact each positive leadership practice has on the others, and the second examines the impact each leadership practice has on workplace well-being as reported by the Well-Being Index (WBI). Both research questions and their respective hypothesis are formulated as follows:

- Question 2a: What quantitative relationship exists between the PLI's Positive Leadership practices?
  - Hypothesis 2a: The quantitative relationships among subdomains in the Confirmatory Factor Analysis (CFA) model are greater than 0.20.

    H_0: $r > 0.20$ (3)
- Question 2b: What quantitative impact do the PWF Positive Leadership practices have on workplace Well-Being?
  - Hypothesis 2b: The underlying conceptual Positive Leadership on the Well-Being model and each of the predictive indicators (items) are statistically significant.

    H_0: $p < 0.05$ (4)

Question 2a was addressed using CFA by evaluating the positive leadership Relationships Model (PL-Rel). This model was designed to assess the relationship between each leadership subdomain and the other four subdomains. Fit indices and precise parameter estimates were generated based on the observed data, and the results were interpreted using the previously discussed goodness-of-fit criteria.

Question 2b was answered by evaluating the well-being and positive leadership Model (WB-PL), where well-being was the dependent variable and each leadership subdomain was the predictor. The estimates obtained for each positive leadership subdomain allowed the evaluation of the magnitude of the impact of each leadership subdomain on well-being and were also interpreted using the goodness-of-fit criteria explained previously.

3.5.3. Question 3

After assessing the psychometric properties of the MFRI and PLI in response to Question 1 and establishing the relationship between positive leadership practices and their impact on workplace well-being in Question 2, it became possible to determine whether the test data supported the complete PWF theoretical model (as shown in Figure 3 and detailed in Annex A) as measured by the questionnaires. Thus, question 3 asks: What quantitative relationships exist between the domains and subdomains in the PWF?

This question was answered using the Positive Workplace Framework Model (PWF) following the path diagram described in Annex B. The same CFA criteria to determine the model fit used in question 1 were used for this question.

The quantitative relationships among the domains and subdomains in the Confirmatory Factor Analysis (CFA) models are hypothesized to be greater than 0.20.

H_0: $r > 0.20$. (5)

3.5.4. Question 4

The previous questions assessed the psychometric properties of the MFRI and PLI (Question 1) and explored the relationships between positive leadership practices and their impact on well-being within a positive workplace culture (Question 2). Additionally, Question 3 evaluated the complete Positive Workplace Framework (PWF). The final research question (Question 4) demonstrated how specific practices could be identified to inform interventions aimed at optimizing workplace well-being in various situations. This will allow workplaces to select and implement specific positive psychology practices with confidence knowing that these will have the biggest impact on improving workplace well-being based on their existing strengths. As such, Question 4 states: Can the PWF and its questionnaires be used to identify which subdomains to target for optimizing workplace interventions? The hypothesis for this question asserts that the predictor models to identify optimal workplace well-being interventions are statistically significant.

$$H_0: p < 0.05 \tag{6}$$

The analyses were comprised of thirteen Predictive PWF Models (MF-Rel, MF-Comp, MF-Aut, R-RA, R-Pro, R-Att, R-EI, R-Adap, PL-LV, PL-PC, PL-MKS, PL-ES, PL-OT). Each model was evaluated using confirmatory factor analysis and had one of the mental fitness, resiliency, and positive leadership subdomains as the dependent variable and the other twelve as independent variables. The results were interpreted using the criteria explained previously.

3.6. Conclusion

This chapter described the methodology employed for assessing and validating the PWF and its two questionnaires: The MFRI and the PLI. The chapter set out the research questions, described the study's participant sample, and the quantitative research designs, methods, and procedures to answer each question. The MFRI and PLI were presented as theoretical models and provided the model identification that the information necessary to estimate the model parameters is ensured. The quantitative explanation confirmed that the models fulfill the required conditions and contain ample information to perform the CFA and that each model has the minimum sample size and power. Furthermore, this chapter described the questionnaire's scales and items, how the data were gathered and the software used to perform the analyses. Data assumptions for each of the analyses in this research were described, along with five aspects explaining how the data quality were ensured. Finally, the proposed analyses to address each of the 4 research questions guiding this study's purpose and design were also set out in detail.

CHAPTER 4. RESULTS

This chapter presents the results from investigating the French version of the Positive Workplace Framework (PWF) and its two questionnaires in five sections, each answering the research questions guiding this study: 1) What are the MFRI’s and the PLI’s internal consistency and validity evidence? 2a) What quantitative relationship exists between the PLI's Positive Leadership practices? 2b) What quantitative impact do the PWF Positive Leadership practices have on workplace Well-Being? 3) What quantitative relationships exist between the domains and subdomains in the PWF? 4) Can the PWF and its questionnaires be used to identify which subdomains to target for optimizing workplace interventions?

The results for each research question are presented in the following sections: 1. The MFRI’s and PLI’s Internal Consistency and Validity Evidence; 2. The Quantitative Relationship Between the PLI’s Positive Leadership Practices, 3. Positive Leadership's Practices Impact on Workplace Well-Being; 4. The Quantitative Relationships Between the Domains and Subdomains in The Positive Workplace Framework (PWF); 5. Identifying PWF Subdomains to Target for Optimizing Workplace Well-Being and Positive Leadership Interventions.

The study’s results are based on the Francophone teacher datasets gathered from the PWF’s two French questionnaires: the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI). The findings derived from the French versions of the MFRI and PLI are presented in English because this is an English dissertation.

It is of utmost significance to present the acronyms, domain titles, subdomains, and item names used to delineate the MFRI and PLI structure. These are introduced in Table 4. Their familiarity will facilitate a thorough comprehension of this section and allow for a comprehensive understanding of the analyses.

Table 4

PWF Domain and Sub-Domains Names and their Acronyms

	Questionnaires	Domains	Subdomains	Items
The Positive Workplace Framework (PWF)		(latent variables, second order factors, parameters)	(latent variables, first order factors, parameters)	(questions, observed parameters)
	Mental Fitness and Resiliency Inventory (MFRI)	Mental Fitness (MF)	Relatedness (Rel)	REL1-REL4
			Competency (Comp)	COMP1-COMP4
			Autonomy-support (Aut)	AUT1-AUT4
		Resiliency (R)	Relationship assets (RA)	RA1-RA4
			Professional assets (Pro)	PRO1-PRO4
			Attitudinal assets (Att)	ATT1-ATT4
			Emotional intelligence assets (EI)	EI1-EI4
			Adaptation assets (Adap)	ADAP1-ADAP4
	Positive Leadership Inventory (PLI)	Positive Leadership (PL)	Leadership Virtues (LV)	LV1-LV6
			Positive Communication (PC)	PC1-PC6
			Motivational Knowledge and Skills (MKS)	MKS1-MKS6
			Energizing Skills (ES)	ES1-ES6
			Operational Tasks (OT)	OT1-OT6

Table 4 also summarizes the MFRI, which evaluates the Positive Workplace Framework (PWF). This assessment measures well-being by examining two domains: mental fitness (MF) and resiliency (R), each of which is further divided into specific components. The mental fitness (MF) domain includes three subdomains (or psychological needs): relatedness (Rel), competency needs (Comp), and autonomy support (Aut). The resiliency (R) domain comprises five subdomains (or team assets): relationship assets (RA), professional assets (Pro), attitudinal assets (Att), emotional intelligence assets (EI), and adaptation assets (Adap). Similarly, the Positive Leadership Inventory (PLI) evaluates positive leadership, which serves as the domain, with five subdomains: leadership virtues (LV), positive communication (PC), motivational knowledge and skills (MKS), energizing skills (ES), and operational tasks (OT).

The MFRI includes four questions to evaluate each subdomain of mental fitness and the resiliency sub-domain. As shown in Table 4, relatedness (Rel) is assessed based on four questionnaire items identified as REL1 through to REL4. Table 4 also provides the breakdown of the Positive Leadership Inventory (PLI), which evaluates five positive leadership practices implemented by teams in the workplace. One such PLI subdomain, for instance, is leadership virtues (LV) that is measured using six questionnaire items that are designated as LV1 to LV6. Table 4 also showcases the item notation employed in the theoretical and path diagrams alongside the names used when reporting the PWF CFA results. Annex A illustrates how the French questionnaires are organized within the theoretical models, while Annex B presents the path diagrams of the questionnaire models, highlighting the mathematical relationships within their structure.

4.1. The MFRI's And PLI's Internal Consistency and Validity Evidence

This section presents the internal consistency and validity results for the MFRI and the PLI. The findings test two hypotheses.

i. Hypothesis 1a: The internal consistency in the MFRI and the PLI scales, domains, and subdomains as measured by McDonald's Omega is greater than the widely accepted threshold value of 0.70.

ii. Hypothesis 1b: The structural evidence from exploratory and confirmatory factor analysis supports the relationships among items reflected in the theoretical framework. The quantitative evidence from exploratory and confirmatory factor analysis models is statistically significant.

The section is divided into three subsections. The first subsection presents the results of internal consistency analysis or score reliability, which addresses Hypothesis

1a. The second subsection presents the results obtained by the exploratory factor analysis, and the third subsection presents the results obtained by the confirmatory factor analysis, both of which address Hypothesis 1b.

4.1.1. Internal Consistency or Score Reliability of the MFRI and PLI Questionnaires

The McDonald's Omega method was employed to assess reliability. The exploration of the MFRI's and PLI's internal consistency and validity draws from the theoretical frameworks of psychometrics, including the application of Classical Test Theory (CTT) and factor analysis, as outlined in Chapter 2.

Table 5 presents the mean scores with standard deviation, variance, and McDonald's Omega for each of the 13 domains and subdomains measured by the MFRI and PLI.

Table 5

MFRI's and PLI's Descriptive Results and Reliability

Questionnaire	Domains / Subdomains	Mean	SD	Variance	McDonald's Omega
Mental Fitness and	Mental Fitness & Resiliency				
Resiliency Inventory	Mental Fitness & Resiliency				0.981
(MFRI)	Mental Fitness				
	Relatedness (Rel)	16.089	3.308	10.945	0.950
	Competency (Comp)	16.647	3.132	9.808	0.878
	Autonomy-support (Aut)	17.437	2.857	8.163	0.863
	Mental Fitness Total				0.880
	Resiliency				
	Relationship assets (RA)	17.111	3.176	10.085	0.972
	Professional assets (Pro)	16.418	3.140	9.858	0.904
	Attitudinal assets (Att)	16.674	3.382	11.437	0.821
	Emotional intelligence assets (EI)	16.253	3.502	12.267	0.912
	Adaptation assets (Adap)	15.930	3.538	12.514	0.900
	Resiliency Total				0.870
	Positive Leadership				
Positive Leadership	Leadership Virtues (LV)	22.220	5.524	30.515	0.921
Inventory (PLI)	Positive Communication (PC)	24.073	5.230	27.349	0.922
	Motivational Knowledge and Skills (MKS)	23.891	5.315	28.244	0.933
	Energizing Skills (ES)	23.665	4.925	24.257	0.884
	Operational Tasks (OT)	23.560	5.334	28.448	0.937
	Positive Leadership Total				0.983

The mean values of the MFRI subdomains range from 16.089 to 17.437. Similarly, the PLI subdomains exhibit mean values that fluctuate between 22.220 and 24.073. McDonald’s Omega, the reliability indicator, showed high reliability for all domains and subdomains of both MFRI and PLI, with values exceeding 0.821. Consequently, the data confirmed the null hypothesis, which stated that the reliability coefficients of both MFRI and PLI would surpass 0.70.

4.1.2. Exploratory Factor Analysis of the MFRI and PLI Scores

The next step involves further data analysis to determine the validity of the MFRI’s and PLI's structure through exploratory factor analysis (EFA). EFA helps to identify common factors among the variables measured to establish whether the evidence supports the theoretical framework. The initial analysis confirmed the suitability of the sample and the goodness-of-fit for the four main models presented in Table 6 and Figures 5 and 6.

Table 6 displays the sampling adequacy with the Kaiser-Meyer-Olkin measure (KMO). The results indicate that each of the MFRI and PLI models tested is statistically significant which suggests that each model tested is not random and provides evidence to reject the null hypothesis.

Table 6

MFRI's and PLI's Adequacy and Goodness-Of-Fit for the EFA

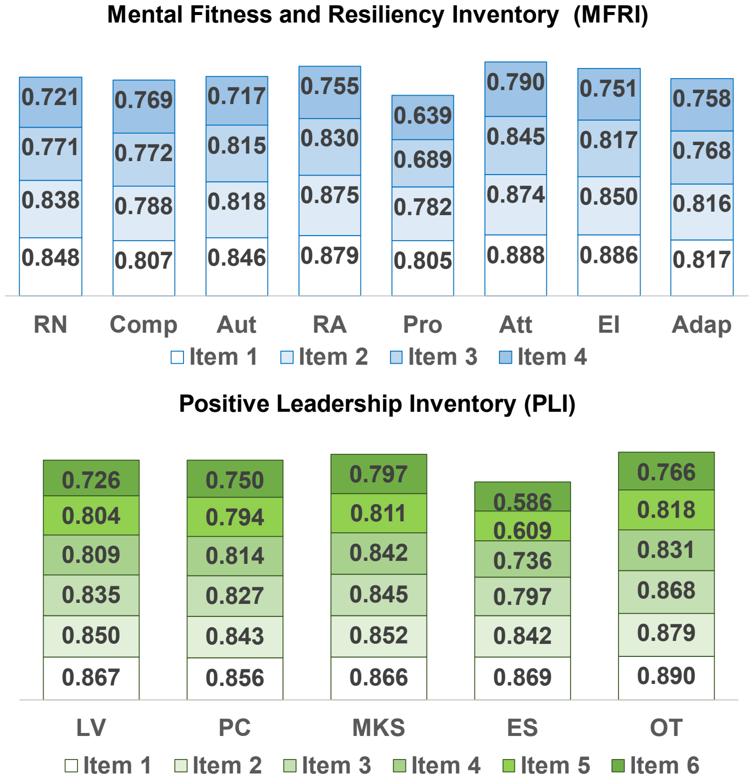
		Kaiser-Meyer-Olkin Measure of Sampling Adequacy				Variance Explained	Goodness of Fit Test		
Questionnaire	Scale	KMO	Chi-Square	df	Sig.		Chi-Square	df	Sig.
Mental Fitness and Resiliency Inventory (MFRI)	Mental Fitness & Resiliency (Items)	0.989	179952.708	496	0.000	63.793	10894.094	433	0.000
	Mental Fitness & Resiliency (Subdomains)	0.949	67367.153	28	0.000	82.532	3190.809	20	0.000
	Mental Fitness	0.964	54248.685	66	0.000	61.150	2940.184	54	0.000
	Relatedness (Rel)	0.828	11938.638	6	0.000	63.391	22.612	2	0.000
	Competency (Comp)	0.822	11052.360	6	0.000	61.466	121.559	2	0.000
	Autonomy-support (Aut)	0.829	12248.094	6	0.000	64.079	55.452	2	0.000
	Resiliency	0.984	111273.950	190	0.000	64.065	5564.449	170	0.000
	Relationship assets (RA)	0.844	15207.958	6	0.000	69.913	16.427	2	0.000
	Professional assets (Pro)	0.781	8375.072	6	0.000	53.564	166.626	2	0.000
	Attitudinal assets (Att)	0.852	16437.215	6	0.000	72.254	10.945	2	0.004
	Emotional intelligence assets (EI)	0.840	14432.787	6	0.000	68.486	34.244	2	0.000
	Adaptation assets (Adap)	0.823	11495.481	6	0.000	62.460	119.602	2	0.000
Positive Leadership Inventory (PLI)	Positive Leadership (Items)	0.987	27349.533	435	0.000	65.403	2177.262	405	0.000
	Positive Leadership (Subdomains)	0.928	7228.451	10	0.000	91.085	30.273	5	0.000
	Leadership Virtues (LV)	0.917	3690.522	15	0.000	66.650	75.763	9	0.000
	Positive Communication (PC)	0.926	3574.843	15	0.000	66.393	17.288	9	0.044
	Motivational Knowledge and Skills (MKS)	0.929	4017.856	15	0.000	69.839	31.213	9	0.000
	Energizing Skills (ES)	0.893	2652.246	15	0.000	55.923	42.745	9	0.000
	Operational Tasks (OT)	0.926	4269.334	15	0.000	71.074	48.703	9	0.000

Furthermore, the KMO of all models exceeds 0.7, which can be interpreted as ranging from meritorious (0.8) to marvelous (0.9) according to Kaiser (1960). The measures also provide information about each model's Chi-Square and degrees of freedom, df. The exploratory factor analysis yielded a statistically significant result with a goodness-of-fit value of 0.000. This suggests that the findings can be used to interpret the analysis of the shared commonalities by the scores in each model confidently.

