Université de Montréal

JD-R model in Entrepreneurship:
The Impacts of Job Demands and Resources on Well-being and Performance

Par
Felix A. Proulx

Département de psychologie, Faculté des arts et sciences

Thèse doctorale
Présentée en vue de l'obtention du grade de Ph. D et D. Psy. en psychologie du travail et des organisations

Mai 2022
© Felix A. Proulx, 2021

Université de Montréal

Département de psychologie, Faculté des arts et sciences

Cette thèse intitulée

JD-R model in Entrepreneurship: The Impacts of Job Demands and Resources on Well-being and Performance

Présentée par

Felix A. Proulx

A été évaluées par un jury composé des personnes suivantes :

Simon Grenier

Président-rapporteur

Kaspar P. Schattke

Directeur de recherche

Luc Brunet

Membre du jury

Sophie Meunier

Examinateur externe

1

Table of Content

List of tables

List of Figures

Résumé

Le modèle des demandes et ressources (JD-R) est largement utilisé pour comprendre comment promouvoir le bien-être et la performance des employés pour un large éventail de professions. Malgré de nombreuses études basées sur le JD-R, nous en savons relativement peu sur les entrepreneurs. Ainsi, l'objectif de cette thèse est d'évaluer l'impact de certaines caractéristiques du travail (c.-à-d., demandes et ressources au travail) sur la santé psychologique (c.-à-d., épuisement professionnel et engagement au travail) et la performance des entrepreneurs. Au total, une étude pilote, une étude longitudinale réalisée pendant la pandémie de COVID-19 et une étude comparative entre entrepreneurs et employés démontrent que les demandes au travail élevées (c.-à-d., surcharge, ambiguïté et conflit de rôle) épuisent les employés mentalement et physiquement, entraînant ainsi un épuisement énergétique et des problèmes de santé (c.-à-d., l'épuisement professionnel). En revanche, les ressources au travail (c.-à-d., l'autonomie, l'adaptabilité et la proactivité) se sont avérées favoriser l'engagement et la performance. Alternativement, les résultats suggèrent que les demandes et ressources au travail réduisent respectivement l'engagement et l'épuisement professionnel. Cependant, aucune interaction entre les demandes et ressources au travail n'a été trouvée. Une comparaison entre entrepreneurs et employés a également révélé que la relation entre les ressources au travail et l'engagement est moins importante pour les entrepreneurs que pour les employés. Ce projet de recherche démontre l'applicabilité et la transférabilité du modèle JD-R aux entrepreneurs et permet de mettre en évidence les différences entre cette population et les employés.

Mots-clés : modèle des demandes et ressources au travail, bien-être, épuisement professionnel, engagement au travail, performance, entrepreneuriat

Abstract

The Job Demands-Resources model (JD-R) is widely used to understand how to promote employee well-being and performance across a broad range of occupations. Despite many findings based on the JD-R, we know comparatively few about entrepreneurs. Thus, the objective of this thesis is to evaluate the impact of certain work characteristics (i.e., job demands and resources) on entrepreneurs' well-being (i.e., burnout and work engagement) and performance. Altogether, a pilot study, a longitudinal study made during the COVID-19 pandemic, and a comparative study between entrepreneurs and employees showed that high job demands (i.e. role overload, role ambiguity, and role conflict) exhaust entrepreneurs mentally and physically, therefore leading to energy depletion and health problems (i.e. burnout). In contrast, job resources (i.e. autonomy, adaptivity, and proactivity) were found to foster engagement and performance. Alternatively, results suggest that job demands and resources respectively reduce engagement and burnout. However, no interactions between job demands and resources were found. A comparison between entrepreneurs and employees also revealed that the relation between job resources and engagement is more important for employees than for entrepreneurs. This research project demonstrates the applicability and transferability of the JD-R model to entrepreneurs and helps highlight differences between this population and employees.

Keywords: job demands–resources model, well-being, burnout, engagement, performance, entrepreneurship

JD-R model in Entrepreneurship:
The Impacts of Job Demands and Resources on Well-being and Performance

Although there is no clear-cut consensus on how to define the role of an entrepreneur, it is generally accepted that entrepreneurs are individuals who have started their own business as self-employed workers (Low & MacMillan, 1988). Owners of small and medium-sized enterprises (SMEs) who joined after its founding are sometimes also considered entrepreneurs. In this study, the focus will be on entrepreneurs owning and operating their business (Wortman, 1987). When entrepreneurs start a business, they run the risk of starting a project for which they have no guaranteed outcome. In other words, entrepreneurs assume the risks and face the unpredictability of their new untested business opportunities. Their job is full of ambiguities and uncertainties, not to mention that a limited amount of job resources is normally available (Yang, 2012). Unlike employees, the role of an entrepreneur is rarely well defined – they have to do everything. Needless to mention that being an entrepreneur was classified has one of the most stressful occupation (Ahmad & Xavier, 2010; Cardon & Patel, 2015; Patzelt & Shepherd, 2011). Yet, enthusiasm for entrepreneurship has grown in Canada in recent years (Bose, 2017).

Statistics from the Canadian Centre for Data Development and Economic Research (Government of Canada, 2020) corroborate these findings by detailing the survival rate of Canadian businesses based on their size from 2001 to 2017. Sadly, less than 73.5% of SMEs ranging from 20 to 99 employees survived the 5-year mark and only 40.1% were still operational in 2017. These worrying statistics are even more concerning since the beginning of the Coronavirus disease (COVID-19) outbreak. The COVID-19 outbreak caused a lot of significant changes affecting the workplace (BDC, 2020; 2021). This infectious disease was caused by the newly discovered coronavirus. Most people infected with the COVID-19 virus were experiencing mild to moderate respiratory illness and recovered without any special treatment.

The elderly and people with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer were more likely to develop serious illness (World Health Organization, 2021). When the pandemic was spiraling out of control, many governments around the world ordered a partial or complete lockdown, which was vital for public safety (i.e. closing of schools and workspaces in addition to nonessential businesses such as restaurants, theaters, etc.). These trying times were hard for everyone, but highly challenging for entrepreneurs, because lockdown had direct consequences on economy, and thus people's purchase and consumption habits (Ozili & Arun, 2020). According to the Business Development Bank of Canada reports (BDC, 2020; 2021), almost all businesses had to suspend their activities because of the COVID-19 crisis in Canada and the situation became very stressful for entrepreneurs. In addition to struggling with work-life balance, financial cash flow was the most often mentioned source of stress combined with generating enough revenue, paying expenses, understanding government programs and having sufficient clients (BDC, 2020; 2021). They had to deal with external and operational factors creating tremendous strain and highly impacting their mental health (BDC, 2020; 2021). Ultimately, the COVID-19 outbreak created a contextual climate where everything was uncertain for most, but mainly for entrepreneurs. Despite the resources offered by most governments around the world, the road back to normality is not without pitfalls and many SMEs are still struggling to recover (Ozili & Arun, 2020).

Altogether, the COVID-19 pandemic accentuated the incoming stress related to being an entrepreneur and greatly impacted entrepreneur's mental health and performance. Altogether, mental health and well-being are important to effective human functioning and is considered highly beneficial to entrepreneurs because it makes them more likely to persist and perform better (e.g., Ryan & Deci, 2001; Ryff, 2017; Wincent et al., 2008). Therefore, the aim of this

thesis is to investigate stressors and resources related to entrepreneurs' well-being and performance in order to understand entrepreneurs' strains better and to promote the survival of their business. Additionally, this thesis explore the impacts of a major disruptive event, namely the COVID-19, on entrepreneurs.

Conceptual Framework

Every job possesses a set of characteristics specific to it. Numerous studies have examined work characteristics that positively and negatively influence employees' psychological states and related outcomes (e.g., motivation, absenteeism, performance, health) (e.g., Campion & Thayer, 1985; Hackman & Oldham, 1975), but those studies focused on a narrow set of characteristics and neglected numerous others (Edwards et al., 1999; Parker et al., 2001). Through various investigations done relatively independently, a comprehensive inventory of characteristics has been drawn up through several studies on work design and characteristics. Altogether, Morgeson and Humphrey (2006) identified more than one hundred different work characteristics in scientific literature. Additionally, some researchers have also examined the duality between positive and negative work characteristics, thus proposing a conceptual framework to evaluate their impact on multiple indicators of employee functioning (e.g., well-being and performance).

The JD-R model is multidimensional and can be applied to a wide range of occupations to explain simultaneously well-being and performance of employees as well as the related antecedents and consequences (Bakker & Demerouti 2017; Demerouti et al., 2001a). The assumption of this framework is that regardless of the type of job, one can categorize most work characteristics into two categories, which induce divergent processes (Bakker et al., 2003b). Demanding jobs (e.g., long hours, unclear role, complex tasks) can deplete employees' physical

10

and psychological resources and lead to burnout (i.e., health impairment process) (e.g., Demerouti et al., 2000; 2001b). Conversely, the presence of adequate job resources (e.g., social support, decision-making, meaningfulness, autonomy) reduces the impact of these professional demands by promoting engagement and achievement of professional and organizational goals, as well as stimulating personal growth and development (i.e., motivational process) (Antonovski, 1987; Hackman & Oldham 1980).