Eigenvalues indicate each item's contribution to its subdomain, independent of all other factors (Watkins, 2018). Figure 5 shows the eigenvalues by item in each of the MFRI and PLI subdomains. The eigenvalues confirm that the measurements obtained by the MFRI and PLI items in the mental fitness, resiliency, and positive leadership subdomains contribute significantly to each subdomain.

Figure 5

MFRI's and PLI's Eigenvalues by Subdomain and Items

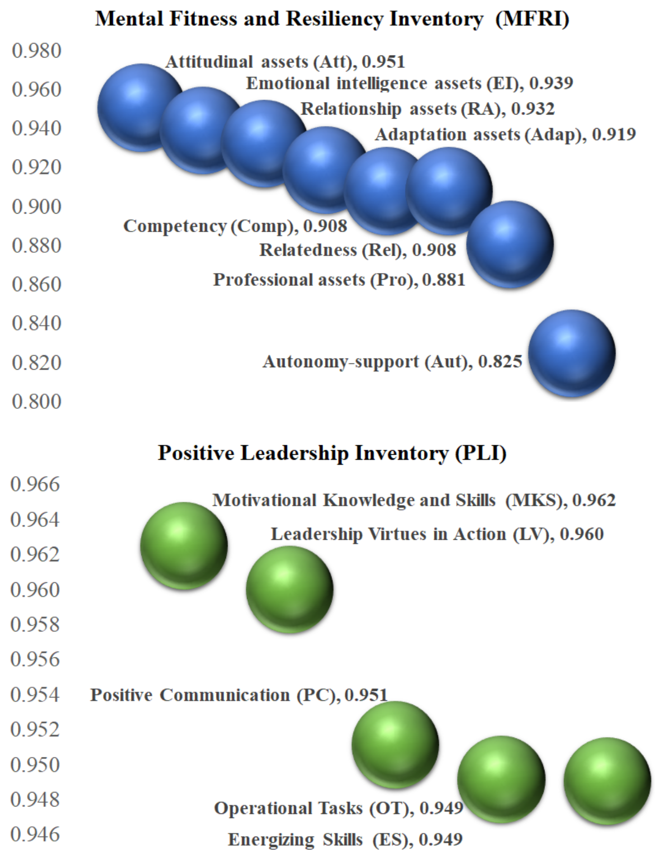


The MFRI has eigenvalues ranging from 0.618 to 0.871, while the PLI has eigenvalues ranging from 0.568 to 0.894. The results demonstrate that each item contributes to a single factor that contributes to the variance measured by both questionnaires. The evidence shows a high concurrent and discriminant validity of the item scores in this data frame from Francophone schools.

After analyzing the items in each subdomain, it was relevant to analyze the commonalities by subdomain in the MFRI and the PLI. The results of this analysis are presented in Figure 6.

Figure 6

MFRI's And PLI's Commonalities



The MFRI questionnaire includes subdomains with eigenvalues ranging from 0.825 to 0.951, while the PLI subdomain eigenvalues range between 0.949 and 0.962. The MFRI and PLI questionnaires show that the eigenvalues explain a significant variance of 66.06%, and the items contribute significantly to the first factor. Similarly, the eigenvalues in the PLI questionnaire explain a variance of 66.51%, and the factors also contribute significantly to the first factor.

The MFRI bubble chart shows the proximity of the correlated subdomains based on their eigenvalues: attitudinal assets (Att), emotional intelligence assets (EI), relationship assets (RA), adaptation assets (Adap), competency (Comp), and relatedness (Rel). The other two subdomains, professional assets (Pro) and autonomy-support (Aut), have eigenvalues over 0.8. The PLI bubble chart shows the relationships between the positive leadership subdomains, with a close relationship between motivational knowledge and skills (MKS) and leadership virtues (LV). The other three subdomains, positive communication (PC), operational tasks (OT), and energizing skills (ES), show strong relationships amongst themselves.

In summary, after conducting exploratory factor analyses on the scores of the MFRI and PLI questionnaires, it was confirmed that the null hypothesis stating the statistical significance of the quantitative evidence obtained from exploratory factor analysis models was correct.

4.1.3. Confirmatory Factor Analysis of The MFRI and PLI Scores

The next step in describing the MFRI and PLI psychometric properties was to determine their construct validity using confirmatory factor analysis. Confirmatory factor analysis was used to validate the construct of the MFRI and PLI French questionnaires by examining the relationships between the observed items to confirm the proposed factorial structure based on theory. As detailed in the methodology chapter, the analysis involved five models and was carried out to assess the measurement model against the theory. The goal was to confirm the proposed factorial structure for the questionnaires.

The following five models were assessed using Mplus 8 software in answering Question 1b, which states that the structural evidence from exploratory and confirmatory factor analysis supports the relationships among items reflected in the theoretical framework. The results from these models are presented in this section. Table 7 displays the fit indices for the models, while Tables 8 through 12 provide detailed results for each model.

The first model, the mental fitness model (MF) in Table 8, investigates the interdependent relationships between the three primary psychological needs within the MF domain: relatedness (Rel), competency (Comp), and autonomy-support (Aut). The second model, the resiliency model (R) in Table 9, explores how the five resiliency assets (relationship assets (RA), professional assets (Pro), attitudinal assets (Att), emotional intelligence assets (EI), and adaptation assets (Adap) interact and are organized within the R domain.

The third model, the MF&R model in Table 10, integrates the eight subdomains from both the mental fitness and resiliency models under the MF and R domains. The fourth model, the well-being model (WB) in Table 11, examines how various mental fitness practices and resiliency assets contribute to overall well-being, engagement, and performance in the workplace without assigning these practices to a specific domain or subdomain.

The fifth model, which requires confirmation of its factorial structure, is the positive leadership model (PL) in Table 12. Data for this analysis are derived from the Positive Leadership Inventory (PLI). The model includes five positive leadership subdomains: leadership Virtues (LV), positive Communication (PC), motivational knowledge and skills (MKS), energizing skills (ES), and operational tasks (OT).

Evaluating the CFA solution for each model begins with assessing the overall goodness-of-fit. Each model was evaluated based on its goodness-of-fit, which indicates how closely the experimental data match the expected data according to the theoretical model. Various goodness-of-fit tests were conducted for the models, including $\chi 2$, df, p, SRMR, RMSEA, CFI, and TLI.

Table 7 presents the model's MFRI and PLI fit indexes: mental fitness and resiliency model (MF&R), mental fitness model (MF), resiliency model (R), well-being model (WB), and positive leadership model (PL). Each model features the $\chi 2$ (Chi-Square test), df (degrees of freedom), and sample size parameters.

Table 7
MFRI's and PLI's Fit Indexes for the CFA Models

	df	$\chi 2$	Parameters	RMSEA (90% CI)	SRMR	CFI	TLI
Mental Fitness & Resiliency Model (MF&R)	452	7186.808	108	0.050 (0.49 - 0.051)	0.029	0.936	0.930
Mental Fitness Model (MF)	51	1343.271	39	0.065 (0.62 - 0.068)	0.027	0.956	0.943
Resiliency Model (R)	160	2827.320	70	0.053 (0.51 - 0.054)	0.025	0.958	0.950
Well-being Model (WB)	456	8564.285	104	0.054 (0.053 - 0.055)	0.032	0.923	0.916
Positive Leadership Model (PL)	399	1500.99	96	0.056 (0.053 - 0.059)	0.026	0.942	0.937

The data analysis reveals that the models (MF&R, MF, R, WB, PL) each have an RMSEA index lower than 0.07. This indicates that the models are an excellent fit for the population, demonstrate minimal approximation error, and the MFRI and PLI apply to the population used in this study. The SRMR indicator for the proposed models ranges between 0.025 and 0.032, well below the ideal fit threshold of 0.05. The low SRMR values imply that the data fit very well, indicating that the models show a minimal difference between the observed and the predicted models.

The models exhibit CFI values ranging from 0.923 to 0.958, well above 0.90 suggested by Wang and Wang (2020). These results demonstrate that the proposed models are an excellent fit compared to the null models, which assume no covariances among the observed variables. Similarly, the TLI values range from 0.930 to 0.950, above the recommended threshold of 0.90 (Wang & Wang, 2020). Thus, the CFI and TLI indexes confirm that the correlations among the observed variables in the models are an appropriate fit between the observed and the null models.

Analyses of the goodness-of-fit statistics outlined in Table 7 show that the models and the data are a strong fit. As each model is over-identified, each achieves high precision and minimal error when applied to the population. Based on the general goodness-of-fit values, it can be concluded that the five CFA models are acceptable. These data support Hypothesis 1b, which states that the structural evidence from exploratory and confirmatory factor analysis supports the relationships among items reflected in the theoretical framework. The reliability and validity findings in this section are directly grounded in the methodologies discussed in Chapter 3, including the use of McDonald's Omega and confirmatory factor analysis (CFA).

Overall, the results show that the questionnaires have an adequate structure and content, making the MFRI and PLI reliable and valid instruments for interpreting the complex relationships between the measured constructs.

4.1.3.1.The MFRI's and PLI's CFA Models

Having presented the construct validity for the MFRI and PLI, this section examines the parameter estimates for each CFA model: the mental fitness model (MF), the resiliency model (R), the mental fitness and resiliency model (MF&R), the well-being model (WB), and the positive leadership model (PL).

The Mental Fitness model (MF)

The MF model was designed to analyze Research Question 1, hypothesis 1b, aiming to validate the correlation between the three mental fitness needs and their role as strengths within a team, contributing to overall mental fitness. Table 8 shows the MF model results. Twelve items, four in each subdomain, were used to measure relatedness, competency, and autonomy support. The results indicated positive values for the estimates, consistent with the PWF theoretical foundation.

Table 8
MF Model Results

Mental Fitness Model (MF)			
Mental Fitness (MF)	Estimate	S.E.	ρ value
Rel with Comp	1.005	0.004	0.000
Comp with Aut	0.932	0.006	0.000
Rel with Aut	0.966	0.005	0.000

The results show that the standard errors are below the 0.010 threshold, indicating that the MF model is not significantly affected by sampling error, non-normal data, or the use of an improper estimator. Consequently, the data display a high level of precision and accuracy. The model shows a strong relationship between mental fitness practices, particularly relatedness and competency, with an estimate slightly exceeding 1.000.

In summary, the theoretical model on which this research is based demonstrates strong connections between the three mental fitness needs—particularly relatedness and competency—aligning with the hypotheses and research questions guiding this study. These findings support the premise that fostering mental fitness within workplace environments contributes to well-being, as posited in Hypothesis 1b and Research Question 1.

The Resiliency model, R

The resiliency model addressed Research Question 1 and Hypothesis 1b by assessing the presence of asset-based practices within organizational teams that contribute to resiliency. These assets include relational, professional, attitudinal, emotional intelligence, and adaptability factors.

The results presented in Table 9 show that all observed and estimated parameters fell within the range of 0 and 1, except for two relationships—professional-adaptation assets and relationship-attitudinal assets—that are strongly related but cannot be fully explained statistically by the model within this range. The other combinations tested in the model show solid relationships and work well together. Other than the two relationships above, all other relationship estimates were very strong, ranging from 0.954 to 0.998.

Table 9
R Model Results

Resiliency Model (R)			
Resiliency (R)	Estimate	S.E.	ρ value
RA with Pro	0.961	0.005	0.000
RA with Att	1.002	0.003	0.000
RA with EI	0.980	0.003	0.000
RA with Adap	0.954	0.004	0.000
Pro with Att	0.985	0.004	0.000
Pro with EI	0.985	0.005	0.000
Pro with Adapt	1.010	0.005	0.000
Att with EI	0.993	0.003	0.000
Att with Adap	0.981	0.003	0.000
EI with Adap	0.998	0.003	0.000

The Mental Fitness and Resiliency model (MF&R)

In further conducting the analysis related to research question 1, the MF&R model was designed to evaluate the Mental Fitness and Resiliency Inventory's appropriateness for measuring the presence of mental fitness and resiliency practices in workplace teams. This model simultaneously evaluates the relationships between factors that were previously analyzed separately in the individual mental fitness and resiliency models (Table 10).

Table 10
MF&R Model Results

Mental Fitness and Resiliency Model (MF&R)			
	Estimate	S.E.	ρ value
Mental Fitness & Resiliency (MF&R)	0.966	0.005	0.000
Mental Fitness (MF)			
Relatedness (Rel)	0.983	0.004	0.000
Competency (Comp)	0.992	0.006	0.000
Autonomy-support (Aut)	0.889	0.007	0.000
Resiliency (R)			
Relationship assets (RA)	0.983	0.002	0.000
Professional assets (Pro)	0.993	0.003	0.000
Attitudinal assets (Att)	0.992	0.003	0.000
Emotional intelligence assets (EI)	0.995	0.002	0.000
Adaptation assets (Adap)	0.991	0.002	0.000

The Mental Fitness and Resiliency (MF&R) model seeks to confirm that the three psychological needs—relatedness, competency, and autonomy support—constitute mental fitness and that the five team resiliency assets—relationship assets, professional assets, attitudinal assets, emotional intelligence assets, and adaptation assets—form the basis of resiliency. The model also quantifies the magnitude of the relationship between mental fitness and resiliency.

The estimates from this model indicate that all the mental fitness needs and resiliency assets are strongly interrelated, highlighting the interconnectedness between mental fitness practices and resiliency assets within teams. In particular, the 0.966 value for the relationship between mental fitness needs and resiliency assets is strong evidence of the appropriateness of the MF&R model in the Positive Workplace Framework, PWF.

The Well-Being model (WB)

The bell-being model (WB) was designed to assess the impact of integrating mental fitness and resiliency subdomains into a single model to assess overall workplace well-being. It addresses Research Question 1 and Hypothesis 1b by examining how these interconnected factors contribute to well-being in organizational settings. Furthermore, this model offers valuable insights into the specific mental fitness needs and resiliency assets teams use to flourish and grow.

Based on the findings presented in Table 11, the parameter estimates generated by this model fall within the expected range of 0 to 1, aligning with existing theoretical predictions. With estimate values approaching 1, the model demonstrates that each mental fitness practice and resiliency asset strongly contributes to team well-being.

Table 11
WB Model Results

Well-being Model (WB)			
	Estimate	S.E.	ρ value
Relatedness (Rel)	0.966	0.003	0.000
Competency (Comp)	0.977	0.003	0.000
Autonomy-support (Aut)	0.884	0.006	0.000
Relationship assets (RA)	0.981	0.002	0.000
Professional assets (Pro)	0.992	0.003	0.000
Attitudinal assets (Att)	0.995	0.002	0.000
Emotional intelligence assets (EI)	0.991	0.002	0.000
Adaptation assets (Adap)	0.989	0.002	0.000

The Positive Leadership Model (PL)

The PL model uses data from the Positive Leadership Inventory (PLI) to evaluate positive leadership practices in workplace teams. It addresses Research Question 1 and Hypothesis 1b by assessing the impact of these practices on team dynamics and organizational well-being. Five constructs make up the positive leadership domain: leadership virtues (LV), positive communication (PC), motivational knowledge and skills (MKS), energizing skills (ES), and operational tasks (OT). These constructs are measured with 30 items – 6 per construct – and reported at the group level.

Table 12 shows that the estimates are all within an acceptable range. Being less than 1, they align well with theoretical expectations.