Work characteristics that can cause tensions represent job demands. Job demands that exceed the adaptability of the employee can cause strains and negative spillovers. In essence, they refer to the aspects of work that require sustained effort, which generates psychological or physical costs for the employee (e.g., burnout and depression; Demerouti et al., 2000; 2001b; Lee & Ashforth, 1996; Leiter, 1993). Even if job demands are not perceived negatively, they can become risk factors if fulfilling these job demands require too much effort with insufficient recovery time (Meijman & Mulder, 1998). More specifically, in order to maintain consistent work performance when job demands are high, individuals use protection strategies to adapt. However, because these strategies require a great level of activation and quite a bit of effort, they also generate compensatory costs for the individual. These costs have the effect of eventually lead to long-term failure (Hockey, 1993). Ultimately, they result in a gradual impairment process of health by exhausting the mental and physical resources of employees and leading to energy depletion and health problems (e.g., Demerouti et al., 2000, 2001a, 2001b; Leiter, 1993).

Resources refer to the physical, psychological, social, and organizational work characteristics that facilitate the achievement of the employees' goals, reduce job demands and their associated costs, and stimulate personal growth, learning, and development (Antonovski, 1987; Demerouti et al., 2001a; Hackman & Oldham 1980). Resources can also be individual and

11

tied to the employee itself (e.g., resilience, optimism) (Schaufeli, 2017). More specifically, job resources make it possible for employees to cope with their job demands, but they also have several positive repercussions, such as goal achievement, personal growth and development (Elsass & Veiga, 1997; Ganster & Fussilier, 1989; Hobfoll, 2001; Jimmieson & Terry, 1999). Indeed, job resources seem to instigate a motivational process leading to job-related learning, work engagement, and performance (e.g. Demerouti et al., 2001a; Salanova et al., 2005; Taris & Feij, 2004).

Another assumption of the JD-R model is related to the interaction between job demands and resources in the development of strain and motivation: job resources can buffer the negative effects of job demands (Bakker et al., 2005; Bakker et al., 2003c). This buffering effect corresponds to a moderation effect (i.e., statistical interaction effect), in the sense that the moderator (job resources) influence the direction or strength of the relationship between the predictor variable (job demands) and the outcomes (well-being and performance) (Preacher & Hayes, 2008). According to Kahn and Byosiere (1992), a buffering or interaction effect can occur between any pair of variables in the stress-strain sequence. More precisely, the properties of the work situation and the characteristics of the individual can buffer the effects of a stressor.

In that sense, job resources may buffer the influence of job demands on stress reactions. Employees under demanding work conditions, but with sufficient job resources, are better capable of dealing with job-related demands, thus leading to lower levels of exhaustion (Bakker et al., 2005). It is particularly interesting in the field of entrepreneurship, where individuals are under stressful conditions and more likely to use job resources as a coping mechanism or a way to reduce stress.

Alternatively, job resources are most beneficial in maintaining work engagement under

conditions of high job demands. Job resources were shown to have greater influence on motivation or work engagement when job demands were high (Bakker et al., 2007; Bakker et al., 2010; Hakanen et al., 2005). This implies that job resources gain their motivational potential particularly when employees are confronted with high job demands, which is also relevant for entrepreneurs (e.g., Bakker et al., 2007, Bakker et al., 2010).

Based on the JD-R theory, those two processes are independent. However, direct relationship between job resources and burnout and between burnout and motivational outcomes were found in some studies (e.g., Schaufeli & Bakker, 2004). According to Bakker and Demerouti (2017), these cross-paths are normally caused by suboptimal research designs and cross-links are often observed in cross-sectional studies. However, to fully understand how the JD-R adapts to entrepreneurs, it would be relevant to explore this possible cross-link associations using a longitudinal design.

Finally, the JD-R model is relevant because it can be adapted to any work characteristic, thus the specific reality of entrepreneurs. Moreover, because this model has been widely used in various occupational groups and in many countries, we suggest extending this framework to entrepreneurs (e.g., Bakker et al., 2003b; Bakker et al., 2005; Bakker et al., 2003c; Bakker et al., 2003a; Demerouti et al., 2000; 2001b; Hakanen et al., 2006; Schaufeli & Bakker, 2004; Llorens, et al., 2006). This model will allow us to comprehend the complex reality of entrepreneurs without reducing it to a mere handful of variables. Moreover, we believe that the JD-R model is well suited for the study of entrepreneurs, because it will allow considering all work characteristics influencing the well-being and performance of entrepreneurs.

JD-R in Entrepreneurship

Demands

Role stressors

Zackarakis et al. (1999) suggests that perception of venture failure is often attributable to the entrepreneurs themselves. Financial rewards, autonomy and personal achievement are all positive aspects of entrepreneurship, but the pursuit of entrepreneurship can also result in negative consequences for the entrepreneur (Boyd & Gumpert, 1983, 1984; Adebowale, 1994; Miles & Covin, 2002; Schindehutte et al., 2006). The entrepreneur must be able to cope with pressures and stresses that arise in the creation and exploitation of their entrepreneurial opportunities, all the while balancing personal, family, and organizational demands. Relentless stress stemming for entrepreneurial activities can result in negative physical and psychological outcomes, including hypertension, arteriosclerosis, burnout and business failure or intention to quit (Boyd & Gumpert, 1983; Maslach, 1982). Unfortunately, few conceptual or empirical research exists focusing on the burnout phenomenon in the field of entrepreneurship. However, Shepherd et al. (2010) conducted a comprehensive review of the literature on burnout, including its antecedents, consequences, and coping strategies, and integrate these concepts into the entrepreneurial context and support recent work by Wincent and Ortqvist (2009), Wincent et al. (2008) and Duran-Whitney (2004) by suggesting that role stresses are significant concern for entrepreneurs and can lead to burnout. Similar findings were suggested in Mäkiniemi et al. (2021) systematic qualitative review screening 1,870 studies on the subject.

More precisely, entrepreneurs depend on the creation of a new company. They must do everything they can to take advantage of a market opportunity (Dollinger, 2008). This

means that entrepreneurs are also responsible for meeting the expectations of their business

stakeholders (e.g., customers, employees, partners, etc.). These responsibilities can be linked to a

need for innovation, self-improvement, or achieving complex tasks (Abell & Hammond, 1979).

More specifically, a given company's objectives and results are based on the execution of said

responsibilities. Thus, the entrepreneurs bear responsibility for their performance, which can be

viewed through personal or organizational perspectives, among others (e.g., social and

economic). Role stress is greatly applicable to entrepreneurship and capture the overwhelming

charge of carrying a business on one's shoulder. The uncertainties or errors in judgment related

to what is urgent, important or both, and the potential conflicts between many responsibilities

and conflicting requirements is well translated by role overload, role ambiguity, and role conflict.

Role overload refers to the inability to meet the expectations of roles (e.g., knowing all aspects of

management, such as sales, accounting, management, and others; Latack, 1981). *Role ambiguity*

refers to the perception that role demands are unclear (e.g., not understanding customer

expectations in terms of quality, cost and time; Jelinek & Litterer, 1995; Kahn et al., 1964). *Role*

conflict occurs when individuals around the entrepreneur (e.g., partners, customers, co-workers,

employees, creditors, family) have conflicting job demands (Kahn et al., 1964). Based on

Jackson and Schuler (1985) meta-analysis, approximately 85% of studies used the Rizzo et al.

(1970) scales to assess role stressors (i.e., role ambiguity and role conflict). The most recent

meta-analysis of Gilboa et al. (2008) also reported that most studies assessing relationships with

role stressors and performance included the Rizzo et al. scales. Despite the popularity, the Rizzo

et al. scales have been the target of criticism (e.g., Gilboa et al., 2008; King & King, 1990;

McGee et al., 1989; Tracy & Johnson, 1981, 1983). Much of it is centered around the item

wording purportedly being assessed with direction. More specifically, the role ambiguity items

are reverse-scored and the role conflict items are positively scored. This renders factor analyses using the Rizzo et al. scales ambiguous (Kelloway & Barling, 1990; McGee et al., 1989; Tracy & Johnson, 1981), and threatens its construct validity (King & King, 1990). Moreover, many of the items have content validity and contamination problems (King & King, 1990). However, despite its limitations, the scale has at least some level of validity (e.g., Gonzalez-Roma & Lloret, 1998; House et al., 1983; Netemeyer et al., 1990). Based on the Rizzo et al. scale potential shortcomings that may undermine its validity, Bowling et al. (2017) developed a new scale. It was designed to overcome the problems related to item wording and focus on strong conceptual links with their corresponding role stressor. Altogether, the new role conflict scale converges with existing measures of role conflict, namely the Rizzo et al. role conflict scale. Moreover, the validation of this new scale demonstrates the existing relationship between role conflict and role overload. Using Beehr, Walsh, and Taber (1976) role overload scale, strong positive correlations were found between role conflict from the new scale r= .69, p < .01 and the Rizzo et al. role conflict scale r= .73, p < .01. The new role conflict scale and the Rizzo et al. role conflict scale predicted role overload equally well (z = −1.18, n.s.). This support the notion that role overload is a form of role conflict (Kahn et al., 1964; King & King, 1990). Role conflict occurs when employees face multiple work demands that are incompatible with each other and have role expectations originating from multiple groups of people (Kahn et al., 1964; King & King, 1990; Rizzo et al., 1970). These different groups impose differing and incompatible demands on the employee ultimately create work overload.

Altogether, findings suggest that role overload, ambiguity, and conflict make it more difficult to perform any of those roles successfully, due to conflicting job demands in time, energy, and incompatible behaviors within different roles (Beutell & Greenhaus, 1986; Kahn et

al., 1964). However, when entrepreneurs manage the prescriptions of their role well, they are not exposed to any of those role stresses (i.e., role overloads, ambiguities, or conflicts). As such, entrepreneur role stress can be found at varying degrees. More precisely, expectations from the business's stakeholders are the source of roles stress for entrepreneurs and represents standards used to evaluate performance. When those standards are met, the role is not questioned and no source for role stress is evident. When discrepancies between expectations and behavior exist, the entrepreneur will perceive role stress (Wincent & Örtqvist, 2009a). Being able to negotiate this gap between what is expected and what is done clearly creates a distinction between entrepreneurs and employees when it comes to the influence of role stressors. Unlike employees who receive more or less fixed guidelines as to what is expected, entrepreneurs must have the capability to consciously or unconsciously negotiate the gap between what is expected and their behaviors. Moreover, for entrepreneurs, the role expectations come from the necessity of the business and its actors (e.g., stakeholders, customers, employees, partners) while an employee receives the role expectations from his superior.

However, when the expected standards are not met, prolonged exposure to these job demands and a lack of job resources over a long period can lead to burnout and can have negative consequences for performance (Cordes et al., 1997; Lysonski, 1985; Tubre & Collins, 2000). Moreover, these job demands can lead entrepreneurs to have a tendency to withdraw or leave their company (Wincent & Örtqvist, 2009a). Those job demands are directly related to the organization's performance and are fatal to the company. Fortunately, different job resources can buffer the detrimental effects of high job demands.

Resources

Autonomy

Entrepreneurs are starting businesses for various reasons, namely social change, personal wealth, recognition, and others. However, one prominent motivator shared by entrepreneurs is the pursuit of freedom and autonomy (Van Gelderen & Jansen, 2006). Most entrepreneurs are choosing the entrepreneurial route because of the appeal of creating and controlling their own organization (Rindova et al., 2009). Altogether, they ditched the perceived constraints of employment in exchange for complete autonomy over how to manage their own organization.

In terms of entrepreneurial job resource, job autonomy provides substantial freedom, independence, and discretion in scheduling the work and in determining how to achieve it (Hackman & Oldham, 1975). Thus, one can divide this construct into three interrelated aspects, which are work scheduling, decision-making, and work methods (Breaugh, 1985; Wall et al., 1992; Wall et al., 1995). In its most general form, job autonomy favors a perception of authority to initiate, perform, and complete tasks (Kaldenberg & Becker, 1992; Xie & Johns, 1995). It would allow entrepreneurs to manage their various roles depending on their present constraints.

Research with employees found that autonomy is associated with more opportunities to cope with stressful situations (Kahn & Byosserie, 1992; Karasek, 1998) and that it leads to various positive outcomes, such as work engagement and work–life balance (Halliday et al. 2018), career adaptability (Zacher, 2016), and enhanced career satisfaction (Yavas et al. 2013). Also, previous research using the JD-R model suggested that job autonomy fosters greater engagement (e.g., Bakker et al., 2006; Kinnunen et al., 2008) and that it buffers the negative effects of job demands on burnout (e.g., Kim & Stoner, 2008). Finally, other researchers found that job autonomy grants entrepreneurs better options for reconciling their professional and personal responsibilities (Parasuraman & Simmers, 2001; Sarri & Trihopoulou 2005).

According to the JD-R model, job resources lead to positive outcomes because they induce a motivational process promoting performance. In this sense, we found that job autonomy might be one of the most important job resources for entrepreneurs based on the previously described literature on employees. In line with the dream of starting a business in order to reach a certain level of freedom, this job resource seems inseparable from the entrepreneurial context and appears to be crucial for entrepreneurs (Hackman & Oldham 1980; Yukongdi & Lopa 2017). However, most of the beneficial aspects of job autonomy described above were found with employees. Thus, we need further investigation with entrepreneurs. More precisely, additional research is needed in order to understand how job demands and resources specific to entrepreneurs are affecting their psychological well-being, namely their level of work engagement and burnout. While autonomy is probably one of the most important job resources for entrepreneurs, role flexibility should also play an important role at the individual level.

Role Flexibility

Empirical evidence has suggested that entrepreneurial orientation influences the company ability to compete, adapt, and perform (Rauch et al., 2009) and impact the psychological state of entrepreneurs (Fernet et al., 2016). The latter is based on the principle of behavioral plasticity (Brockner, 1988; Pierce & Gardner, 2004), suggesting that individuals with lower adaptive capacity (e.g., they have low self-esteem, low self-efficacy, or low autonomous motivation) are more emotionally responsive to events and situations than individuals with high adaptive capacity. In the context of the COVID-19 pandemic, adapting and being flexible is even more important. In this sense, the entrepreneurial orientation constitutes a significant resource that influences not only the company (Covin & Slevin, 1989, Lumpkin & Dess, 1996), but also the entrepreneur adaptive capacity. Research tends to show that the positive aspects of

entrepreneurial orientation— proactivity (e.g., by adopting an opportunity-seeking, forward-looking attitude, and by anticipating future needs); innovation (e.g., to act creatively, introduce new products, services, and processes); and risk-taking (e.g., to act audaciously, explore new territories, attempt untried solutions, borrow ideas liberally, invest significantly in uncertain environments) (Covin & Slevin, 1988, Miller, 1983; 2011)—contribute to the firm's growth and performance (e.g., Rauch et al., 2009). Moreover, Fernet et al. (2016) found that the lack of these resources threatens the entrepreneur psychological health. More precisely, entrepreneurs who are less proactive, innovative, or risk-taking react more negatively to loneliness and are at a greater risk for burnout. Altogether, most studies on entrepreneurial orientation combined innovativeness, proactiveness, and risk taking into a single factor (Rauch et al., 2009). However, in order to observe greater nuances and because of the COVID-19 context, this study focus on adaptivity and proactivity separately, namely role flexibility.

The usage of role flexibility as a job resource within the JD-R framework is largely attributable to the research context surrounding the COVID-19 pandemic. Normally, uncertainty stems from lack of predictability from the inputs, processes, or outputs of work systems (Wall et al., 2002). Examples of common factors responsible for uncertainty are new competition, changing technologies, and evolving customer demands. However, the COVID-19 created a crisis and, to survive, entrepreneurs had to manage their ongoing responsibilities, in addition to being proactive and find ways to adapt their business operations in order to respect public safety and governmental guidelines. In that sense, because job resources can be measured with various work characteristics, emphasis was put on the imperative for entrepreneurs to cope in the face of uncertainty (e.g., Perrow, 1967; Thompson, 1967). External forms of control can be used to ensure goal attainment when uncertainty is low (Cummings & Blumberg, 1987). However, when

uncertainty is high, external control is insignificant because it is impossible to anticipate the upcoming contingencies (Ilgen & Hollenbeck, 1991). Thus, role flexibility, such as being able to adapt and be proactive, is highly valuable when facing major disruptive crisis such as the COVID-19 pandemic, economic recession or environmental crisis (Katz & Kahn, 1978). Based on Griffin et al. (2007), role flexibility at the individual level refers to adaptivity (i.e., ability to adapt to changes), and proactivity (i.e., ability to take self-directed action to anticipate or initiate change).

A*daptivity* reflects the degree to which individuals respond, cope, or support changes that affect their role. For example, an entrepreneur who accepts and copes well with the installment of new procedures related to the COVID-19 (e.g., distribution of hand sanitizer, installation of plexiglass screen and enforcement of mask protection by customers) demonstrates individual adaptivity. It translates into the individual capacity to adjust their workplace behaviors according to the context. Being able to deal with uncertain work situations is the core element of this construct (Johnson, 2003; Pulakos et al., 2000).

Proactivity refers to the extent to which individuals engage in self-starting, future-oriented behavior to change their individual work situations, their individual work roles, or themselves (Griffin et al., 2007). For example, an entrepreneur might decide to change her business model to limit interaction to the minimum to respect COVID-19 restrictions (e.g., online order, no contact home delivery) or might scan her clients to identify opportunities for adapted services. Requirements for individual proactivity is important, given that pressures for continual improvement and innovation coexist with increasing decentralization (Campbell, 2000; Parker, 2000). Proactivity can be described as being able to identify improved ways of working under their own initiative, without relying on directions from others (Crant, 2000; Parker, 1998).

Many related constructs are similar to proactivity, such as proactive behavior (Crant, 2000; Parker et al., 2006), taking charge (Morrison & Phelps, 1999), personal initiative (Frese et al., 1996), and innovator role behavior (Welbourne et al., 1998). The major distinction between those and proactivity is the emphasize on the self-initiated and change-focused action, rather than effort and persistence.

Ultimately, adaptivity and proactivity are important whenever uncertainty is involved or when some aspects of the work cannot be formalized, thus being an incredibly valuable personal job resource for entrepreneurs in crisis (Griffin et al., 2007; Ilgen & Hollenbeck, 1991; Murphy & Jackson, 1999). Our version of adaptivity and proactivity is based on Griffin et al. (2007), which describe the construct as a measurement of contextual performance. The French version presented in this research program rather measures antecedents of performance, namely individual job resources. It measures the subject inclination to exhibit adaptive and proactive behaviors and cope with change.

Altogether, based on employees' literature and research made on entrepreneurs presented above, job demands such as role overload, role ambiguity, and role conflict should strain entrepreneurs physically and psychologically and can ultimately lead them to burnout and reduced performance (e.g., Demerouti et al., 2000; 2001b). Conversely, the presence of adequate job resources such as autonomy and role flexibility can reduce the impact of these job demands by promoting engagement and performance, as well as stimulating personal growth and development (e.g., Antonovski, 1987; Hackman & Oldham 1980).