Table 12
PL Model Results

Positive Leadership Model (PL)			
Positive Leadership (PL)	Estimate	S.E.	ρ value
Leadership Virtues (LV)	0.989	0.006	0.000
Positive Communication (PC)	0.992	0.004	0.000
Motivational Knowledge and Skills (MKS)	0.999	0.003	0.000
Energizing Skills (ES)	0.986	0.009	0.000
Operational Tasks (OT)	0.983	0.004	0.000

Indicators between 0.90 and 1 signify strong relationships between the constructs, indicate that they are well-defined and, thus, ensures the model's reliability. The analysis indicates that operational tasks (0.983), energizing skills (0.986), leadership virtues (0.989), positive communication (0.992), and motivational knowledge and skills (0.999) are the key drivers of a positive leadership environment.

These findings demonstrate the validity of the positive leadership construct as developed in the Positive Workplace Framework (PWF).

4.1.4. Summary of Hypotheses 1a and 1b Results

This section presented the results addressing Research Question 1: What are the internal consistency and validity evidence for the MFRI and PLI? It also examined Hypothesis 1a, which posited that the internal consistency of the MFRI and PLI scales, domains, and subdomains—measured using McDonald's Omega—exceeds the widely accepted threshold of 0.70. Additionally, it evaluated Hypothesis 1b, which proposed that structural evidence from exploratory and confirmatory factor analyses supports the theoretical relationships among items within the mental fitness and resiliency (MF&R), mental fitness (MF), resiliency (R), well-being (WB), and positive leadership (PL) models.

It can be concluded that the MFRI and PLI scores across scales, domains, and subdomains exhibit high internal consistency, which relates to the internal consistency of the MFRI and PLI scales. Regarding Hypothesis 1b, it was confirmed that the evidence from both exploratory and confirmatory factor analyses was statistically significant. Taken together, these findings validate that the score scales measured with precision the theoretical constructs of the Positive Workplace Framework as assessed using the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI).

4.2. The Quantitative Relationship between the PLI's Positive Leadership Practices

This section addresses Research Question 2a by examining the relationships between each positive leadership subdomain, which form the Positive Leadership Inventory (PLI). The quantitative analyses in this section are explained in detail in the Chapter 3 methodology.

The positive leadership relationships (PL-Rel) model was employed to evaluate these relationships, with Hypothesis 2a positing that the quantitative relationships among the PLI subdomains in the CFA model would be greater than 0.20. The goodness-of-fit evaluation for the model considered several criteria, such as $\chi 2$, df, p, SRMR, RMSEA, CFI, and TLI. Table 13 presents the fit indexes for the PL-Rel model. The positive $\chi 2$ (Chi-Square) test and sample size parameters from each model confirm the suitability of the sample for further analyses.

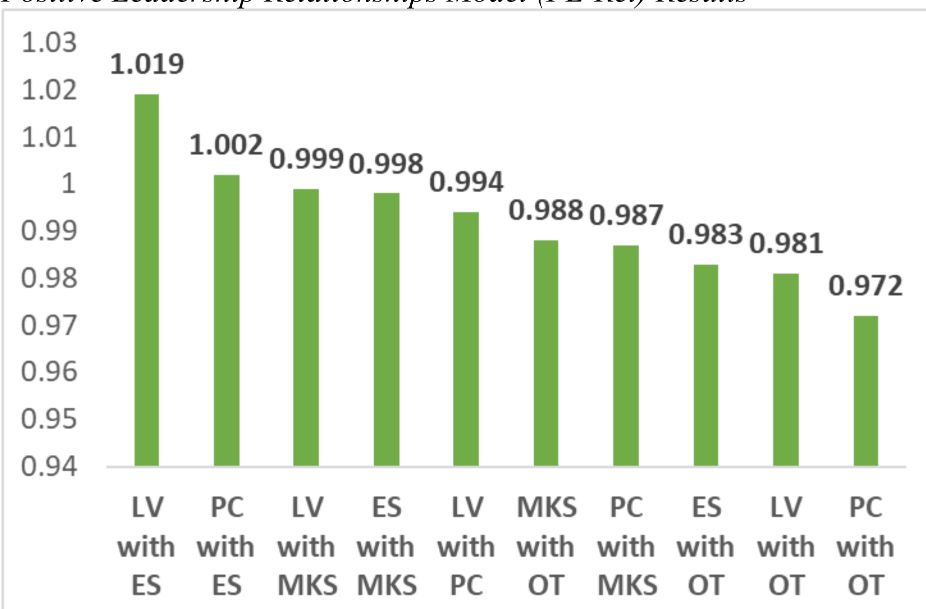
Table 13
PL-Rel Model Fit Indexes

	df	$\chi 2$	Parameters	RMSEA (90% CI)	SRMR	CFI	TLI
Positive Leadership Relationships Model (PL-Rel)	395	1491.712	100	0.056 (0.53 - 0.059)	0.026	0.942	0.936

In Table 13, the RMSEA index was calculated to be 0.056 with an upper interval of 0.059, and the SRMR indicator was 0.026. These indexes confirm an excellent model fit for the population with minimal approximation error. Additionally, the CFI index was 0.942, and the TLI non-normed index was 0.936, confirming that the model has a very good fit and does not need to be re-specified. The evidence gathered from the goodness-of-fit test confirms that the PL-Rel model is acceptable and gives credence to analyzing the information from the model to test Hypothesis 2a. While these results underscore the robustness and dependability of the PL-Rel model, the following focuses on the model parameters and estimates that pertain to the correlation between the positive leadership practices.

Figure 7 illustrates the relationships between the PWF positive leadership practices in the PL-Rel model, all of which exceed a threshold of 0.970. These relationships are categorized into four groups based on their strength, as determined by the confirmatory factor analysis model.

Figure 7
Positive Leadership Relationships Model (PL-Rel) Results



The grouping follows a logical progression from the strongest to the weakest relationships, reflecting the degree of association between the constructs within the model. This classification helps to distinguish core, highly interrelated practices from those with relatively lower, yet still significant, associations. Additionally, the final group identifies relationships exceeding a value of 1.0, which could not be fully established within this model. The relationships then can be organized into four groups according to their strength: relationships over 0.990, relationships over 0.980, relationships over 0.970, and those over 1.

The first group reveals strong connections exceeding 0.990. This group demonstrates very strong links between leadership virtues and motivational knowledge and skills (0.999), energizing skills and motivational knowledge and skills (0.998), and leadership virtues and positive communication (0.994).

The second group is characterized by relationships exceeding 0.980. This group demonstrates significant correlations, such as the connection between motivational knowledge and skills and operational tasks (0.988), positive communication and motivational knowledge and skills (0.987), energizing skills and operational tasks (0.983), and leadership virtues and operational tasks (0.981).

The third group is characterized by the relationship between positive communication and operational tasks (0.972).

The fourth group is characterized by interconnected relationships exceeding 1.0. This group includes two relationships: leadership virtues and energizing skills (relationship of 1.019) and effective positive communication and energizing skills (relationship of 1.002). As previously noted, a relationship greater than 1 suggests that the factors are highly correlated to the point where the model cannot accurately estimate the magnitude of the correlation. Although these results may seem troublesome from a quantitative viewpoint, they can be justified theoretically since strong leadership virtues and practices are known to resemble those that promote energy and enthusiasm in a team (Fredrickson, 2001; Seligman & Csikszentmihalyi, 2000).

4.2.1. Summary of Hypothesis 2a Results

This section explored the relationships between positive leadership practices measured by the Positive Leadership Inventory (PLI) scores. Hypothesis 2a of Research Question 2 posited that the quantitative relationships among the positive leadership subdomains should exceed 0.20. The CFA findings from the PL-Rel model supported Hypothesis 2a and provided specific estimates of the relationships between positive leadership practices.

The results revealed the presence of four groups based on the strength of their relationships. Positive communication demonstrates strong connections with all the other leadership practices across all four groups, followed by a robust relationship between energizing skills and leadership virtues in three groups. Motivational knowledge also strongly correlates with other positive leadership practices in the second and third groups. At the same time, operational tasks are strongly related to other positive leadership practices in the third and fourth groups.

The model also highlighted significant relationships between energizing skills and leadership virtues, and with motivational knowledge and skills in promoting positive leadership practices at the team level. Furthermore, the model highlighted the relationship between leadership virtues and performing operational tasks regularly.

4.3. Positive Leadership Practice's Impact on Workplace Well-Being

The first two research questions have established that the MFRI and the PLI possess excellent psychometric properties, thus confirming the validity of the mental fitness, resiliency, and positive leadership domains in the PWF. Additionally, strong relationships between the positive leadership practices measured by the PLI were identified. This section focuses on reporting the impact of positive leadership practices, as measured by the PLI, on workplace well-being as measured by the MFRI. Understanding the specific contributions of each positive leadership practice on workplace well-being is important when implementing the Positive Workplace Framework.

The well-being positive leadership model (WB-PL) was evaluated to assess the impact of positive leadership practices on workplace well-being (Research Question 2b). This analysis aimed to confirm the dependability and accuracy of the WB-PL model employed to derive insights regarding the effects of positive leadership practices on team well-being. Quantitative indexes, including $\chi 2$, df, p, RMSEA, SRMR, CFI, and TLI, are shown in Table 14.

Table 14
Well-Being and PLI Model Fit Indexes

	df	$\chi 2$	Parameters	RMSEA (90% CI)	SRMR	CFI	TLI
Well-being on Positive Leadership (WB-PL)	1818	5062.789	197	0.042 (0.041 - 0.044)	0.024	0.955	0.953

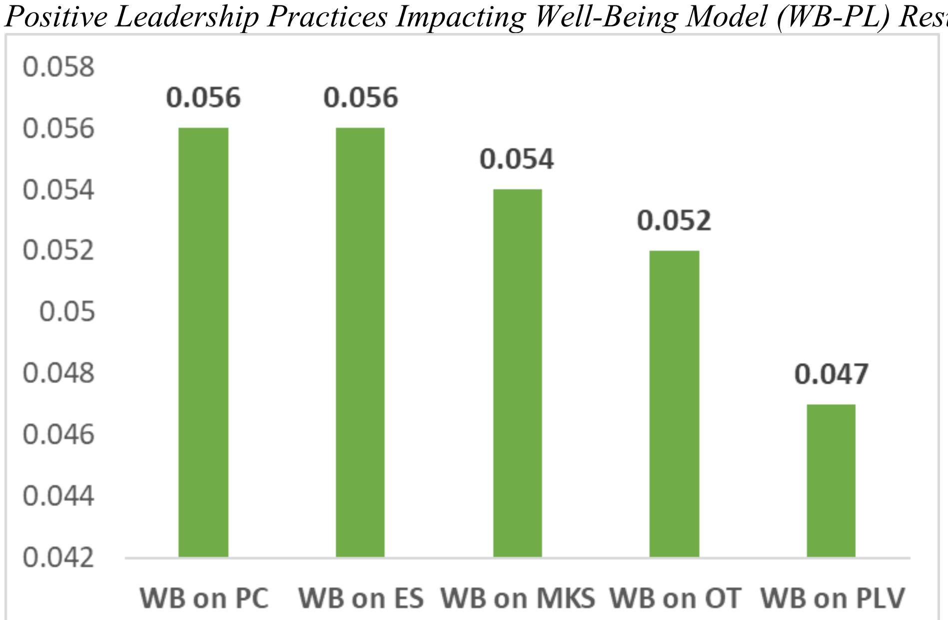
The table displays positive and consistent $\chi 2$ (Chi-Square) test and sample size parameters, indicating that the sample is appropriate for the intended analysis. The RMSEA index, estimated at 0.042 with an upper interval of 0.044, is excellent and suggests that the model is an excellent estimator with minimal approximation error in the population of interest. The SRMR was calculated as 0.024, confirming that the model has an ideal and suitable fit. Moreover, the CFI (0.955) and TLI (0.953) values exceed 0.9, which supports that the models fit well with the null models and do not require re-specification. The goodness-of-fit indexes indicate that the WB-PL model effectively quantifies the impact of positive leadership practices on workplace well-being.

The following Figure 8 elaborates the results of the analyses and evaluates the impact of each positive leadership practice on enhancing the well-being of workplace teams. Figure 8 displays the results from the WB-PL model, providing valuable insights into the impact of positive leadership practices on overall well-being in a workplace environment. The findings indicate that positive leadership practices account for approximately 26.5% of the variance in team well-being.

Figure 8 shows that the contributions of positive leadership practices to well-being range from 0.047 to 0.056. it is interesting to note that there is little difference between each positive leadership practice's impact on overall team well-being.

Figure 8

Positive Leadership Practices Impacting Well-Being Model (WB-PL) Results



4.3.1. Summary of the WB-PL Model Analysis Results

This section analyzed the PLI scores to assess positive leadership practices and their impact on well-being, as measured by the MFRI. The results revealed that positive leadership practices could collectively predict up to 26.5% of overall workplace well-being, with each practice having approximately the same impact as the others.

4.4. The Quantitative Relationships Between the Domains and Subdomains in the Positive Workplace Framework (PWF)

Having validated the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI) in the previous sections, established the relationship between positive leadership practices, and quantified the impact of each positive leadership practice on workplace well-being, this section now focuses on the fourth research question: What quantitative relationships exist between the domains and subdomains in the PWF? The purpose of this analysis is to elucidate and understand the quantitative relationships between the 13 well-being subdomains, as measured by the MFRI, and the five positive leadership subdomains, as measured by the PLI.

Hypothesis 3 evaluated quantitative relationships among the two domains (well-being and positive leadership) and thirteen subdomains in the PWF in the Confirmatory Factor Analysis (CFA) model, where the coefficients are greater than 0.20. This section describes and discusses the results from the goodness-of-fit for the PWF Model and its assessment.

The Goodness-Of-Fit for the PWF Model. The PWF model was evaluated by analyzing its fit indexes, which measure the accuracy of the data frame from workplaces in the sample against the theoretical model. Table 15 presents the fit indexes for the PWF model.

Table 15

PWF CFA Fit Indexes

	Positive Workplace Framework Model (PWF)
N schools	17
N personnel	1003
df	1813
$\chi 2$	4635.356
Parameters	202
RMSEA (90% CI)	0.039 (0.038 - 0.041)
SRMR	0.023
CFI	0.960
TLI	0.959

The PWF model has an RMSEA index of 0.039, indicating an excellent fit with minimal approximation error. The SRMR indicator for the models is 0.023, significantly lower than the ideal fit indicator of 0.05 which also suggests an excellent model fit. The model's CFI index is 0.960, and the TLI index is 0.959, each exceeding the recommended threshold of 0.90. This suggests that the model does not require re-specification. A comprehensive analysis of the goodness-of-fit statistics in Table 15 confirms that the model is acceptable and statistically sound, as confirmed by the confirmatory factor analysis. This implies that the PWF model is appropriate for evaluating Hypothesis 3.

Having established that the PWF Model is acceptable for its intended application, this section presents its parameters and uses the results to test Hypothesis 3, which seeks to ascertain what quantitative relationships exist between the domains and subdomains in the PWF. The data from Table 16 show that minimal error variances were detected, indicating that the PWF is acceptable in specification, sample, and structure. The p-values for these estimates are highly significant ($p < 0.001$).

Table 16
PWF Model Results

Positive Workplace Framework Model (PWF)			
Parameter	Estimate	S.E.	ρ value
The Positive Workplace Framework (PWF) by			
Well-being (WB)	0.981	0.004	0.000
Positive Leadership (PL)	0.279	0.026	0.000
Well-being (WB) by			
Mental Fitness (MF)	0.981	0.004	0.000
Resiliency (R)	0.968	0.007	0.000
Mental Fitness (MF) by			
Relatedness (Rel)	0.986	0.008	0.000
Competency (Comp)	0.998	0.007	0.000
Autonomy-support (Aut)	0.888	0.017	0.000
Resiliency (R) by			
Relationship assets (RA)	0.976	0.006	0.000
Professional assets (Pro)	0.983	0.009	0.000
Attitudinal assets (Att)	0.979	0.007	0.000
Emotional intelligence assets (EI)	0.980	0.007	0.000
Adaptation assets (Adap)	0.991	0.006	0.000
Positive Leadership (PL) by			
Leadership Virtues (LV)	0.995	0.001	0.000
Positive Communication (PC)	0.999	0.000	0.000
Motivational Knowledge and Skills (MKS)	0.995	0.001	0.000
Energizing Skills (ES)	0.997	0.001	0.000
Operational Tasks (OT)	0.997	0.001	0.000

The PWF model delineates the relationships between its domains and subdomains, which range from 0.976 to 0.999. The model also confirms that a Positive Workplace Framework (PWF) is constituted by well-being (0.981) and positive leadership practices (0.279).