Work Engagement and Burnout

Work engagement is a positive and relatively stable indicator of well-being at work (Schaufeli et al., 2002a; 2002b). Engagement is characterized by a strong and effective

connection with professional activities. Engaged employees are also able to cope with the job demands of their work. In general, engagement is defined as a positive, satisfying and characteristic state of mind measured by vigor, dedication, and absorption according to the Utrecht Work Engagement Scale (UWES; Schaufeli et al., 2002b). Vigor refers to high levels of energy and mental resilience during work, the willingness to invest efforts in one's work and perseverance, even in the face of difficulties. Dedication is characterized by a sense of significance, enthusiasm, inspiration, pride, and challenge. It refers to an unusual level of identification, in addition to being emotionally invested into one's work. Absorption, which takes place in a state of total concentration and deep immersion into the work, gives employees the impression of a more rapid passing of time and makes it harder for them to become detached from their work. This three-factor conceptualization has been found to be invariant across several studies exploring different employment contexts cross-nationally (Hallberg & Schaufeli 2006; Schaufeli & Bakker 2003; Schaufeli et al., 2006; Schaufeli et al., 2002a). As a whole, engagement refers to a persistent and pervasive affective-cognitive state that is not centered on any particular object, event, individual or behavior, but on the work itself (Schaufeli et al., 2002a). Engagement at work is positively associated, for example, with positive attitudes towards work, as well as with high performance (Schaufeli & Salanova 2007).

Contrary to work engagement, *burnout* is a psychological syndrome that can occur when employees are exposed to stressful work environments, high job demands, and limited job resources (Bakker & Demerouti, 2007; Maslach et al., 2001). However, despite a consensus about the existence of this construct, there are still different conceptualizations on how the syndrome should be operationalized.

According to the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981, 1986;

Maslach et al., 1996), burnout was originally based on a three-dimensional conceptualization of

human services. These were then adapted for use outside of personal services and expanded

towards all other professions and occupational groups (MBI-GS, Schaufeli et al., 1996). Initially,

the dimensions studied were emotional exhaustion (i.e., depletion of emotional resources due to

interpersonal contact with others), depersonalization (i.e., being negative, unresponsive and

cynical towards recipients of care or services), and lack of personal accomplishment (i.e.,

employees' tendency to negatively evaluate their work with recipients). Based on the notion that

these dimensions can be broadened beyond the interpersonal domain of human services, three

generic dimensions of burnout, respectively exhaustion, cynicism, and professional efficacy were

included (Leiter & Harvie, 1998; Leiter et al., 1998; Leiter & Schaufeli, 1996). Exhaustion refers

to fatigue from work in general. Cynicism is characterized by negative and cynical feelings

regarding the work itself. The lack of professional efficiency is similar to a lack of personal

achievement in the sense that it encompasses the latter, and is described by employees'

dissatisfaction with their accomplishments at work.

Alternatively, the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2001;

Demerouti et al., 2010) defined burnout as the result of intense physical, emotional, and

cognitive tension – specifically, an extended exposure to demanding professional strain. This

conceptualization is closely aligned with other definitions of burnout (Demerouti & Bakker,

2008). However, unlike the MBI or MBI-GS, the OLBI explains burnout by the disengagement

of employees in relation to their work, the object of their work and its content. Disengagement

occurs when employees develop negative attitudes about their job. According to this

conceptualization, burnout would have an underlying two-factor structure composed of

exhaustion and disengagement, which can be reversed into vigor and dedication, respectively (Demerouti et al., 2010). This is possible because half of the items are formulated either positively or negatively. It is also possible to reverse the score obtained with the MBI, in which negative scores of exhaustion, cynicism, and inefficiency refer to energy, involvement, and efficacy (Maslach & Leiter, 1997). However, since the items are formulated only to the negative, low levels of exhaustion, cynicism, and inefficiency cannot always be considered rigorously as representative of their opposite. In that sense, employees who do not score high on them are not automatically energized, involved nor especially efficient. Altogether, this conceptualization corresponds with the data of several occupational research groups (Demerouti et al., 2002; Demerouti et al., 2001a; Halbesleben & Demerouti, 2005; Demerouti et al., 2003), but is less prominent than the MBI. For this reason, the main conceptualization used for this research project is based on the MBI. However, when the measurement of burnout and engagement is needed simultaneously, the OLBI is required.

Work engagement and burnout have a direct impact on performance and are, at the same time, directly influenced by job demands and resources (e.g., Cordes et al., 1997; Lee & Ashforth, 1996; Lysonski, 1985; Tubre & Collins, 2000). More specifically, in the field of entrepreneurship, it seems that work engagement and burnout are greatly relevant, given that many entrepreneurs abandon their business in the first couple of years of operation (Government of Canada, 2020).

Performance

Performance can be described as the contribution of an incumbent to the overall effectiveness of its organization (Borman & Motowidlo, 1993). However, it can be divided into two different factors (Borman & Motowidlo, 1997; Motowidlo & Van Scotter, 1994). Task

performance describes the core job responsibilities of an employee and can be described as in-role performance (Koopmans et al. 2011). It is reflected by the quality and quantity of specific work outcomes and deliverables. Contextual performance refers to behaviors made beyond formal job responsibilities (Koopmans et al. 2011). It relates to any discretionary extra-role behavior that is not asked or specified. For example, activities such as coaching coworkers, strengthening social networks and creating collaborative events are all considered contextual performance. However, since entrepreneurs do not have specific job description and because their role is ever-changing, the line between in-role and extra-role performance is immensely blurry for this population. For that reason, this research programs focus on in-role performance and is using in-role behavior measurements (IRB; Williams & Andersons, 1991), which evaluate performance based on behavior that directly benefit the organization.

In relation to the other variables of interest, job demands and resources have negative but also positive effects on in-role performance through processes involving tension and motivation. Job demands related to role stress (i.e., role overload, ambiguity, and conflict) are detrimental to in-role performance because they interfere with work and decrease the level of control. In occupations comparable to entrepreneurship (i.e., management), the negative relationship between those job demands and in-role performance has been demonstrated (Wincent & Ortqvist, 2009a, 2009b). As entrepreneurs are considered new business creators, lack of time and lack of resources (i.e., role overload; Latack, 1981) can undermine their in-role performance by preventing them from properly completing their tasks. Risk taking is inevitable in entrepreneurial work (i.e., role ambiguities; Jelinek & Litterer, 1995; Kahn et al., 1964), which can lead to a lot of uncertainty, preventing the entrepreneur from getting involved in the most important and necessary tasks at hand. Inconsistent job demands (i.e., role conflict; Kahn et al., 1964) can also

lead to inefficiency due to conflicting job demands and uncertainty about how time and effort should be provided. In short, these characteristics of employment give rise to difficulties in the execution of the entrepreneurial role and greatly impair performance by interfering with the role behaviors the entrepreneur must achieve. Conversely, most of the studies reviewed mentioned high requirements for job resources such as autonomy (e.g., Bakker et al., 2005).

In relation to the JD-R model, job demands and resources trigger two independent processes related to health impairment and motivation. Job demands are generally the most important predictors of burnout, psychosomatic health complaints, and repetitive strain injury (Bakker et al. 2003b, Hakanen et al. 2006). In contrast, job resources are generally the most important predictors of work engagement, enjoyment, and motivation (Bakker et al. 2007; 2010). In other words, job demands cost effort and consume energetic resources, whereas job resources fuel the individual (Bakker, 2011; Deci & Ryan 2000; Nahrgang et al. 2011). A meta-analytic study based on 203 independent samples using the JD–R model demonstrated that job demands and resources were related to safety outcomes through the mediating effect of burnout and work engagement. Moreover, another study using the JD–R model with employees investigated its predictive validity for self-reported absenteeism and turnover intentions and found evidence for the dual process describes above (Bakker et al., 2003b). Altogether, many studies have supported the dual pathways to employee well-being proposed by JD–R theory and have shown that the model can predict important organizational outcomes (for full overview, see Bakker & Demerouti 2014). However, the JD–R theory put forward another proposition, which is that job demands and resources interact together in predicting occupational well-being. Two interactions are possible: job resources buffer the impact of job demands on strain but job demands can also amplify the impact of job resources on motivation and engagement (see Figure 1). Several

studies have shown that job resources such as social support, performance feedback, and opportunities for development can mitigate the impact of job demands on psychological health, including burnout (e.g., Bakker et al. 2005; Xanthopoulou et al. 2007). Alternatively, research has shown that job resources become salient and have the strongest positive impact on work engagement when job demands are high and especially when employees are confronted with challenging job demands (Bakker et al. 2007; Hakanen et al. 2005). Altogether, burnout and work engagement stand out as antipodal constructs favoring the mechanisms underlying the JD-R model and mediating the effect of job demands and resources on performance (e.g., Bakker & Demerouti, 2008; Demerouti & Cropanzano, 2010; Salanova et al., 2005). Ultimately, employees facing high job demands are directly led to lower performance, through the experience of burnout and reduce levels of engagement. However, even though entrepreneurs are normally facing high job demands, those processes have rarely been applied in the field of entrepreneurship, but can possibly translate to this field. Moreover, cross-link relations were found in some studies (e.g., Schaufeli & Bakker, 2004) evaluating the direct relationship between job resources and burnout and between burnout and motivational outcomes. These cross-link relationships should also be investigated. Altogether, in order to better understand the underlying mechanisms leading to performance in entrepreneurship, additional research is needed in order to determine if the aforementioned processes are transferable to entrepreneurs.