When analyzing the contributions of mental fitness (0.981) and resiliency (0.968) to well-being, results indicate that both are quite strong. Mental fitness (MF) is defined by three subdomains: relatedness (0.986), autonomy support (0.888), and competency (0.998). These results confirm the strong correlations between the mental fitness subdomain in the mental fitness model (MF) and their contributions, as analyzed in the previous section's mental fitness and resiliency model (MF&R).

Resiliency (R) is comprised of various assets, including relationship assets (0.976), attitudinal assets (0.979), emotional intelligence assets (0.980), professional assets (0.983), and adaptation assets (0.991). These findings affirm the strong interconnections within the subdomains of the resiliency model (R).

The results from the positive leadership (PL) subdomains (leadership virtues, positive communication, motivational knowledge and skills, energizing skills, and operational tasks) show a robust relationship with values ranging from 0.995 to 0.999. All these relationships exceed 0.20, thereby confirming Hypothesis 3 as articulated in research question four, and validating the structural soundness and representativeness of the positive leadership domain in the PWF Model.

4.4.1. Summary of PWF Model Analysis Results

This section analyzed the Positive Workplace Framework (PWF) model by assessing the relationships between the thirteen well-being subdomains, measured by the MFRI, and the five positive leadership subdomains, measured by the PLI. Hypothesis 3 was tested and confirmed by the results from the PWF Model, which stated that the quantitative relationships among the domains and subdomains should exceed 0.20. The PWF is strongly supported by well-being (mental fitness and resiliency) and positive leadership, with well-being having a particularly strong influence. Overall, the model is supported by a strong and significant structure, confirming its validity.

4.5. Identifying PWF Subdomains to Target for Optimizing Workplace Well-Being and Positive Leadership Interventions

The previous sections confirmed and validated the scores of two French questionnaires, the Mental Fitness and Resiliency Inventory (MFRI) and the Positive Leadership Inventory (PLI), which can be utilized in positive workplace environments, established the relationships between positive leadership practices and their impact on workplace wellbeing. The previous section also validated the PWF, which comprises well-being (measured by mental fitness and resiliency) and positive leadership.

The final research question explored the quantitative relationships between the domains and subdomains within the PWF. It seeks to establish the quantitative values of well-being and positive leadership practices to determine which subdomain-specific practices should be implemented in addition to the actual practice in the subdomain identified as needing improvement. These practices are referred to as secondary practices.

Hypothesis 4 articulated in research question 4 posited that the models for identifying optimal workplace interventions are statistically significant. Thirteen CFA models corresponding to each subdomain in the PWF were employed to examine the impact of each well-being and positive leadership model for optimizing workplace interventions.

It is important to note that the models analyzed to answer the previous research questions used standardized scales for prediction, resulting in minimal fit index errors and high model suitability for the population. Fit indices such as the Comparative Fit

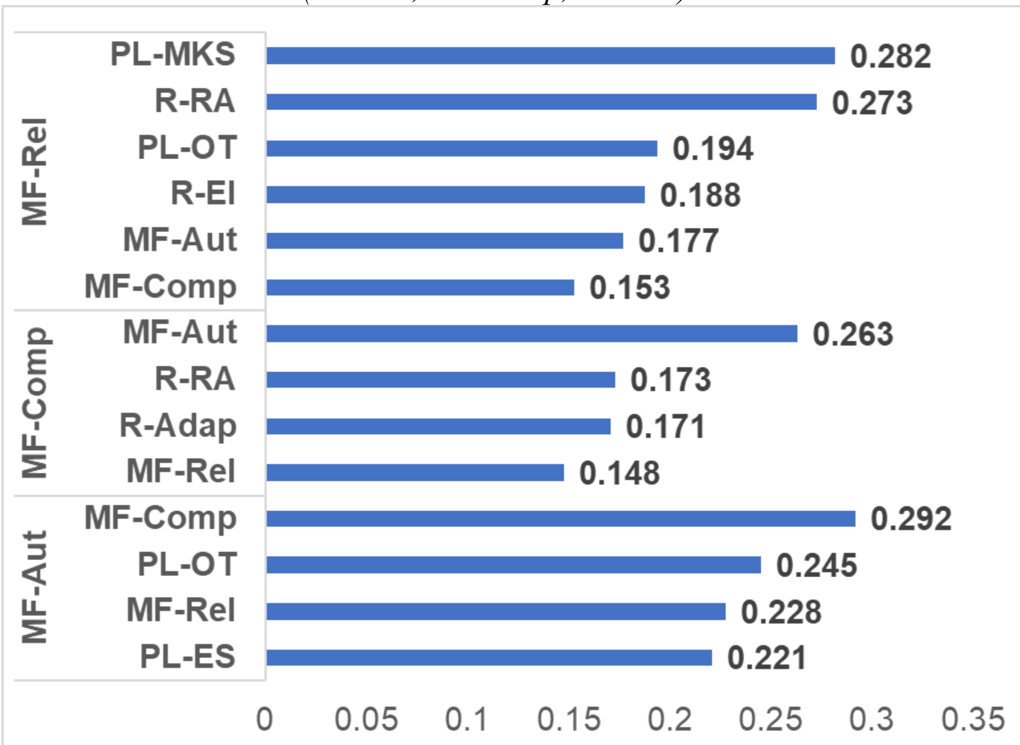
Index (CFI), Tucker-Lewis Index (TLI), and Root Mean Square Error of Approximation (RMSEA) all met or exceeded commonly accepted thresholds (CFI and TLI > 0.95, RMSEA < 0.06), indicating an excellent fit. Consequently, the indexes confirmed the robustness and suitability of the CFA models. The same goodness-of-fit indexes of the models also confirmed Hypothesis 4, demonstrating that the models are statistically significant and suitable for further analysis. This evidence subsequently enables the identification of factors that promote positive leadership and well-being in a workplace environment when using the MFRI and PLI to target interventions during the implementation of the PWF (Research Question 4). The identification of these subdomains is based on modeling techniques and exploratory factor analyses described in Chapter 3.

This next section analyzes the data supporting the models used in the PWF, with results presented in three groups, the mental fitness subdomains, the resiliency subdomains, and the positive leadership subdomains. Each subsection highlights subdomains with statistically significant results, with only the estimates over 0.20 presented. Each of these groups will be introduced, along with the subdomains showing the highest covariances.

4.5.1. Mental Fitness Subdomains

The relatedness model (MF-Rel) in Figure 9 identified six secondary practices that contribute to relatedness, with standardized factor loadings ranging from 0.153 to 0.282: motivational knowledge and skills (0.282) and team relationship assets (0.273) are the two most significant contributors to enhancing team-relatedness practices in the workplace.

Figure 9
Mental Fitness Models (MF-Rel, MF-Comp, MF-Aut)



The competency model (MF-Comp) in Figure 9 identified four secondary practices that contribute to team competency needs, with standardized factor loadings ranging from 0.148 to 0.263.

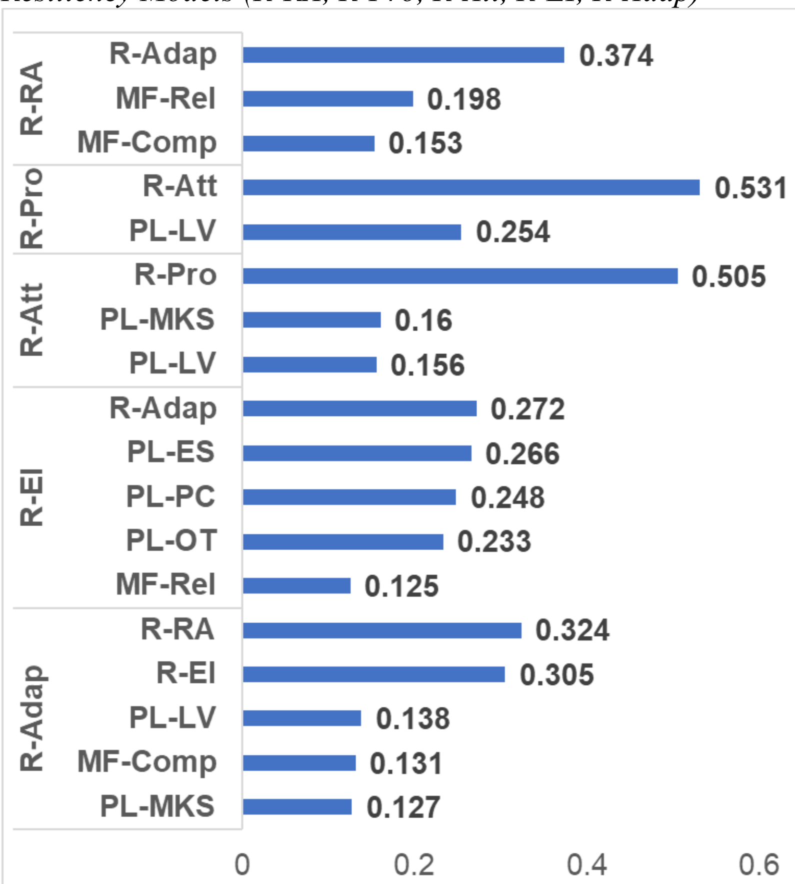
The autonomy-support model (MF-Aut) identified four secondary practices that contribute to the need for autonomy within teams, with standardized factor loadings ranging from 0.221 to 0.292: competency (0.292), relatedness (0.228), operational tasks (0.245), and energizing skills (0.221).

4.5.2. Resiliency Subdomains

The relationship assets model (R-RA) in Figure 10 identified three secondary practices that contribute to building team relationship assets, with standardized factor loadings ranging from 0.374 to 0.153.

Figure 10

Resiliency Models (R-RA, R-Pro, R-Att, R-EI, R-Adap)



The most effective secondary practice for developing relationship assets in a team implementing the Positive Workplace Framework (PWF) is building and implementing adaptation asset practices, as indicated by a factor loading of 0.374, which represents the strength and direction of the relationship between the practice and the asset being developed.

The professional assets model (R-Pro) in Figure 10 identified two secondary practices that contribute to building professional assets within teams with standardized factor loadings ranging from 0.531 to 0.254: attitudinal assets (0.531) and leadership virtues (0.254).

As illustrated in Figure 10, the attitudinal assets model (R-Att) identified three secondary practices that contribute to developing attitudinal assets within teams, with standardized factor loadings ranging from 0.505 to 0.156: professional assets (0.505), motivational knowledge and skills (0.16), and leadership virtues (0.156).

The emotional intelligence assets model (R-EI) depicted in Figure 10 identified five secondary practices that contribute to the development of emotional intelligence within teams, with standardized factor loadings ranging from 0.272 to 0.125: adaptation assets (0.272), energizing skills (0.266), positive communication (0.248), operational tasks (0.233), and relatedness needs (0.125).

The adaptation assets model (R-Adap), illustrated in Figure 10, identified five secondary practices that contribute to developing team adaptation assets, with standardized factor loadings ranging from 0.324 to 0.127: relationship assets (0.324), emotional intelligence assets (0.305), leadership virtues (0.138), competency (0.131), and motivational knowledge and skills (0.127)

4.5.3. Positive Leadership Subdomains

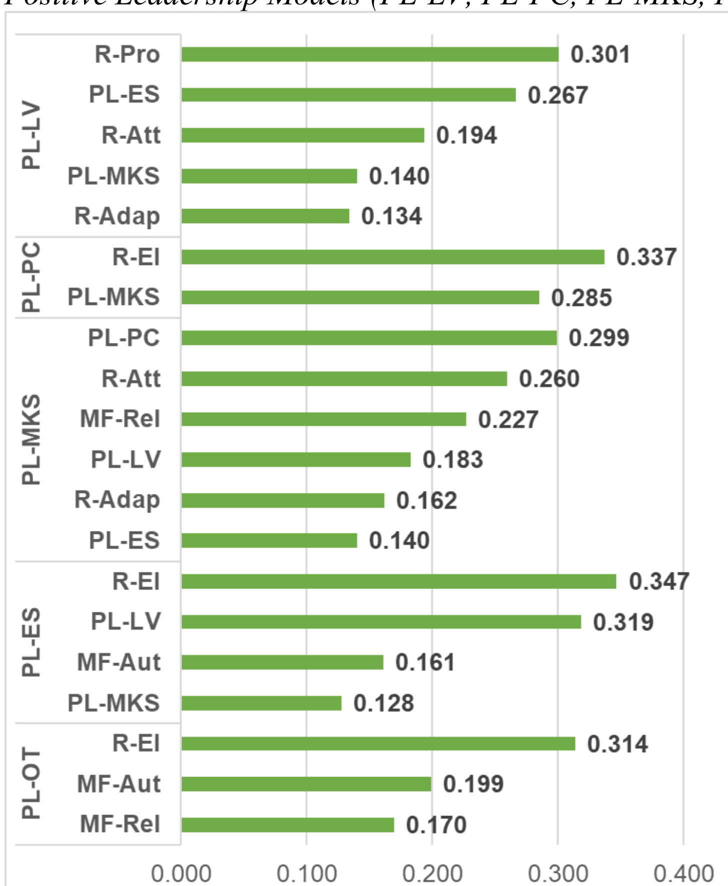
In Figure 11, the leadership virtues model (PL-LV) outlines five secondary practices that contribute to leadership virtues, with standardized factor loadings ranging from 0.301 to 0.134: professional assets (0.301), energizing skills (0.267), attitudinal assets (0.194), motivational knowledge and skills (0.140), and adaptation assets (0.134).

The positive communication model (PL-PC), depicted in Figure 11, highlights two essential secondary practices with standardized factor loadings of 0.337 (emotional intelligence) and 0.285 (motivational knowledge and skills).

In Figure 11, the motivational knowledge and skills model (PL-MKS) outlines six secondary practices with standardized factor loadings from 0.299 to 0.140 that contribute to motivational knowledge and skills: positive communication (0.299), attitudinal assets (0.260), relatedness (0.227), leadership virtues (0.183), adaptation assets (0.162), and energizing skill (0.140).

Figure 11

Positive Leadership Models (PL-LV, PL-PC, PL-MKS, PL-ES, PL-OT)



The energizing skills model (PL-ES), illustrated in Figure 11, emphasizes four secondary practices that contribute to energizing skills with standardized factor loadings ranging from 0.347 to 0.128: emotional intelligence (0.347), leadership virtues (0.319), autonomy (0.161), and motivational knowledge and skill (0.128).

The operational tasks model (PL-OT), shown in Figure 11, emphasizes three secondary practices with standardized factor loadings ranging from 0.314 to 0.170 that contribute to operational task practices: emotional intelligence (0.314), autonomy support (0.199), and relatedness (0.170).

4.5.4. A Summary of PWF Models Analysis Results

Hypothesis 4 stated that the models used to assess each of the thirteen PWF models are statistically significant at the 0.05 level. The results indicate that it is possible to target one or more secondary practices if these are to be the focus of improving a given subdomain.

The following chapter discusses the significance and implications of these findings and further presents study limitations and potential areas for further research.

CHAPTER 5. DISCUSSION AND CONCLUSION

The findings of this investigation contribute to current research on workplace well-being and positive leadership, specifically within the Positive Workplace Framework (PWF). By validating the technical aspects of the French versions of the MFRI and the PLI, this research effort supports the potential for these measures to be applied in assessing positive leadership and well-being (mental fitness and resiliency) practices across diverse workplace settings. While the findings of this study provide strong evidence for the validity and internal consistency of the MFRI and PLI within K–12 educational settings, the robustness of the psychometric properties supports the potential applicability of the PWF tools across settings, particularly where group-level leadership and well-being are central concerns. Future research is encouraged to validate the instruments in broader populations and international contexts

This discussion of results is organized into four key sections, corresponding to the study's four hypotheses. The first research question evaluated the internal consistency and validity of the MFRI and PLI, confirming their robustness. The second explored the relationship between positive leadership practices and their impact on workplace well-being, while the third examined the interconnections among the domains of the PWF. The fourth and final research question investigated how these validated measures can be used to identify key subdomains for targeted workplace interventions. By integrating these findings, this section highlights the theoretical and practical implications of the study's findings, which provide a foundation for future research and workplace applications. Concluding comments complete the chapter and the dissertation as a whole.

5.1. Research Question 1: Internal Consistency and Validity of MFRI and PLI

The MFRI and the PLI demonstrated adequate internal consistency and construct validity, supporting the robustness of these measures within the PWF. The results of the initial analyses of the measurements obtained for the MFRI and PLI indicate that their given items contribute significantly to their proposed subdomains. In this regard, each item represents a potential practice strength contributing to its associated practice structure or category. Similarly, models tested including mental fitness (MF), resiliency (R), well-being (WB), positive leadership (PLI), and the Positive Workplace Framework (PWF) align with their proposed theoretical foundations (Laurie et al., 2019; Morrison, 2018a; Morrison & Peterson, 2015; Peterson & Morrison, 2016; WMA Wellness, 2024). The preceding results support the potential use of the MFRI and PLI for making theoretical and practical decisions regarding the implementation of the PWF to enhance well-being through the application of mental fitness, resiliency, and positive leadership practices in workplace environments (Brown, 2016c; Fitzner, 2007; Hughes, 2020).

The psychometric properties of both instruments provide evidence of their potential utility in assessing workplace well-being and the impact of positive leadership practices (Furr, 2022; Hughes, 2020; Nunnally, 1967). These findings align with previous PWF research on the use of positive psychology measures in workplace settings (Laurie, 2021a; Peterson et al., 2020). The validation of the French versions expands the applicability of PWF beyond Anglophone contexts, making the MFRI and PLI possible measures for assessing mental fitness, resiliency and positive leadership practices within workplace environments. Test development standards highlight the importance of creating robust measurement tools in organizational psychology. For example, DeVellis

(2017) outlines that high internal consistency ensures meaningful interpretation of test scores, enhancing the predictive capacity of workplace assessments. Similarly, Cohen et al. (2018) highlight the necessity of construct validity in the development of psychological measures and that validated scales support organizations in the formulation of evidence-based interventions. Schaufeli and Bakker (2004) also note that the use of valid and reliable measures ultimately contribute to the design of more effective human resource policies and employee development programs.

Given the strong relationships among the mental fitness and resiliency practices as delineated within the PWF model, it is essential to consider how the PWF aligns theoretically with other established frameworks in the literature. Establishing these connections is not merely an academic exercise; rather, it has significant theoretical and practical implications. Theoretical alignment strengthens the PWF's credibility, enhances its applicability across different organizational settings, and underscores its role within a broader scientific paradigm of workplace well-being and positive leadership.

Several well-established frameworks share foundational principles with the PWF's mental fitness and resiliency domains, reinforcing its validity and applicability. These frameworks provide complementary perspectives that not only support the PWF's theoretical foundation but also demonstrate its practical significance in fostering workplace well-being. Six theoretical frameworks discussed extensively in Chapter 2 have similar underpinnings related to the mental fitness and resiliency domains as explained by the PWF.

The first framework is **Keyes's Dual-Dimensional Mental Health Continuum Model** (Keyes, 2007b; Westerhof & Keyes, 2010). This model emphasizes that positive mental health (flourishing) and mental illness can coexist, thus challenging the traditional dichotomy of mental health as merely the absence of illness. The PWF aligns with this framework by highlighting the role of workplace policies in fostering collective well-being and resiliency (Keyes, 2006, 2007b; Robitschek & Keyes, 2009). Through the PWF, organizations can proactively support mental fitness and resiliency at the team level, which is essential for maintaining a flourishing workplace culture (Harter et al., 2003; Keyes & Grzywacz, 2005; Laurie, 2019a).

The second framework is the **Self-Determination Theory** (Deci et al., 2017; Deci & Ryan, 2000a). SDT identifies three core psychological needs—relatedness, competence, and autonomy—that are central to motivation and well-being. These same mental fitness needs are assessed within the MFRI and serve as key components of the PWF’s interventions (Laurie, 2019a; Laurie et al., 2019; Laurie & Bolaños, 2020). By integrating SDT principles, the PWF ensures that organizations can foster an intrinsically motivated and engaged workforce, improving both employee satisfaction and workplace resilience (Morrison & Peterson, 2013, 2015).

A third relevant theory is **Fredrickson's Broaden-and-Build Theory of Positive Emotions** (Fredrickson, 2012; Vacharkulksemsuk et al., 2011). The Broaden-and-Build Theory posits that cultivating positive emotions expands cognitive and behavioral flexibility, strengthening psychological resilience over time. This aligns with the PWF’s emphasis on promoting mental fitness and resiliency practices in teams within workplace cultures (Morrison, 2018b; Morrison & Peterson, 2013). By embedding positive emotions into organizational strategies, teams can develop stronger emotional resources, leading to a more adaptive and resilient workforce. These interpretations of the Broaden-and-Build Theory of Positive Emotions are consistent with the PWF and hence its equal capacity to promote a workplace culture inspired by strong mental fitness and resiliency practices (Fredrickson, 2000; Sekerka & Fredrickson, 2008; Vacharkulksemsuk et al., 2011).

From a theoretical perspective, linking the PWF to existing models enhances sources of evidence and applications to the preceding existing frameworks, such as Keyes's Dual-Dimensional Mental Health Continuum Model, Self-Determination Theory, and Fredrickson's Broaden-and-Build Theory, reinforces its conceptual robustness. These models provide complementary perspectives on workplace well-being, suggesting that fostering mental fitness, resilience, and positive leadership is not an isolated effort but part of a broader scientific paradigm

The fourth relevant framework is **Ungar's Ecological Resiliency Theory** (Ungar, 2004, 2011, 2013, 2023; Ungar et al., 2019). This framework highlights how resiliency is shaped by the interaction between individuals and their environments, emphasizing the role of organizational policies and cultural factors in supporting well-being. This approach is similar to that of the PWF, focusing on important positive psychology practices like well-being and resiliency aimed at promoting well-being within the ecology of workplace environments (Laurie, 2020; Morrison, 2018b; Morrison & Peterson, 2015). Furthermore, the PWF aligns with this model by focusing on team-level interventions that help organizations identify resources and strategies to foster resiliency within workplace ecosystems. Applying this theory requires organizations to establish well-being and resiliency policies that help identify resources and actions that teams can undertake to foster resiliency assets.

The fifth relevant theory is Seligman and Csikszentmihalyi's **Positive Psychology Research** focusing on positive psychology inclusive of flow, PERMA, and flourishing practices (Seligman, 2012, 2013, 2018; Seligman & Csikszentmihalyi, 2000). Their work considers the promotion of positive traits within teams, and the notion of amplifying mental fitness and resiliency practices that contribute to optimal engagement and enhanced team functioning in organizations. Aligning the PWF with these frameworks ensures that it remains adaptable across different workplace cultures and professional contexts. The universality of positive psychology principles suggests that the PWF's approach to well-being can be effectively implemented in diverse organizational settings, from corporate environments to educational institutions and public service sectors (Laurie, 2019a, 2019b).

Positive psychology research, including the PERMA model (Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment) and the concept of flow, emphasizes the importance of amplifying positive traits within teams. The PWF operationalizes these principles, reinforcing the importance of mental fitness and resiliency in fostering optimal team engagement and workplace flourishing (Cameron, 2010a; Peterson et al., 2009; Peterson & Morrison, 2016; C. D. Ryff & Singer, 2003; Seligman, 2012, 2013).

Lastly, the sixth framework consists of the body of research carried out by Seligman and Csikszentmihalyi focusing on **positive psychology inclusive of flow**, PERMA, and flourishing practices (Seligman, 2012, 2013, 2018; Seligman &

Csikszentmihalyi, 2000). Their work considers the promotion of positive traits (Peterson & Seligman, 2004; Seligman & Csikszentmihalyi, 2000) within teams, and the notion of amplifying mental fitness and resiliency practices that contribute to optimal engagement and enhanced team functioning in organizations (Csikszentmihalyi, 2008; Csikszentmihalyi & Asakawa, 2016; Csikszentmihalyi & LeFevre, 1989). In summary, the evidence from numerous frameworks in positive psychology adds further validation of the Positive Workplace Framework, the analytical results of which have demonstrated its strong psychometric properties.

The PWF provides a structured approach, but its impact is amplified when linked to broader research in positive psychology, leadership, and mental health. For instance, integrating insights from the PERMA model (Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment) allows organizations to create comprehensive well-being interventions that go beyond mental health promotion and address sustained workplace engagement (Butler & Kern, 2016; Seligman, 2018).

Beyond theoretical considerations, these connections enhance the practical applicability of the PWF in workplace settings. Organizations implementing the PWF can leverage insights from multiple theories to design interventions that are both scientifically grounded and contextually relevant. For example, by incorporating Self-Determination Theory's focus on autonomy, competence, and relatedness, organizations can tailor leadership practices to foster intrinsic motivation among employees (Deci et al., 2017; Deci & Ryan, 2000a; Van den Broeck et al., 2016). Similarly, Fredrickson's Broaden-and-Build Theory suggests that positive emotions expand cognitive and behavioral flexibility, supporting the integration of well-being initiatives that cultivate psychological resilience (Fredrickson, 2000; Fredrickson et al., 2000; Sekerka & Fredrickson, 2008) and adaptability. Ungar's Ecological Resiliency Theory highlights the need for organizational policies that build resiliency assets, ensuring that employees have access to meaningful support structures (Ungar, 2004, 2008; Ungar et al., 2005).

Moreover, the validation of the MFRI and PLI within the PWF demonstrates that its constructs are both statistically sound and theoretically supported. By integrating principles from these frameworks, the PWF is positioned as a holistic, evidence-based approach to workplace well-being.

Similar to the mental fitness and resiliency domains, findings regarding the well-being (WB) model also align with the above noted foundational theories of mental fitness and resiliency, including humanistic theories, the Mental Health Continuum, Self-Determination Theory (SDT), the PERMA model, and the Broaden-and-Build Theory of Positive Emotions. In addition, the five subdomains of the Positive Leadership Inventory (PLI), as outlined in the PWF, are relevant to fostering a positive leadership environment in the workplace and are in line with the concept of Positive Deviant Leadership as articulated in The Competing Values Framework and other foundational aspects of Positive Organizational Scholarship, all of which is discussed at length in Chapter 2 (see Cameron, 2006, 2013; Cameron et al., 2003b; Cameron & Quinn, 2011; Laurie et al., 2019; WMA Wellness, 2024).

Overall, the empirical evidence emerging from the MFRI and PLI analyses underscores the potential critical role of the PWF constructs in fostering a supportive and flourishing workplace culture. Establishing strong theoretical linkages between the PWF and existing frameworks strengthens its scientific validity, enhances its practical relevance, and improves its adaptability across various organizational settings.

The practical implications of emerging PLI results highlight the importance of empowering leaders in these theoretical subdomains, possibly by providing targeted professional development and encouraging them to apply this knowledge in their team interactions (Beattie, 2019; Cameron, 2008; Cameron et al., 2006; Laurie, 2019c). These connections ensure that the PWF is not only a standalone model but part of a broader ecosystem of research-driven well-being and positive leadership strategies. Future research should continue exploring these alignments to refine intervention strategies and maximize the PWF's impact in real-world applications.

By embedding the PWF within the broader ecosystem of positive psychology, workplace well-being, and positive leadership strategies, organizations can ensure sustained engagement, enhanced team resilience, and long-term workplace flourishing. Future research should continue exploring these alignments and intervention strategies to maximize the PWF's impact in real-world applications.

5.2. Research Question 2: Relationship Between PLI's Positive Leadership Practices and Impact of Positive Leadership on Workplace Well-Being

The confirmatory factor analysis confirmed statistically significant relationships among PLI subdomains, indicating a cohesive structure of positive leadership practices. These findings correspond with Cameron's theory of Positive Deviant Leadership (2008), which emphasizes the role of innovative leaders, even when faced with significant challenges, in fostering a workplace environment conducive to collective flourishing (Cameron, 2010a; Goatley, 2021; Seligman, 2013). The interconnected nature of positive leadership subdomains suggests that leadership is a multi-faceted construct with different aspects mutually reinforcing one another(Cameron, 2008; Northhouse, 2016b). Recognizing these interdependencies allows organizations to develop comprehensive positive leadership development programs that integrate multiple positive leadership dimensions, thereby maximizing their impact on workplace well-being.

For the PLI such practices are composed of leadership virtues in action, positive communication, energizing skills, motivational knowledge and skills, and operational tasks. The interconnected nature of these subdomains indicates that positive leadership cannot be viewed as a singular behavior but rather as a holistic practice that promotes employee engagement and well-being at multiple levels (Laurie, 2019c; Laurie et al., 2019; Laurie & Bolaños, 2020). By linking the PLI to established leadership and positive psychology theories, the model gains empirical robustness, demonstrating that these positive leadership behaviors contribute to positive workplace climates and sustained organizational well-being (Avolio & Yammarino, 2013; Bass & Riggio, 2006). Recent literature also supports this integrated view, highlighting how modern leadership paradigms—including ethical, servant, and authentic leadership—interact with leader influence and follower dynamics to produce collective, positive outcomes (Liden et al., 2025). These frameworks highlight the evolving conceptualization of leadership as a relational and values-based process rather than solely positional or hierarchical.

Moreover, Liden et al. (2025) stress the importance of leadership measurement rigor, calling for more integration between leader behaviors, power dynamics, and informal leadership roles—insights that align with the development of the Positive Leadership Inventory (PLI) in the current study.

In addition, positive leadership dimensions of the PLI were found to significantly influence workplace well-being, thereby reinforcing the importance of leadership approaches in organizational wellness initiatives (Alvesson, 2011; Cameron et al., 2003a; Schein, 2010). The model demonstrated that positive leadership predicted up to 26.5% of well-being scores, affirming that the positive leadership practice domains of the PLI may play a crucial role in development of workplace well-being and team culture. This highlights the practical benefit of connecting leadership theory to well-being outcomes: organizations that cultivate positive leadership practices are more likely to see improvements in employee engagement, team cohesion, and overall job satisfaction (Bakotić, 2016; Chen et al., 2015; Judge et al., 2001; Judge & Piccolo, 2004).

As previously noted, the results of this program of research highlight the relevance of the PLI subdomain to workplace well-being. Leadership studies have consistently demonstrated that positive leadership practices have a noted influence on employee engagement, organizational relationships, and workplace culture (Avolio & Yammarino, 2013; Bass & Riggio, 2006; Liden et al., 2025). For example, transformational leadership, which shares similarities with the practices of the PLI have been associated with enhanced team cohesion, higher job satisfaction, and lower turnover rates (Judge & Piccolo, 2004). Other studies have also emphasized the role of positive leadership in reducing workplace conflict and fostering collaboration. For instance, a meta-analysis by Montano et al. (2017) found that positive leadership interventions resulted in significant improvements in team dynamics, reducing interpersonal conflicts and enhancing cooperative problem-solving. These findings align with a well-established body of evidence (Cameron et al., 1983, 2004; Cameron & Caza, 2002; Cameron &

Spreitzer, 2012a; Meyers et al., 2013; Spreitzer & Sonenshein, 2003) indicating that organizations promoting positive leadership practices experience enhanced team interactions, positive emotions, and improved perceptions of well-being at both the individual and organizational levels.