Figure 1. The theoretical JD-R model of burnout and engagement

Job demands — + → **Burnout**
Burnout — - → **Performance**
Job resources — + → **Engagement**
Engagement — + → **Performance**
(cross paths labeled - , - , + , +)
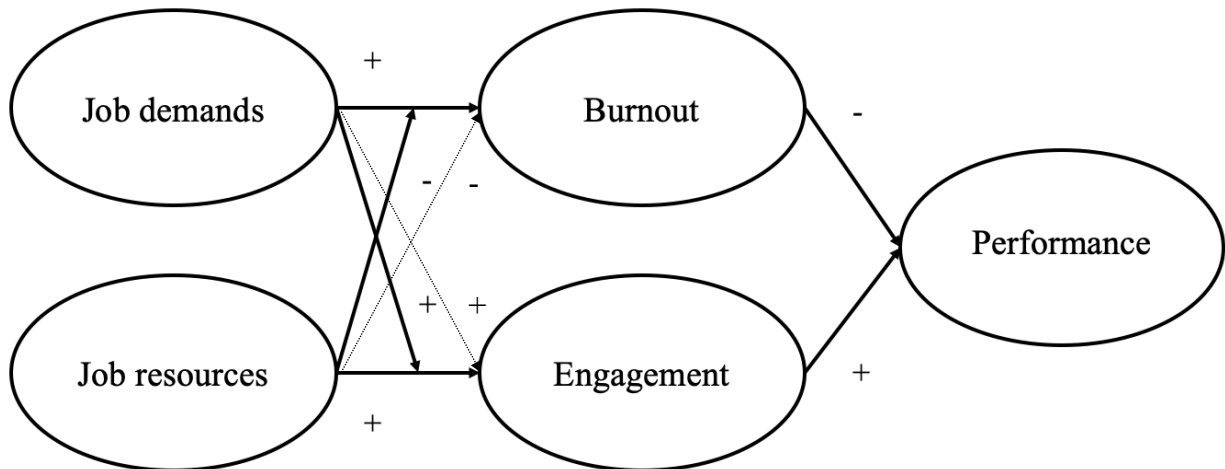
Literature Review (employees versus entrepreneurs)

In order to investigate the existing entrepreneur literature and determine the objective of this research program, we used online and electronic databases (e.g., PsycINFO, Google Scholar, and ProQuest Dissertations) to search the keywords and abstracts of studies that included the usage of the JD-R model with entrepreneurs. We used a set of keywords related to the theoretical model (i.e., job demands, job resources, job demands-resources model and JD-R) and entrepreneurship (i.e., entrepreneurs, self-employed, entrepreneurship). We did place quotation marks around the search term in order to cast a net as narrow as possible. We limited our search to studies published between 2001 and 2021, after the JD-R model was initially published (Demerouti et al., 2001a). Initially, we found 1060 potential studies to review. After adding the keywords "burnout", "engagement" and "performance", we identified 755 studies published either in academic journals or in dissertations. In comparison, we found 14100 results when we interchanged "entrepreneurs" with "employees". This demonstrates how burgeoning the JD-R literature related to entrepreneurs is, in comparison to employees. Moreover, from the 755 results, most of the studies only mentioned the keyword "JD-R", "entrepreneurs", "burnout", "engagement", and "performance", but did not specifically study those. After removing all of the

unrelated studies, we ended up with only a handful of studies ($n < 10$). Moreover, those were either too niche (i.e., highly specific entrepreneurial domain or context; Toth et al., 2021; Zuo et al., 2021), used a small sample size (i.e., $n < 160$; Olafsen & Frølund, 2018; Zuo et al., 2021), addressed a sub-theory of the JD-R model (i.e., challenge-Hinderance model; Olafsen & Frølund, 2018) or only partially addressed burnout and engagement (e.g., Dijkhuizen et al., 2016; McDowell et al., 2019; Neck et al., 2013; Olafsen & Frølund, 2018; Toth et al., 2021; Wei et al., 2015). In comparison to employees, entrepreneurs have to cope with a high level of uncertainty, responsibility, risks and workload (e.g. Collins et al., 2004; Dijkhuizen et al., 2014; Drnovsek et al., 2010; Gorgievski & Laguna, 2008; Tetrick et al., 2000). However, findings suggest that entrepreneurs have higher levels of passion for inventing than traditional employees, thus choosing more demanding career path, which can result in higher work engagement to meet the entrepreneurial demands (Toth et al., 2021). In the same vein, Olafsen and Frølund (2018) found that being busy and working on tasks that demand concentration improve entrepreneurial well-being and performance (Olafsen & Halvari, 2017). Being busy and engaged is beneficial for the entrepreneur, but also for their business. Compared to employees, the strain of high workload and cognitively demanding tasks should not always be feared (Olafsen & Frølund, 2018). Altogether, it appears that entrepreneurs have high levels of both work-related strain and work engagement when compared to employees.

This brief review illustrates the breath and reach of the JD-R literature related to entrepreneurs in comparison to employees. Furthermore, it stressed the importance of conducting more research about entrepreneurs. Finally, it highlights the gaps in the literature related to the use of the JD-R with this specific population.

Objectives

In an attempt to overcome the present lack of scientific literature in the field of entrepreneurship, the present investigation sought to examine the influences of entrepreneurial job demands and resources on performance and well-being (i.e., burnout and engagement), as defined within the JD-R model. Using a longitudinal design, this project aimed to further examining the directionality between job demands and resources, burnout and engagement in the context of a major business disruption, namely a three-month lockdown related to the first COVID-19 outbreak in Quebec. In addition, this project aims to determine whether the same fundamental process of the JD-R, which has been demonstrated in various employment settings, can apply to self-employment (e.g., Hakanen et al., 2006).

Altogether, this research program will further our knowledge related to the field of entrepreneurship and will shed light on the differences and resemblances related to entrepreneurs' and employees' well-being and performance.

General Hypotheses

The central hypothesis of this thesis is based on the aforementioned JD-R framework and proposes that job demands (i.e., role overload, ambiguity and conflict) positively relate to burnout, which, in turn, negatively relates to performance, and that job resources (i.e., job autonomy) positively relate to engagement, which, in turn, positively relates to performance. Job demands and resources are expected to respectively moderate the aforementioned relationships with a buffering effect. To test these hypotheses, we conducted three studies, described below.

Study 1

Firstly, a cross-sectional study with entrepreneurs from start-up accelerators programs ($N =$ 72) tested the mediating effect of burnout on performance and the moderating effect of job

31

resources using PROCESS plugin (Version 2.16.3; Hayes, 2018). The hypothesis of this study was that burnout (i.e., exhaustion and cynicism) mediate the relation of job demands (i.e., role overload) on performance (i.e., in-role behavior and intention to quit) and that job resources (i.e., autonomy) moderate the relation of job demands (role overload) on burnout (moderated mediation);

Study 2

Secondly, a longitudinal study with entrepreneurs from the Quebec's Enterprise Register ($N = 719^{T1}$ and $N = 205^{T2}$) evaluated the effect of job demands and resources and its interaction on burnout and engagement using structural equation modeling (SEM). The hypothesis of this study was that job demands (i.e., role ambiguity and conflict) relate positively to burnout (i.e., exhaustion, cynicism and professional efficacy) and negatively to engagement (i.e., vigor, dedication and absorption), whereas job resources (i.e., adaptivity and proactivity) relate negatively to burnout (i.e., exhaustion, cynicism and professional efficacy) and positively to engagement (i.e., vigor, dedication and absorption). Job demands and resources were expected to buffer each relationship respectively.

Study 3

Finally, a cross-sectional study compared entrepreneurs (N=719) with employees (N=329). The hypothesis of this study was that entrepreneurs are less affected by job demands (i.e., role ambiguity and conflict) than employees in relation to burnout (i.e., exhaustion, cynicism and professional efficacy). They are also less influence by job resources (i.e., adaptivity and proactivity) than employees in relation to engagement (i.e., vigor, dedication and absorption).

Study 1

The goal of Study 1 was to determine if the fundamental processes proposed by the JD-R are applicable to entrepreneurs. The first process refers to the mediating effect of burnout and engagement, which can be described as part of the motivational and health impairment process. The second process refers to the interaction between job demands and resources, which can be described as the buffering effect of job resources on demands. This study used a cross-sectional design to test the hypotheses. We used the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2010) to measure burnout and engagement as opposite endpoints of the same dimension. Consequently, the terms "burnout" and "engagement" can be used interchangeably by modifying the mathematical sign of the measured variable. This conceptualization rather than the MBI-GS (Schaufeli et al., 1996) was used in order to simplify measurement and because of the small sample size.

To determine the mediating effect of burnout/engagement on the relationship between job demands (i.e., role overload) and performance (i.e., in-role behaviors and intention to quit) we conducted a mediation analysis. To consider the interaction between job demands and resources and its impact on burnout, we conducted a moderation analysis. We finally conducted a combined moderated mediation analysis to test the common model.

Both in-role behaviors and intention to quit were used as measurement of performance. These indicators of performance were selected in order to determine if burnout and engagement were predictors of in-role behavior benefiting the organization. Study 1 served as the foundation for future related studies, and aimed to validate whether both hypotheses described above and assumptions related to the JD-R model (see Figure 1) were also applicable to entrepreneurs.

Hypothesis

H11a : Role overload relates positively to burnout/negatively to engagement.

H1b : Autonomy relate negatively to burnout/positively to engagement.

H1c : Burnout/engagement mediates the relation of role overload on performance.