The interconnectedness of positive leadership subdomains of the PLI suggest the need for the provision of comprehensive training approaches that develop multiple aspects of leadership simultaneously. In this regard, organizations might consider integrating positive leadership training within broader workplace well-being initiatives, therefore ensuring that managers are equipped to promote employee team well-being. A further consideration could include the proactive integration of positive leadership principles into management development programs. In addition, organizations could also consider the potential benefits of incorporating well-being metrics into their positive leadership evaluation frameworks. Various studies also report that organizations with well-structured positive leadership frameworks indicate greater well-being and resilience during periods of economic and operational uncertainty (Day et al., 2014; Day et al., 2014; Dinh et al., 2014; Fransen et al., 2020; Safarzadeh & Naemi, 2020). These findings suggest that leadership strategies grounded in Positive Psychology and organizational well-being models, such as the PWF, are not only beneficial for employee morale but also essential for long-term organizational stability and success.

By aligning the PLI with established leadership and positive psychology frameworks (see Chapter 2), this study reinforces its theoretical and empirical significance. Understanding how positive leadership influences workplace well-being allows organizations to design targeted interventions that foster positive leadership effectiveness, employee engagement, and team resilience. These connections strengthen the scientific credibility of the PWF to position it as a valuable model for organizations aiming to optimize positive leadership effectiveness and workplace well-being.

5.3.Research Question 3: The Quantitative Relationships Among Domains and Subdomains in the Positive Workplace Framework (PWF)

The third research question sought to determine the quantitative relationships between the domains and subdomains of the PWF. This was achieved by applying the Confirmatory Factor Analysis (CFA) models, using the same model fit criteria established in Question 3. The hypothesis (H_0: $r > 0.20$) was confirmed, as the relationships among the domains and subdomains exceeded the established threshold, demonstrating strong interconnections within the PWF structure (Laurie et al., 2021; WMA Wellness, 2024).

The findings underscore the structural integrity of the PWF and its potential usefulness in workplace well-being research and applications. The MFRI and the PLI provided evidence of the interrelationships among workplace well-being factors, particularly in mental fitness, resiliency, and positive leadership. The CFA results revealed significant positive relationships among the 8 well-being subdomains of mental fitness and resiliency and the 5 positive leadership subdomains, thus validating the framework’s theoretical structure (Laurie et al., 2021; Peterson et al., 2020; WMA Wellness, 2024). In particular, mental fitness (0.981) and resiliency (0.968) emerged as the strongest contributors to workplace well-being, with the psychological needs of relatedness (0.986), autonomy support (0.888), and competency (0.998) being key drivers. These findings align with self-determination theory (Deci & Ryan, 2000b) and positive organizational behavior research, both of which support the idea that meeting employees' psychological needs fosters a resilient and engaged workforce (Luthans et al., 2010).

This study affirms the structural validity of the Positive Workplace Framework (PWF) and highlights the significance of integrating multiple theoretical perspectives to support its conceptual integrity. Through the empirical validation of the French versions of the MFRI and PLI, this research contributes to strengthening the model's foundation and expanding its relevance across diverse organizational contexts..

Furthermore, connecting the PWF with established frameworks enhances its conceptual clarity, ensures its applicability in different workplace environments, and strengthens its predictive validity for workplace interventions (Fredrickson, 2001). These findings provide empirical support for the inclusion of resiliency practices in workplace well-being initiatives, which further validates the theoretical foundations of the PWF (Beattie, 2019; Cameron, 2006; Cameron et al., 1983; Csikszentmihalyi, 2008; Csikszentmihalyi & LeFevre, 1989; Deci et al., 2017; Deci & Ryan, 2000a; Fredrickson, 2001; Harter et al., 2003; Keyes, 2007a; C. Peterson et al., 2009; Ryan & Deci, 2000a; Sekerka & Fredrickson, 2008; Seligman, 2018; Ungar et al., 2019; Vacharkulksemsuk et al., 2011; WMA Wellness, 2024).

Similarly, the resiliency subdomains—relationship assets (0.976), attitudinal assets (0.979), emotional intelligence assets (0.980), professional assets (0.983), and adaptation assets (0.991)—demonstrated strong internal correlations. The robustness of these relationships suggests that strengthening one resiliency factor can positively influence the others, which reinforces the idea that workplace well-being is a multidimensional construct requiring a holistic approach (Biron et al., 2017; Day et al., 2014; Fredrickson, 2001; Jimenez et al., 2022; Keyes, 1998; Kuoppala et al., 2008; World Health Organization, 2021). These results provide empirical evidence supporting the integration of resiliency practices into organizational well-being initiatives, further supporting the theoretical underpinnings of the PWF. This is consistent with Ungar's Ecological Resiliency Theory, which emphasizes the interconnectedness of resiliency assets and the necessity for workplace strategies that cultivate a supportive and resource-rich environment (Ungar, 2011, 2023; Ungar et al., 2013)

The positive leadership subdomains also exhibited strong interrelationships, with leadership virtues, positive communication, motivational knowledge and skills, energizing skills, and operational tasks all exceeding the 0.20 threshold. The CFA results indicated that these positive leadership practices contribute meaningfully to workplace well-being, though their relative impact (0.279) was lower than that of well-being (0.981). This suggests that while positive leadership is an essential factor in workplace dynamics, mental fitness and resiliency play a more direct role in fostering positive workplace environments (Avolio & Gardner, 2005). These findings align with prior research emphasizing the role of positive leadership in shaping organizational culture and psychological safety but suggest that leadership practices should be implemented in conjunction with broader well-being initiatives to maximize impact (Luthans et al., 2007).

The significance of making these theoretical connections lies in their ability to inform evidence-based interventions that can be tailored to workplace realities (Beacham, 2020; Bolaños, 2021; Donaldson & Ko, 2010; Huppert, 2009). Organizations that recognize the interdependent nature of mental fitness, resiliency, and positive leadership can develop targeted initiatives that simultaneously enhance multiple well-being domains. For example, positive leadership training programs could incorporate elements of self-determination theory to ensure that leaders foster environments where employees experience autonomy, competence, and relatedness. Additionally, integrating the Broaden-and-Build Theory of Positive Emotions into workplace initiatives could help leaders cultivate a culture of positivity that supports long-term resilience and engagement (Cameron, 2008; Fiedler, 1996; Fredrickson, 2000; Fredrickson et al., 2000; Sekerka & Fredrickson, 2008).

Furthermore, making these connections strengthens the generalizability of the PWF, positioning it as a versatile tool applicable across diverse organizational contexts. The empirical validation of its theoretical underpinnings ensures that it is not simply an abstract model but one that offers practical insights for enhancing workplace well-being and positive leadership effectiveness. Studies have demonstrated that organizations applying structured leadership frameworks that integrate well-being principles exhibit greater resilience and stability during economic and operational challenges (Cameron, 1986a, 1986b; Cameron et al., 1983; Day et al., 2014; Day et al., 2014; Pescosolido, 2003).

The findings from this study provide valuable insights for organizations seeking to enhance workplace well-being. The strong interrelationships among mental fitness, resiliency, and positive leadership practices suggest that interventions should adopt a systems-based approach, targeting multiple well-being domains collectively rather than focusing on isolated aspects. Organizations can leverage these insights to develop integrated programs that simultaneously foster psychological needs, enhance resilience, and promote positive leadership (Seligman & Csikszentmihalyi, 2000).

5.4. Research Question 4: Identifying PWF Subdomains for Optimizing Workplace Well-Being Interventions

The fourth research question examined the quantitative relationships between the domains and subdomains of the PWF, confirming strong interconnections among mental fitness, resiliency, and positive leadership. These findings underscored the structural validity of the framework and its practical applicability in workplace settings (Morrison, 2018b; Morrison & Peterson, 2013; Peterson et al., 2020; WMA Wellness, 2024). The integration of mental fitness, resiliency, and positive leadership practices into workplace well-being initiatives not only strengthens individual and team performance but also contributes to a psychologically safe and engaged workforce (Fredrickson, 2013a, 2013b; Seligman & Csikszentmihalyi, 2000).

Building on these findings, the fourth research question explored whether the PWF and its associated questionnaires can be used to identify which subdomains should be prioritized when designing interventions to optimize workplace well-being. The hypothesis (H_0: $p < 0.05$) was tested for each subdomain, ensuring that the selection of workplace interventions is supported by statistically significant findings.

The analyses were conducted using thirteen PWF models, each focusing on one subdomain as the dependent variable while using the remaining twelve as independent variables. The results confirmed that targeted interventions could be developed based on the interdependencies among subdomains. This approach aligns with the principle that workplace well-being is not a single-dimensional construct but rather a system of interrelated psychological, behavioral, and structural components that influence each other dynamically (Deci et al., 2001; Deci & Ryan, 2000a, 2000b). The following provides an overview of the strongest subdomains linked to each of the 13 subdomains in the PWF:

Mental Fitness Subdomains

- **Relatedness (MF-Rel):** The strongest predictor of relatedness was **motivational knowledge and skills**. This suggests that leaders who effectively motivate and inspire employees significantly enhance their sense of workplace connection. Organizations might therefore prioritize positive leadership training that equips managers with motivational skills to strengthen team cohesion (Morrison, 2021; Ryan & Deci, 2000a).
- **Competency (MF-Comp):** The strongest predictor of competency was **autonomy support**. This suggests that employees feel more competent when they are given autonomy to make decisions and manage tasks independently. Workplace interventions can focus on empowering employees with autonomy while providing clear guidance and support (Deci et al., 2017).

- **Autonomy Support (MF-Aut):** The strongest predictor of autonomy support was **competency**. This reciprocal relationship suggests that autonomy is best fostered when employees feel competent in their roles. Organizations might therefore ensure that skill development initiatives and positive leadership strategies reinforce employees' confidence in their abilities (Adie et al., 2008; Allport, 1937b; Preenen et al., 2016; Trépanier et al., 2013).

Resiliency Subdomains

- **Relationship Assets (R-RA):** The strongest predictor of relationship assets was **adaptation assets**. This suggests that teams with strong adaptability also tend to have more positive and supportive interpersonal relationships. Organizations should be encouraged to incorporate change management and adaptability training to strengthen team cohesion. These programs help teams navigate transitions, increase psychological safety, and foster collaboration during organizational changes (Adams et al., 2020; Al-Rawi, 2008; Bakotić, 2016; Choi et al., 2019; Dweck, 2006).
- **Professional Assets (R-Pro):** The strongest predictor of professional assets was **attitudinal assets**. This indicates that employees who tend to be more positive and optimistic are more likely to pursue professional learning and growth opportunities. Organizations may benefit from integrating training programs that promote the professional themes involving building on successes and being solution focused (Avalos, 2011; Beacham, 2020; College and University Professional Association for Human Resources (CUPA-HR), 2019; Dweck, 2006).

- **Attitudinal Assets (R-Att):** The strongest predictor of attitudinal assets was **professional assets**. Employees who pursue professional learning opportunities tend to have a growth mind set. Engaging individual and team based professional learning plans may be important considerations in promoting more positive and optimistic attitudes in the workplace environment (Alimo-Metcalfe et al., 2008; Allport, 1964).
- **Emotional Intelligence (R-EI):** The strongest predictor of emotional intelligence was **adaptation assets**. Employee teams that demonstrate flexibility and adaptability are likely to exhibit stronger emotional regulation and interpersonal skills. Organizations can enhance collective emotional intelligence by offering training programs that incorporate adaptability strategies and emotional intelligence development in teams (Brackett et al., 2011; Dee Fink, 2009; Goleman et al., 2002; Goleman & Boyatzis, 2017; Harvard Business School Publishing Corporation, 2017; Sekerka & Fredrickson, 2008; Vacharkulksemsuk et al., 2011).
- **Adaptation Assets (R-Adap):** The strongest predictor of adaptation assets was **relationship assets**. Employees with strong workplace relationships are more likely to be adaptable in the face of change. Organizations might benefit from prioritizing team-building and collaborative problem-solving exercises to enhance adaptability (Mayer, 2019).

Positive Leadership Subdomains

- **Leadership Virtues (PL-LV):** The strongest predictor of leadership virtues was **professional assets**. Employees who engage in professional development opportunities are more likely to perceive or report strong leadership virtues. Organizations could encourage continuous learning opportunities that align with ethical leadership development (Cameron & Caza, 2002; Peterson & Seligman, 2004).
- **Positive Communication (PL-PC):** The strongest predictor of positive communication was **emotional intelligence**. Teams with higher emotional intelligence are more likely to have leaders who has strong positive communication competencies. Professional learning programs can therefore integrate emotional intelligence development to enhance positive leadership and team communication skills (Montgomery, 2017; Van Vuuren et al., 2007).
- **Motivational Knowledge and Skills (PL-MKS):** The strongest predictor of motivational knowledge and skills was **positive communication**. Leaders who communicate effectively may have a better understanding of their individual team members and how to motivate them. Organizations would therefore benefit from prioritizing positive leadership coaching that emphasizes clear, supportive, and motivational communication techniques (Csikszentmihalyi, 1978; De Cooman et al., 2013; Herzberg, 2003; Maslow, 1943, 1954; Ryan & Deci, 2000b, 2017).
- **Energizing Skills (PL-ES):** The strongest predictor of energizing skills was **emotional intelligence**. Teams who demonstrate higher levels of emotional intelligence may also have leaders who create more engaging and dynamic

workplace environments. Organizations might incorporate emotional intelligence training into positive leadership programs to enhance employee engagement and morale (Crowther & Boyne, 2016; Owens et al., 2016).

- **Operational Tasks (PL-OT):** The strongest predictor of operational tasks was **emotional intelligence**. Effective task management is often linked to a leader's ability to understand and regulate emotions, as well as those of their teams. Positive leadership development programs can integrate emotional intelligence training alongside structured operational strategies (Cameron, 2008; Dee Fink, 2009; Haynes et al., 2015; Northhouse, 2016; Raelin, 2016; Raelin et al., 2018).

The results of this study provide a framework for organizations to make data-driven decisions about workplace well-being interventions. By identifying key interdependencies within the PWF, organizations can:

a) Enhance Employee Well-Being and Productivity – Evidence suggests that workplaces with strong mental fitness, resiliency, and positive leadership practices report higher job satisfaction, lower burnout, and increased engagement.
b) Develop Holistic Workplace Interventions – Rather than focusing on isolated interventions, organizations can adopt an integrated approach that simultaneously addresses multiple well-being factors, creating more sustainable improvements.
c) Improve Positive Leadership and Team Dynamics – Understanding how positive leadership practices interact with resiliency and mental fitness provides organizations with strategies to foster healthier team environments and enhance positive leadership effectiveness.

d) Inform Organizational Policies and Training Programs – These findings can guide the development of positive leadership training, professional development, and workplace well-being policies that are empirically supported and strategically aligned with organizational goals.

The strong interconnections found among mental fitness, resiliency, and positive leadership in the PWF validate its structural integrity and practical relevance for workplace settings. Organizations that adopt a systems-based approach to workplace well-being—one that integrates mental fitness, resiliency, and positive leadership development—are more likely to create psychologically safe and high-performing work environments. These findings contribute to workplace interventions that cultivate resilience, positive leadership effectiveness, and holistic well-being (Cameron et al., 2003a; Cameron & Spreitzer, 2012a; Meyers et al., 2013; WMA Wellness, 2024). The findings from this study provide a potential data-driven approach for organizations seeking to optimize workplace well-being interventions. By identifying significant subdomains within the PWF model, organizations can design targeted strategies that align with their existing strengths and needs.

5.5. Concluding Reflections on the Research

While this study provides valuable insights into the role of positive leadership and well-being assessment tools in workplace settings, three central limitations should be acknowledged. One primary limitation is the study's reliance on data from Francophone workplace environments, which may limit the generalizability of the findings to other linguistic contexts. Future research should explore how the PWF, MFRI, and PLI may be applied in diverse organizational settings across different regions, business sectors, and cultural contexts.