Figure 2. The hypothesized moderated mediation analysis on performance
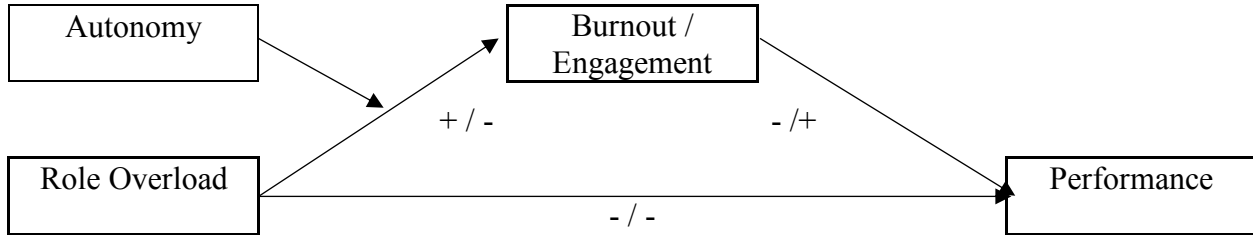
H1d : Burnout/engagement mediates the relation of role overload on intention to quit.

Figure 3. The hypothesized moderated mediation analysis on intention to quit
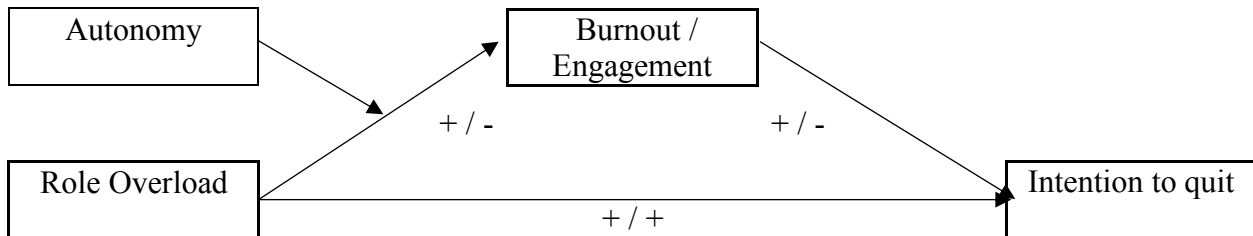
H1e : Autonomy moderates the relationship between role overload and burnout/engagement.

Method

Participants

Participants were comprised of French-speaking entrepreneurs ($N = 72$) and were recruited through a start-up accelerator program for college and university students (i.e., a cohort-based programs, that include mentorship and educational components and culminate in the creation and management of a business in the field of home renovation services). This inexperienced sample represents a sub-group of entrepreneurs. More specifically, entrepreneurs

in the process of starting a new business. The majority of participants were men (51.39 %). Participants had a mean age of 23.38 (*SD* = 2.72). Inclusion criteria were unexperienced French-speaking participants of at least 18 years old that never had started or manage a business before.

Procedure

Participants were sent an online survey on Qualtrics during June 2017. The responses received were confidential and anonymous and no incentive was given in exchange for participation.

Measures

Measures were administered in French. Properties (means, standard deviations, internal consistency, and correlations) of the measures are presented in the result section (Table 1).

***Demands*:** Role overload was assessed with the Michigan Organizational Assessment Questionnaire (MOAQ; Bowling & Hammond, 2008; Cammann et al., 1983). The scale contains four items such as *"I never seem to have enough time to get everything done/Je ne semble jamais avoir assez de temps pour tout faire"*. Items were scored on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Internal consistency (α = .84) is provided from a meta-analysis evaluating reliability across samples for the entire questionnaire (Bowling & Hammond, 2008). The internal consistency in this study was satisfactory (α = .74).

***Resources*:** Autonomy was assessed with the Work Design Questionnaire (WDQ; Morgeson & Humphrey, 2006) validated in French (Bigot et al., 2014) by combining the three sub-scales. Sample items are : work scheduling autonomy (e.g., *"The job allows me to make my own decisions about how to schedule my work/Ce travail me permet de m'organiser comme je le souhaite"*; 3 items; α = .71), decision-making autonomy (e.g., *"The job allows me to make a lot of decisions on my own/Ce travail me permet de prendre de nombreuses décisions par moi-*

même"; 3 items; α = .89), and work methods autonomy (e.g., *"The job gives me considerable opportunity for independence and freedom in how I do the work/Ce travail m'offre d'importantes possibilités d'indépendance et de liberté dans la réalisation de mes tâches professionnelles"*; 3 items; α = .85). Items were scored on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Burnout and Work Engagement: Both constructs were assessed with the Oldenburg Burnout Inventory (OLBI; Demerouti et al., 2003; Demerouti et al., 2010). Total scores of exhaustion and cynicism were combined to evaluate burnout while the reversed scoring evaluate work engagement through vigor and dedication. Eight items were positively worded and eight negatively. Sample items are: exhaustion (e.g., *"There are days when I feel tired before I arrive at work/Il y a des jours où je me sens fatigué avant d'arriver au travail";* 8 items; α = .73), disengagement (e.g., *"It happens more and more often that I talk about my work in a negative way/Il arrive de plus en plus souvent que je parle de mon travail de manière négative";* 8 items; α = .83). Items were scored on a four-point scale ranging from 1 (strongly disagree) to 4 (strongly agree). This measurement allows to assess burnout and work engagement simultaneously by reversing scores. Thus, it can be used interchangeably by positively or negatively modify the sign of related relationships.

Performance: The in-role behaviors (IRB) subscale of Williams and Andersons' (1991) scale was adapted and used to evaluate in-role performance: behaviors that directly benefit the organization. The subscale was adapted to better reflect the entrepreneur's perception of performance specific to his role. Modifications were minimal and mainly to modify or convert employment related terms to entrepreneurship. Sample item is: (e.g., *"Adequately completes necessary duties/Je complète adéquatement les tâches que je dois effectuer"*; 7 items; α = .91).

Items were scored on a seven-point scale ranging from 1 (strongly disagree) to 7 (strongly agree).

Intention to quit: The turnover intention scale from Bothma and Roodt (2013) measured the intention to leave or stay and was adapted to better reflect the entrepreneur's intention to leave, sell or close his business. Sample item is: (e.g., *"How often have you considered leaving your business owner's role?/Combien de fois avez-vous envisagé de quitter votre rôle de propriétaire d'entreprise? "*; 6 items; α = .80). Items were scored on a seven-point scale ranging from 1 (never/very satisfying/highly unlikely) to 7 (always/totally dissatisfying/highly likely).

Results

First, preliminary data analysis was performed to obtain descriptive statistics and the correlation matrix (Table 1). Burnout/engagement was divided in Table 1 for ease of reading, but is the same variable just in opposite direction.

Table 1. Means, standard deviations, internal consistency and inter-correlations

N = 72	M	SD	1	2	3	4	5	6	7	8
1. Role Overload	4.04	1.22	*.70*							
2. Autonomy	5.76	1.25	-.22	*.90*						
3. Burnout	2.37	.41	.62**	-.48**	*.76*					
4. Engagement	-2.63	.41	-.62**	.48**	-1.00**	*.76*				
5. Performance	5.58	1.03	-.28*	.44**	-.37**	.37**	*.86*			
6. Intention to quit	4.01	1.71	.49**	-.59**	.69**	-.69**	-.44**	*.81*		
7. Gender	1.49	.50	.02	.13	.02	-.02	.14	.04	-	
8. Age[a]	23.38	2.72	.05	.13	.03	-.03	.21	-.02	.18	-

Note. Cronbach's alphas are shown on the diagonals in italics.
Correlation significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] 1 = male, 2 = female.

Given the theoretical background, a moderated mediation analysis was undertaken. However, before proceeding with the creation of the model and the analysis, assumptions underlying the moderation and mediation analysis were tested. To confirm the independence of

the predictor variables, an examination of the correlation matrix confirmed the absence of excessively high correlations between the predictors (i.e., $r > .80$; Field, 2003). In addition, tests to assess residual dispersion reveals 12 outliers with a Cook's distance greater than .5, which were removed (Cook, 1977). Finally, the assumptions of normality (i.e., skewness between -2 and 2 and kurtosis between -7 and 7; Bryne, 2010; Kline, 2010; George & Mallery, 2019; Hair et al., 1998), homoscedasticity and independence of the residuals were verified using scatter plots (Pallant, 2016). Thus, standard assumptions of general linear model (i.e., linearity, normality, homogeneity of error variance, and independence of errors) were tested and revealed no abnormalities.

The sample size was too small to use one inclusive model (Kline, 2011), therefore we tested the moderated mediation hypotheses (Table 2) using the PROCESS plugin (Version 2.16.3, Hayes, 2018) in SPSS version 28. PROCESS includes non-parametric bootstrapping analyses developed by Preacher and Hayes (2008). The bootstrapping procedure is superior to traditional techniques for testing mediation such as the Casual steps approach by Baron and Kenny (1986) in terms of power, multivariate non-normality, and testing multiple mediators (MacKinnon et al., 2002; Preacher & Hayes, 2008). The bootstrapping technique allows for the estimation of direct and indirect effects in tested models. In addition, contrasts between indirect effects are calculated. For this purpose, we used the SPSS macros described above by Hayes (2018), with 5000 bootstraps resamples and 95% bias-corrected confidence intervals (CI). There is evidence of mediation, or a specific, unique indirect effect, when zero is not included in the 95% CI. We also examined contrasts for significant specific indirect effects using bias-corrected intervals. When zero is not included in the 95% CI, there is evidence of different magnitudes of

the unique mediating effects. We used the same procedure to evaluate the moderation. We

calculated effect sizes for the bivariate correlation and for the moderated mediation models.

Table 2 and Figure 4 show the results of the mediation analyses. In the two models, role

overload was entered as the independent variable, burnout/engagement as the mediator,

autonomy as the moderator and, both, performance (IRB) and intention to quit were entered as

the dependent variable. Analyses of both models show no significant direct effects of role

overload on performance ($b = -.07$, $SE = .13$, $p = .60$) and intention to quit ($b = .10$, $SE = .11$, $p = .39$). However, indirect effects show a significant mediation of burnout on both performance and

turnover intention. These results support hypothesis H1a, H1b, H1c and H1d. However,

autonomy did not moderate the relation between role overload and burnout, refuting hypothesis

H1e.