Another limitation of the study is its reliance on self-reported data, which may be subject to response bias. Although the measures used were validated and demonstrated high reliability, participants' self-perceptions of positive leadership effectiveness and well-being could be influenced by social desirability or external pressures. Future research could benefit from incorporating multi-source data collection methods, such as peer assessments, longitudinal studies, and real-time behavioral observations, to obtain a more comprehensive understanding of team interactions, positive leadership effectiveness and its impact on workplace well-being.

Additionally, while the study confirms the utility of the PWF in identifying areas for intervention, further research is needed to assess the long-term impact of interventions based on these measures. Longitudinal studies examining organizations that have implemented well-being and positive leadership interventions using the PWF framework would provide valuable evidence regarding the sustained effects of these initiatives. Understanding whether these interventions lead to lasting improvements in workplace well-being would be important considerations for refining future positive leadership and team well-being strategies.

With the rise of digital transformation in workplaces, future research could examine how AI-driven analytics and machine learning models may enhance positive leadership evaluation and well-being tracking. Incorporating digital tools into the Positive Workplace Framework could offer real-time insights and predictive capabilities that further optimize workplace interventions.

This research successfully validated the French versions of the MFRI and the PLI) which together comprise the critical instruments of the PWF. These instruments are crucial for assessing and promoting well-being (mental fitness and resiliency) and positive leadership at the group level in workplace organizations. By employing advanced psychometric, statistical, and mathematical analytical methods, this research addressed a critical gap in the literature on positive psychology, particularly regarding the relationship between well-being and positive leadership practices within team-driven workplace cultures. It makes a significant contribution to the validation of innovative team-based measurement tools developed by Canadian scholars within the PWF, situated in the Positive Organizational Scholarship paradigm. This paradigm emphasizes the application of positive psychology to enhance organizational productivity across diverse environments.

The research demonstrated that the MFRI and PLI possess strong psychometric properties, thus, proving to be both reliable and valid. Reliability ensures that the instruments consistently measure the intended constructs without errors or inconsistencies, while validity confirms that these instruments accurately assess the theoretical constructs they claim to measure. This research implemented scientific rigor that enhances the credibility and trustworthiness of the findings, reinforcing the PWF as a reliable tool for evaluating and fostering well-being (mental fitness and resiliency) and positive leadership in workplace settings, specifically in Francophone schools in New Brunswick, Canada.

Beyond validation, this study deepened the understanding of the relationship between well-being and positive leadership. Empirical findings revealed that positive leadership accounts for 26.5% of the variance in team well-being within a positive workplace using the PWF. These results provide valuable insights into how positive leadership practices can drive and enhance team well-being.

The analysis of the PWF, supported by evidence from the MFRI and PLI, offered robust validation for the framework's theoretical model, encompassing all its domains and subdomains. Findings indicated that the PWF's theoretical construct is strongly predictive, with well-being (mental fitness and resiliency) accounting for 98% and positive leadership accounting for 28% of the framework's efficacy. Although positive leadership is less frequently recognized in practice, this research emphasizes its key role in promoting well-being and fostering a positive organizational culture. The PWF thus stands out as a powerful model for enhancing well-being, increasing productivity, and nurturing a flourishing organizational environment.

Moreover, the research provided empirical support for identifying optimal workplace interventions through the results obtained from the MFRI and PLI. This evidence underscores the utility of these instruments in guiding decision-making and targeting strategies that enhance well-being and cultivate a positive workplace culture. These findings align with broader organizational studies highlighting the importance of sustained investment, evaluation, and leadership buy-in in shaping effective workplace mental health strategies (Henstock et al., 2025).

The implications of this research extend beyond its immediate context, offering valuable insights for organizations, leaders, and policymakers interested in fostering positive work environments. The implementation of the PWF aligns with strategic initiatives such as Canada's Well-Being Framework and Mental Health Strategy, promoting an integrated approach to mental, physical, and social well-being.

The validation of the French PWF instruments (MFRI, PLI) underscores the significance of using culturally and contextually relevant tools to measure and improve well-being and positive leadership in diverse educational and organizational settings. This study suggests that targeted interventions, guided by reliable data from validated instruments like the MFRI and PLI, can lead to sustained improvements in workplace culture and team performance.

While this research provides significant contributions, it acknowledges limitations such as sample representation and contextual influences, which may affect the generalizability of the findings. Future studies should consider longitudinal research to explore the long-term impacts of PWF-based interventions.

The findings from this study provide a potential data-driven approach for organizations seeking to optimize workplace well-being interventions. By identifying significant subdomains within the PWF model, organizations can design targeted strategies that align with their existing strengths and needs. The implications of this research extend to organizational positive leadership, workplace policy, and employee development. The study confirms that evidence-based workplace interventions can enhance organizational culture, team mental fitness, resiliency and positive leadership practices. The models within the PWF provide a structured approach for organizations to explain well-being challenges and implement targeted team-based and positive leadership well-being strategies.

Additionally, this research supports the integration of positive psychology principles into workplace training programs. Organizations can leverage the PWF's framework to develop positive leadership training initiatives that reinforce mental fitness, resiliency, and positive leadership practices intelligence (Dweck, 2006; Seligman, 2012). Research has shown that workplace well-being is strongly influenced by psychological needs, including relatedness, competency, and autonomy support, as described in Self-Determination Theory (Ryan & Deci, 2000a, 2000b). In addition, these findings highlight the necessity of incorporating well-being metrics into employee culture and positive leadership evaluations, ensuring that workplaces undertake targeted efforts to foster environments conducive to team well-being and thriving (Cameron & Quinn, 2011; Northhouse, 2016a; Peterson et al., 2020; Slavin et al., 2012; Strazewski, 2012; Ungar, 2008; Ungar & Liebenberg, 2011; Vacharkulksemsuk et al., 2011; WMA Wellness, 2024).

Furthermore, the PWF framework highlights the role of evidence-based strategies in positive leadership development, as organizations that implement structured positive leadership frameworks tend to experience greater well-being and resilience, even during periods of economic uncertainty (Day et al., 2014; Day et al., 2014; Dinh et al., 2014). These findings highlight the necessity of incorporating well-being metrics into employee culture and positive leadership evaluations, ensuring that workplaces undertake targeted efforts to foster environments conducive to team well-being and thriving (Bolaños, 2021; Butler & Kern, 2016; Cameron, 2012; Healthy Campus Alberta & Canadian Mental

Health Association Alberta, 2020; Jimenez, 2023; Keyes, 2007a; Laurie, 2019a, 2019b, 2019c, 2021a; Mental Health Commission of Canada, 2012, 2016, 2021b; Ungar & Liebenberg, 2011)

In conclusion, the validated MFRI and PLI French instruments reinforce the PWF's potential as a comprehensive framework for promoting workplace well-being and positive leadership through scientific evidence and informed decisions. These findings lay the groundwork for future research and practical applications that aim to build healthier, more resilient teams characterized by strong positive leadership in educational and other professional environments.

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APPENDIX A. MENTAL FITNESS AND RESILIENCY INVENTORY (MFRI) AND POSITIVE LEADERSHIP INVENTORY (PLI) THEORETICAL MODELS

Figure 12

The Mental Fitness and Resiliency Inventory (MFRI) Theoretical Model

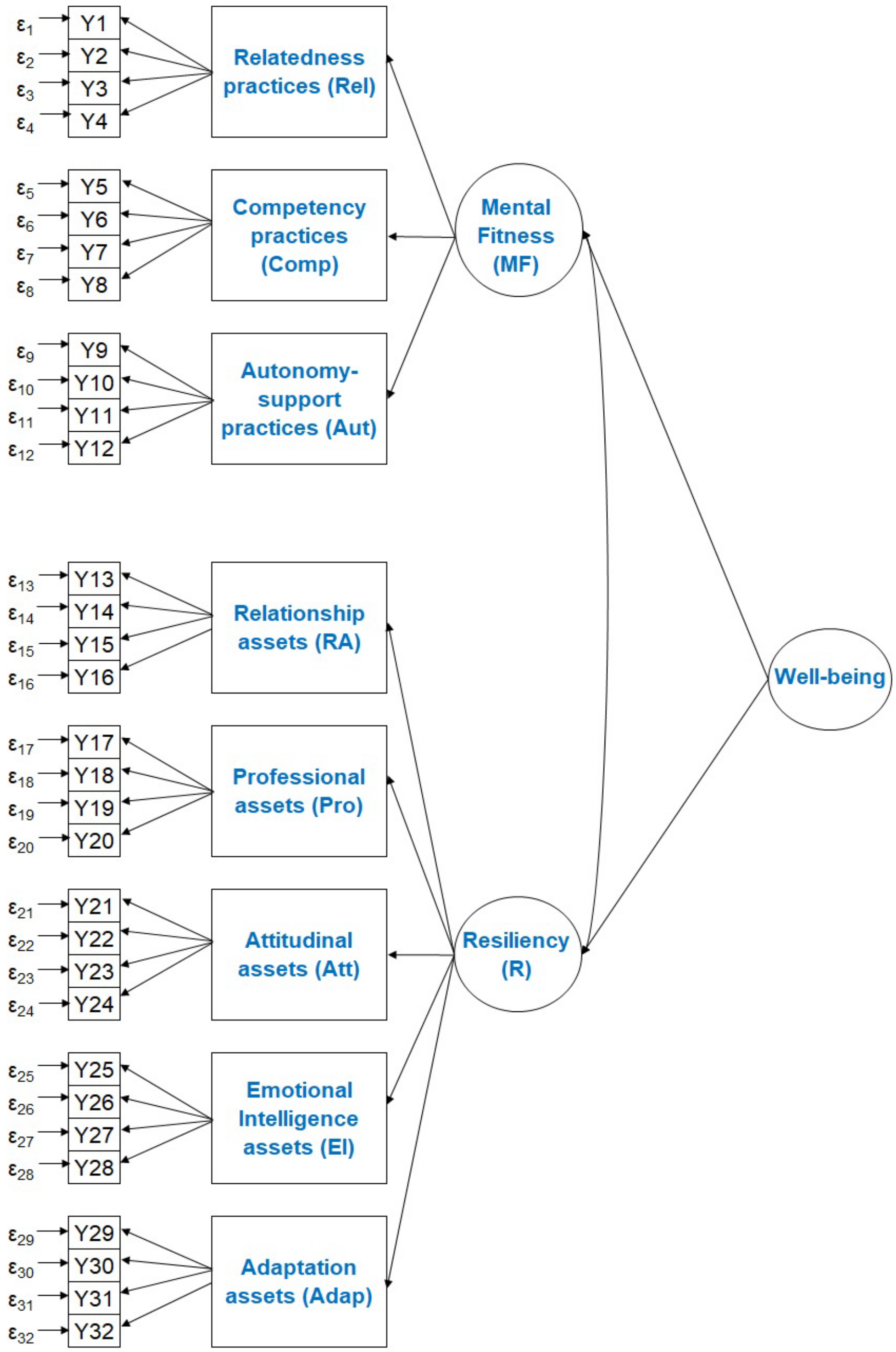
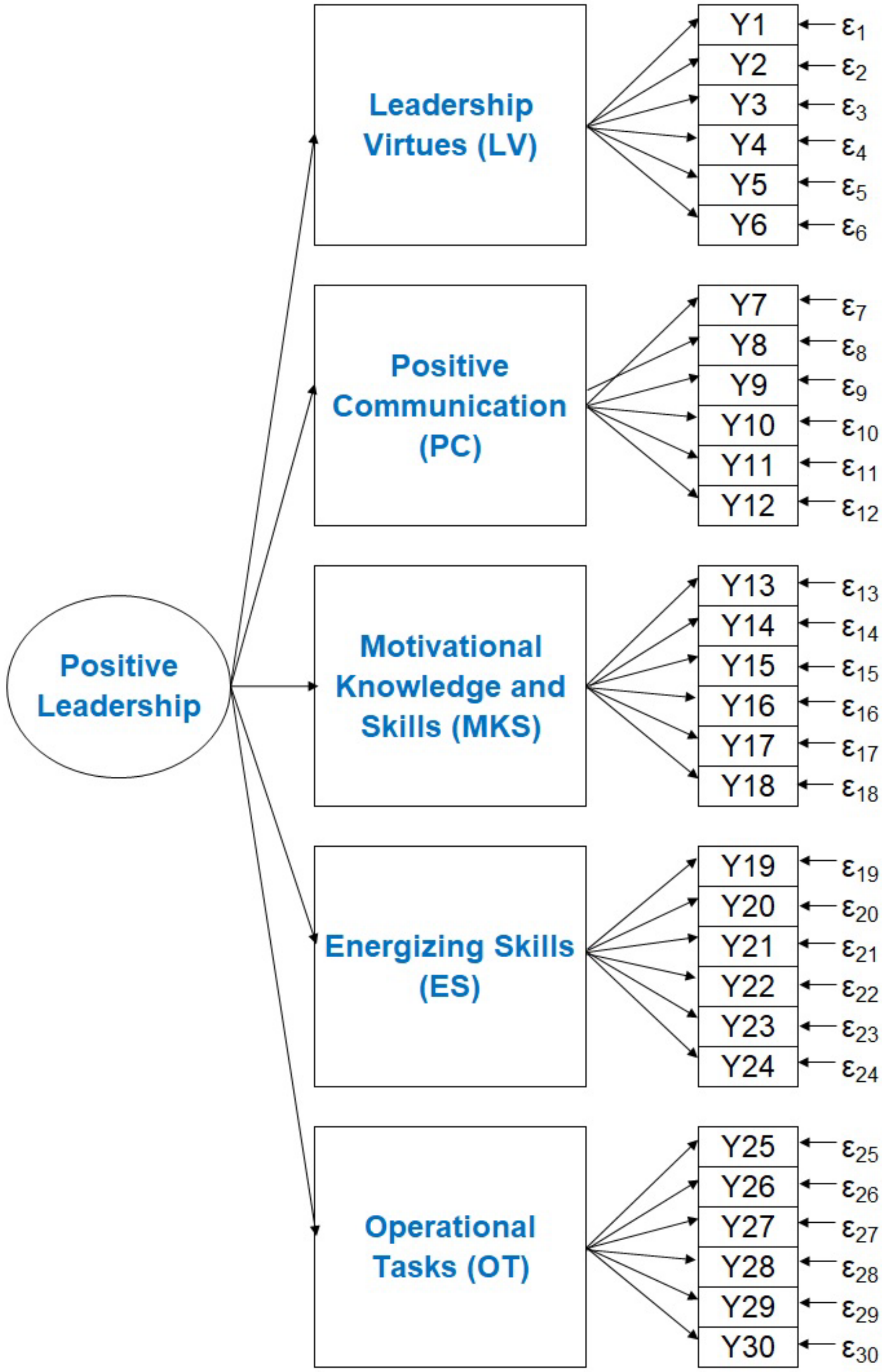


Figure 13

The Positive Leadership Inventory (PLI) Theoretical Model



APPENDIX B. PATH DIAGRAMS OF THE HYPOTHESIZED MODELS

Figure 14

Path diagram of the hypothesized Mental Fitness and Resiliency Inventory Model (MFRI)