Table 2. The mediating effect of burnout/engagement on the relation of role overload on performance and intention to quit, moderated by autonomy

Model	Effect	*SE*	*Z*	*p*	Bias-corrected *CI*s	
					Lower	Upper
$F(3,68) = 23.48^{***}$; $R = .71$; $R^2 = .51$						
Role overload on burnout/engagement[X-M]	.55/-.55	.09	6.07 / -6.07	<.001	.372 / -.737	.737/ -.372
Autonomy on burnout /engagement [W-M]	-.34/.34	.08	-4.19 / 4.19	<.001	-.503 / .178	-.178 / .503
Interaction[XW-M]	.02/-.02	.10	.23 / -.23	.820	-.224 / -.177	.177 / .224
$F(2,69) = 5.79^{**}$; $R = .38$; $R^2 = .14$						
Burnout/engagement on performance[M-Y]	-.31/.31	.13	-2.32 / 2.32	.023	-.567 / .043	-.043 / .567
Direct effect[X-Y]	-.07	.13	-.53	.601	-.339	.197

Conditional indirect effect	-.17	.09			-.377	-.016
Index of moderated mediation	-.01	.03			-.048	.106

$F_{(2,69)} = 32.85^{***}$; $R = .70$; $R^2 = .49$

Burnout/engagement on intention to quit[M-Y]	.64/-.64	.11	5.81 / -5.81	<.001	.418 / -.855	.855 / -.418
Direct effect[X-Y]	.10	.11	.868	.389	-.126	.321
Conditional indirect effect	.35	.08			.206	.540
Index of moderated mediation	-.01	.06			-.147	.104

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Values related to engagement are presented after the slash symbol (/).

Figure 4. Regression models predicting performance and intention to quit from role overload mediated by burnout/engagement and moderated by autonomy.
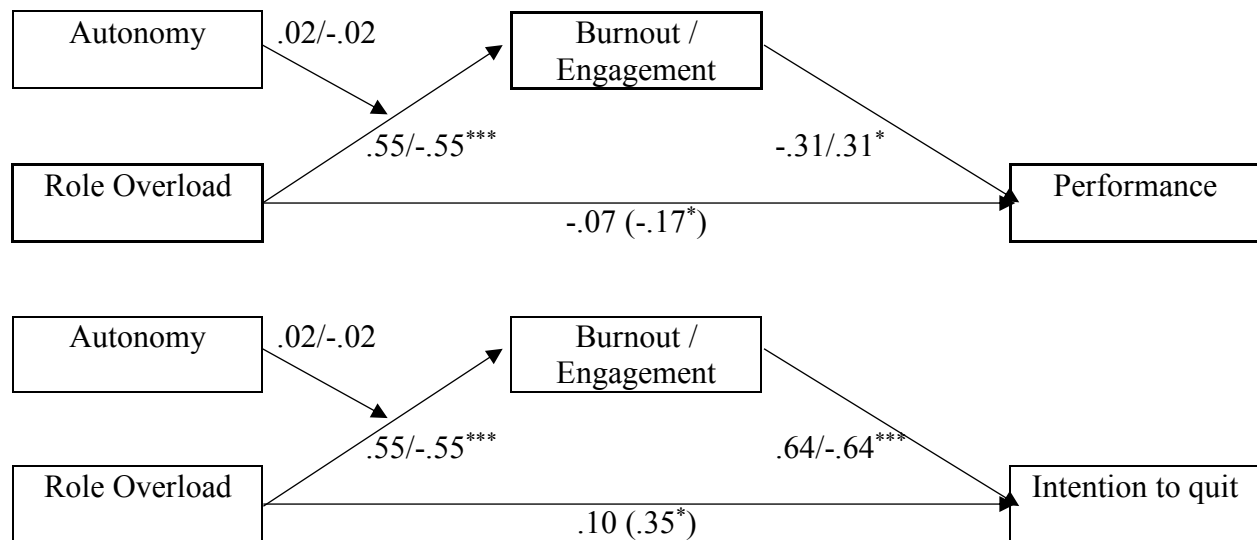
The direct effects are outside parentheses. Results after the slash sign are related to

engagement. The indirect effects are inside parentheses

Brief Discussion of Study 1

The goal of Study 1 was to determine if the processes proposed by the JD-R were applicable to entrepreneurs in the start-up process. The results support our hypotheses that role overload as a demand and autonomy as a job resource directly relates to burnout/engagement. These findings support both the motivational and health impairment process supported by the JD-R model. Moreover, the effect of job demands and resources on burnout/engagement is quite comparable to what was previously found with employees (e.g., Montani & Dagenais-Desmarais, 2018).

Results also support our hypotheses that job demands and resources (i.e., role overload and autonomy) relates to performance and intention to quit, through the mediation of burnout and engagement. These findings suggested that even if there is no significant direct relation between job demands and performance (i.e., in-role and intention to quit), job demands can indirectly influence performance.

Finally, no significant interaction was found between job demands and resources, thus not supporting the buffering effect of job resources on demands. However, job demands (i.e., role overload) and job resources (i.e., autonomy) had two main significant effects on burnout/engagement, which means that both are relevant, but independent from each other. A possible explanation for no interaction is the lack of synergy between the selected job demand and resource. Based on the JD-R literature, the buffering effect of job resource is supposed to alleviate the negative impact of the job demands. However, under demanding work conditions such as role overload, it is possible that autonomy is not sufficient to decrease the physical and mental pressure. Moreover, even if the entrepreneur is autonomous in the way his work is structured and realized, it still does not help to reduce the amount of work need to supplant the

41

overload. In addition, high scores in autonomy suggest that entrepreneurs have a lot of that job resource. If the amount of autonomy is constant over time, it can even be perceived as part of the role. Since being an entrepreneur comes with a great deal of autonomy, maybe this specific job resource is not able to buffer challenging job demands and is perceived as inherent to the role rather than an additional job resource useful for coping with job demands.

Altogether, Study 1 allows us to conclude the following: job demands (i.e., role overload) and resources (i.e., autonomy), both, relate to expected outcomes as described in the JD-R model literature. Study 1 further suggests that the JD-R also applies to entrepreneurs. However, given the small sample size and the cross-sectional nature of this study, it is difficult to draw clear conclusions from these findings. In light of these, Study 2 build upon Study 1 and address the aforementioned limitations by creating a more comprehensive model using Structural Equation Modeling (SEM). Also, considering that the selected job demands (i.e., role overload) and resources (i.e., autonomy) from Study 1 did not yield any interaction, the emphasis of Study 2 will be on the buffering effect of new more appropriate job demands and resources.

Study 2

The goal of Study 2 was to test whether the JD-R model applies well to the field of entrepreneurship using a more comprehensive statistical design than Study 1. This study tests each assumption from the JD-R (i.e., motivational, health impairment and buffering effect) using structural equation modeling (SEM). SEM is a multivariate statistical analysis technique used to analyze structural relationships and allows to estimates the multiple and interrelated dependence concurrently. This statistical design was imperative for Study 2, because it allows multiple regression analysis to be computed in the same model and grant the possibility to evaluate the different processes and assumptions proposed by the JD-R model simultaneously.

42

The proposed model uses two exogenous latent factors representing job demands (i.e., role ambiguity and conflict) and resources (i.e., adaptivity and proactivity). Building upon Study 1, job demands and resources were chosen in order to create more synergies and to favor potential interactions, given the literature review. Role overload was replaced and is not directly measured because the new scale used to measure job demands (i.e., role ambiguity and role conflict) infers that role overload is indirectly part of the role conflict constructs. Role overload – the extent to which one has too much work or has work that is too difficult (Cooper et al., 2001) – is positively related to the new role conflict scale developed by Bowling et al. (2017). This latter assumption is based on the notion that role overload can be the consequence of role conflict (Kahn et al., 1964; King & King, 1990). Autonomy was also replaced by other job resources, namely adaptivity and proactivity, which are now more adapted to the entrepreneurial reality and should fluctuate more than autonomy between subjects. These antagonists set of job demands and resources favor greater potential for interaction. The endogenous outcome variables (i.e., burnout and engagement) were also changed and measured using two different multi-item scales including three sub-dimensions (i.e., exhaustion, cynicism, professional efficacy and dedication, vigor and absorption). In contrast with Study 1, burnout and engagement are measured separately with different scales in order to increase variability, to establish relationship between the two well-being variables and because some theories describe them as different and independent factors rather than two extremes of the same dimension (e.g., Demerouti et al., 2001; Demerouti et al., 2010). Since SEM require the use of latent variables exclusively and because Study 1 already demonstrated the relationship of burnout/engagement on performance and intention to quit, the focus of Study 2 is mainly on the direct effect and interaction of job demands and resources on burnout and engagement.

Moreover, this study used two time measurements in order to evaluate directionality between variable using a cross-lagged panel model (CLPM; Kearney, 2017). It evaluated if the variables of interest had an auto-regressive and/or reciprocal effect onto each other, thus establishing if measurement at T1 is impacting further measurements. Accidentally, the data collection of this study was before and after a major disruptive event affecting each and every single entrepreneur, namely the COVID-19 three months lockdown (i.e., mandatory nonessential business closing for an undetermined duration, which ended up being three months). Implications related to this crisis are accounted and addressed in the sections below.