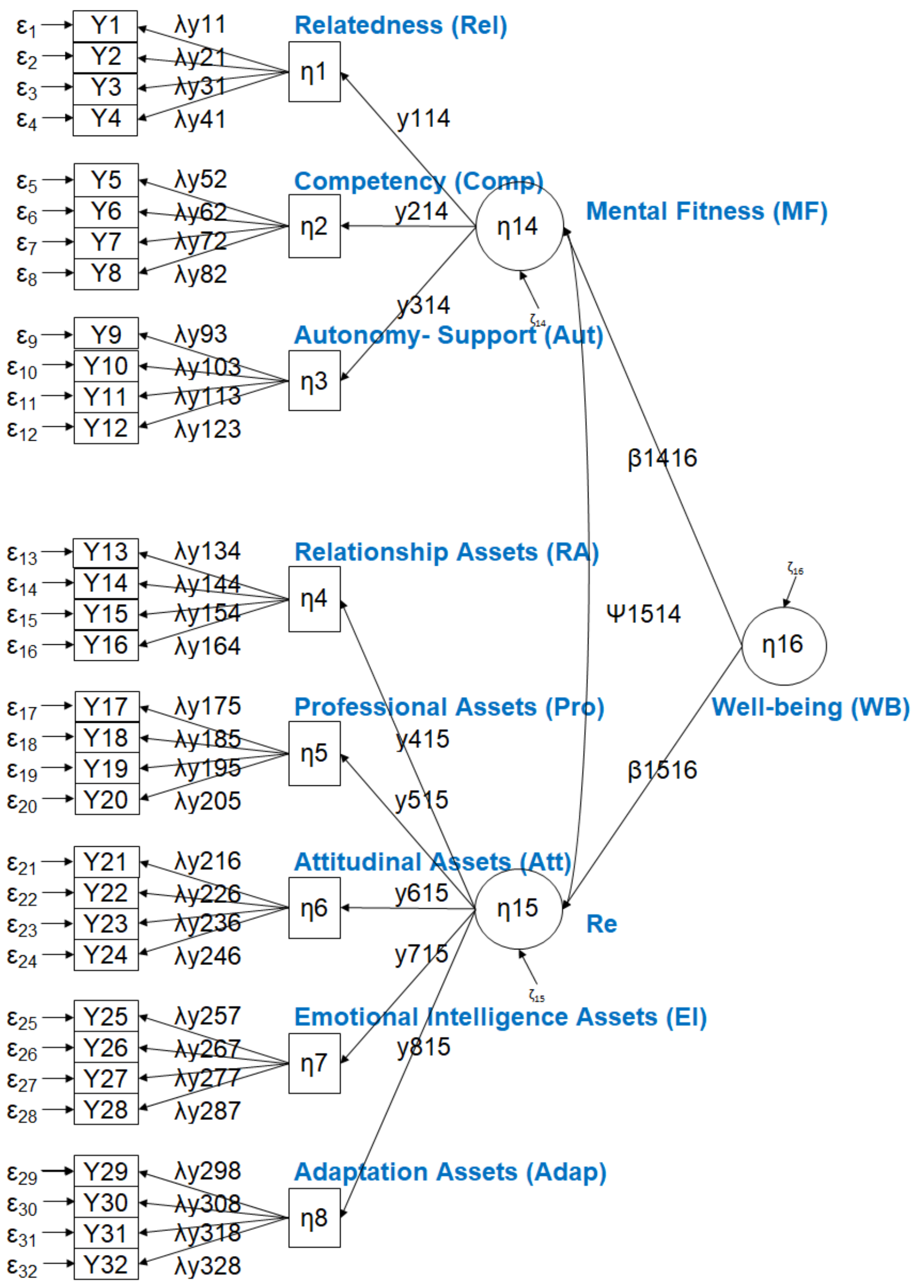


Figure 15

Path diagram of the hypothesized Well-Being Model (WB)

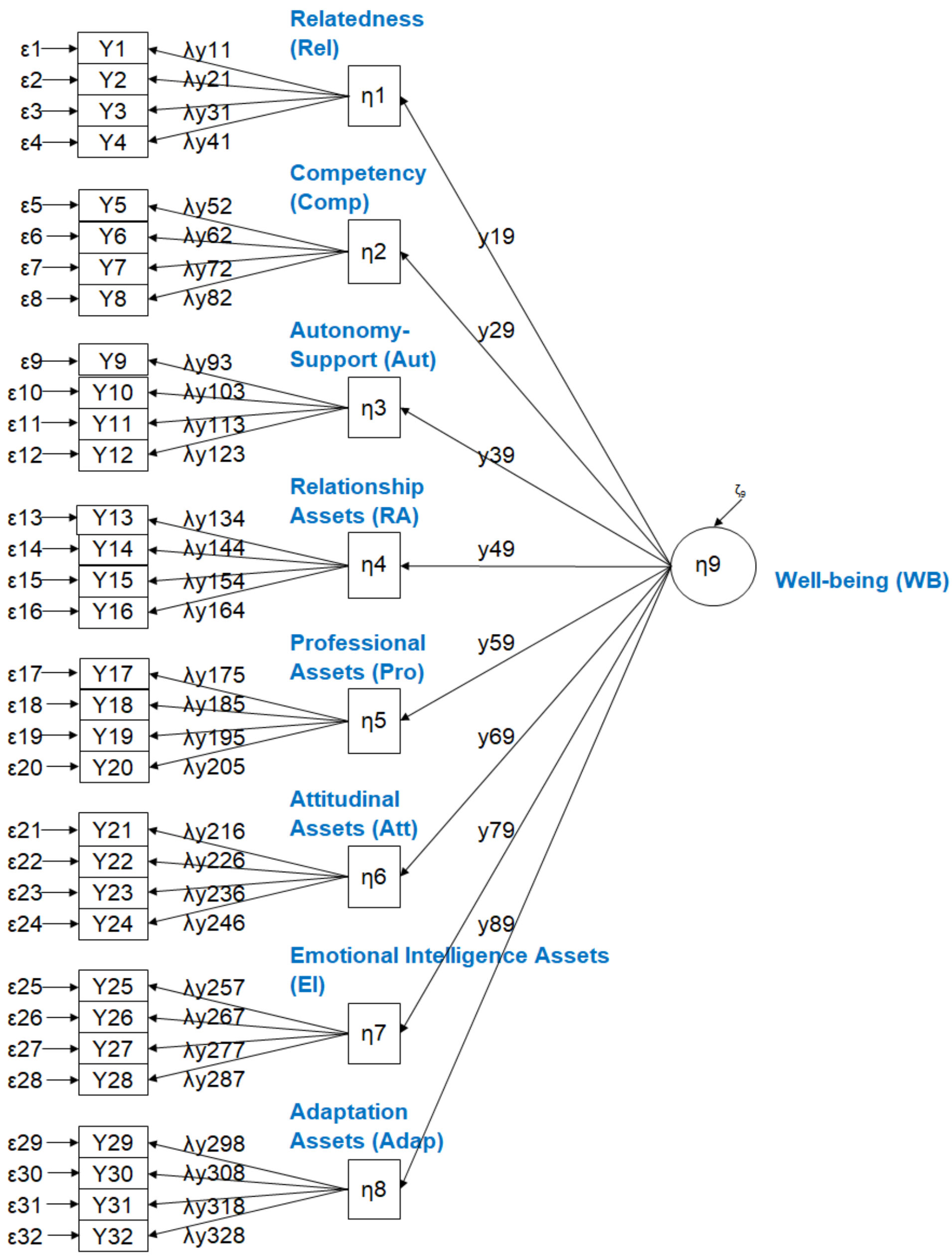


Figure 16

Path diagram of the hypothesized Positive Leadership Inventory Model (PLI)

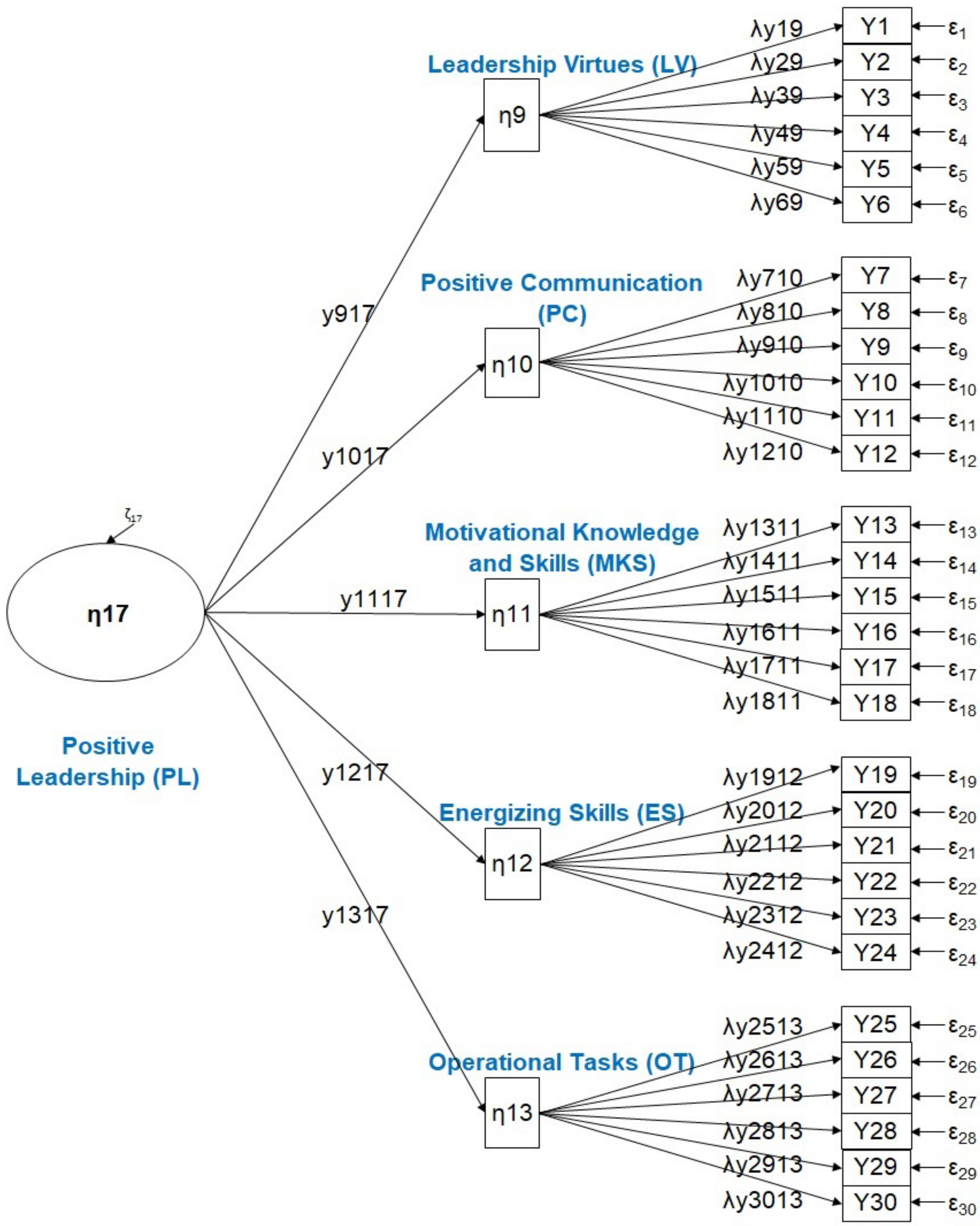
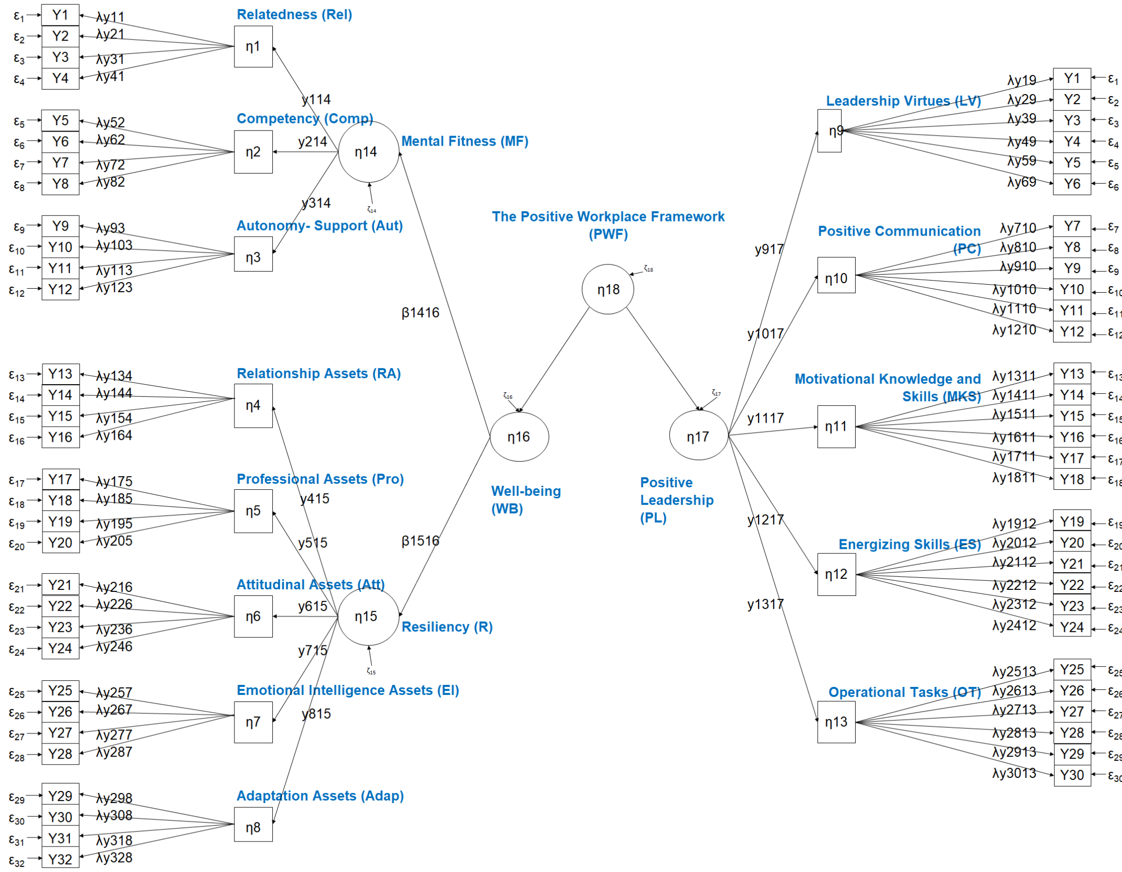


Figure 17

Path diagram of the hypothesized Positive Workplace Framework Model (PWF)



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Education

- Ph.D. in Education, University of New Brunswick, 2025
- M.Ed. in Measurement, Evaluation and Educational Research, Universidad del Valle de Guatemala, 2017
- B.A. in Clinical Psychology, Universidad Rafael Landívar, 2006

Selected Publications

- Laurie, R., Morrison, W., Peterson, P., & Bolaños, V. (2021). *Measuring Optimal Psychological Conditions for Teaching and Learning in Post-COVID-19 Education*. In Teaching in the Post COVID-19 Era. Springer.
- Rodriguez-Aguilar, T., & Bolaños Gramajo, V. (2023). *Mental Fitness and Resiliency in University Teaching*. Revista Perspectivas, 5(1), 1–14.
- Peterson, P., Morrison, M., Laurie, R., Bolaños, V., & Morrison, J.B. (2020). *Assessing the factorial structure of the MFRI. International Journal of Workplace Health Management*, 13(2), 153–171.
- Bolaños, V. (2018). *Statistical Ethics: Review of literature*. Revista Psicólogos, 8(22), 22–33.
- Bolaños, V. (2012). *Psychosocial model of non-verbal language analysis*. Revista Psicólogos, 2(5), 19–25.

Conference Presentations

- *Psychometric properties of the MFRI and PLI of the Positive Workplace Framework.* Atlantic Education Graduate Student Conference, UNB, 2024.

- *Validation of the MFRI, PLI and PWF*. XXXVIII Inter-American Congress of Psychology, 2021.
- *Evidence-based interventions from the MFRI reports*. 7th IPPA World Congress, International Positive Psychology Association, 2021.
- *Collective well-being in a positive work culture during times of crisis*. Symposium Coordinator, IV Congress of Psychology in Guatemala, 2020.
- *Validation of the MFRI and PLI (Spanish versions)*. Atlantic Education Graduate Student Conference, UNB, 2020.
- *Introducing mental fitness and leadership tools for sports teams*. IPPA World Congress, Vancouver, 2023.
- *Training in Professional Ethics*. V Regional Congress of the Interamerican Society of Psychology, San Salvador, 2014.

Academic Awards

- SGS Doctoral Recruitment Award, University of New Brunswick (2019–2023)
- Mitacs Accelerate Award (2022–2024)
- Mitacs Research Training Award (2020)
- IPPA World Congress Student Scholarship (2021)
- University Research Fund Award, UNB (2022)
- UNB Graduate Bursary (2020)