Ultimately, Study 2 aims to test all processes postulated by the theoretical JD-R model (i.e., motivational, health impairment and buffering effect) and establish if directionality between variables can be inferred. Using a comprehensive SEM, it aims to simultaneously verify if each hypothesis tested with employees in the JD-R literature are also valid for entrepreneurs.

Hypothesis

H2.1a : Job demands relate positively to burnout and negatively to engagement.

H2.1b : Job resources relate negatively to burnout and positively to engagement.

H2.1c : Job demands moderate the relationship between job resource and engagement.

H2.1d : Job resources moderate the relationship between job demands and engagement.

H2.1e : Burnout and engagement negatively covary.

Figure 5. The hypothesized SEM model
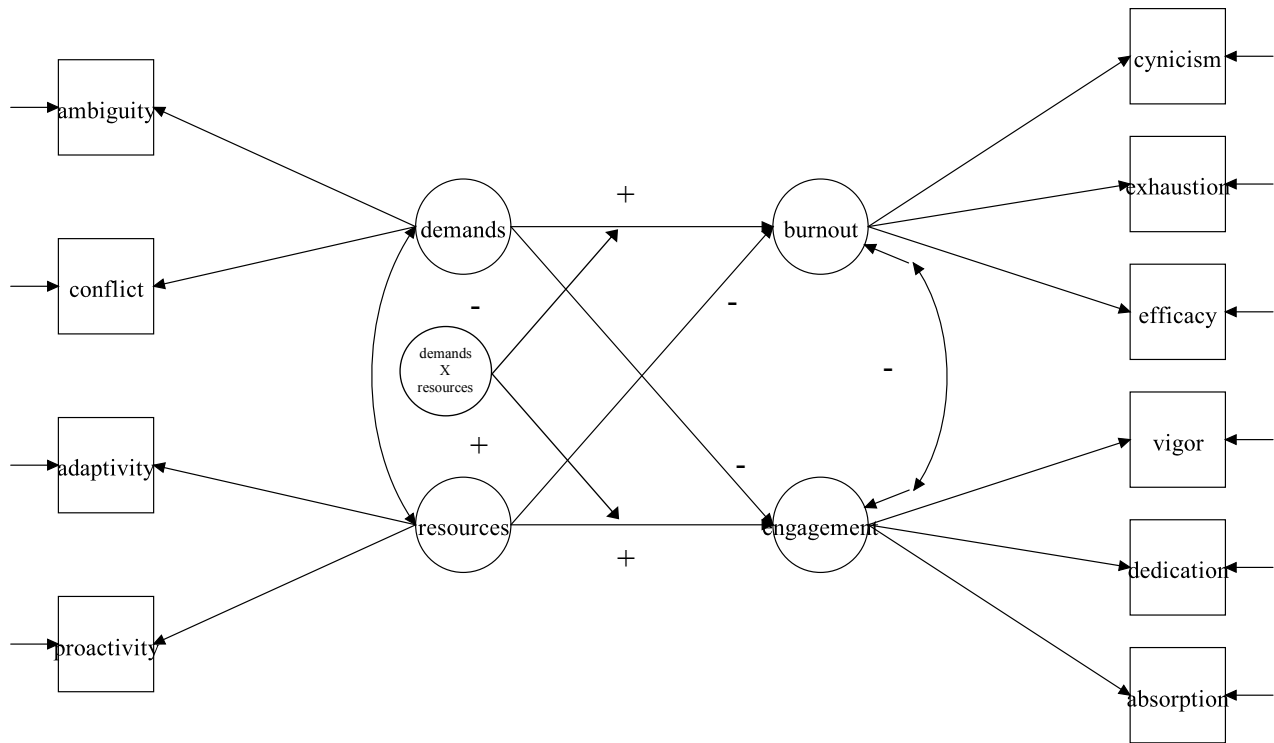
H2.2f: Job demands have a positive cross-lagged impact on burnout (Job demands at T1 positively predict burnout at T2).

H2.2g: Job demands have a negative cross-lagged impact on engagement (Job demands at T1 negatively predict engagement at T2).

H2.2h: Job resources have a positive cross-lagged impact on engagement (Job resources at T1 positively predict engagement at T2).

H2.2i: Job resources have a negative cross-lagged impact on burnout (Job resources at T1 negatively predict burnout at T2).

Figure 6. The hypothesized cross-lagged model
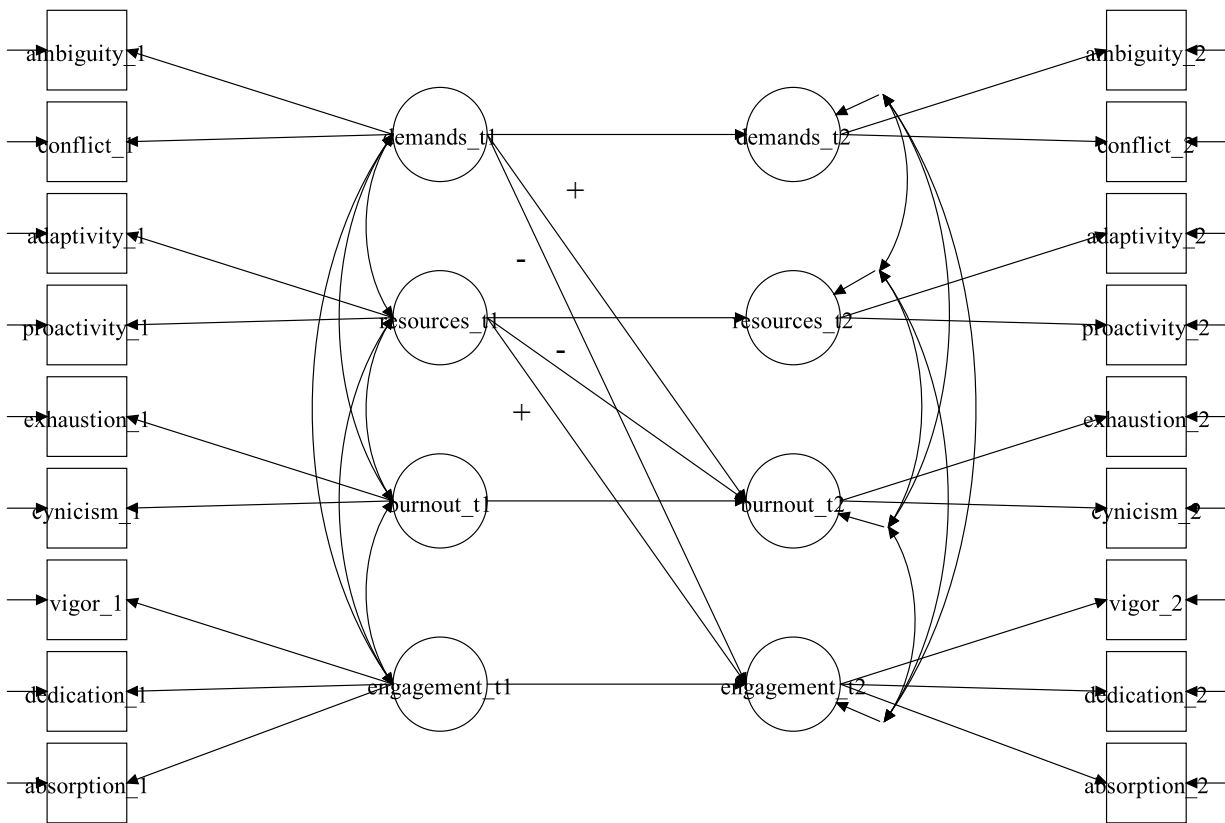
Method

Participants

Participants were comprised of entrepreneurs and were recruited through the Enterprise Register, a system of legal publicity for all enterprises operating in Quebec, regardless of their legal form. It is also a bank of public information made available to the general public. In terms of inclusion criteria, all members from this register could participate in this study. N=719 participants filled out a survey at T1, while 205 entrepreneurs filled out the T2 survey. This represents a 71.49% attrition rate among participants from T1 and T2 which was separated by a 3-months time lag (Zapf et al., 1996). The A-priori sample size power analysis using a probability level of 0.05, statistical power of 0.80 and anticipated effect size of 0.5 suggested a

minimum sample size of 388 at T1 for the replication of the JD-R model and 100 at T2 to conduct the cross-lagged panel model (Cohen, 1988; Westland, 2010). The majority of participants were men 88.00 %[T1] and 84.00%[T2]. Participants had a mean age of 48.22[T1] and 47.80[T2] ($SD = 10.52$[T1] and 10.19[T2]), worked an average per week of 49.90[T1] and 42.46[T2] ($SD = 11.64$[T1] and 15.21[T2]) hours during the last four weeks and their business had, on average, been in existence for 12.82[T1] and 13.49[T2] ($SD = 9.85$[T1] and 10.25[T2]) years.

Procedure

In mid-March 2020, the province of Quebec was put under partial lockdown until mid-May in order to prevent the COVID-19 virus from spreading. All non-essential businesses, including construction sites, had to close during that period. Participants were sent two online surveys, one before and one after this major disruptive event. The confidentiality and anonymity of their responses were emphasized and no incentive was given in exchange for participation.

Measures

Measures were administered in French. Properties (means, standard deviations, internal consistency, and correlations) of the measures at T1 and T2 are presented in the result section (Pre-CFA:Table 3 and 4; Post-CFA: Table 6 and 7).

***Demands*:** Two job demands were included in the questionnaire. Role ambiguity and role conflict were assessed with the French-Canadian version (Trépanier & Pitsikoulis, submitted) of Bowling et al. (2017) scales. Sample items are: role ambiguity (e.g., *"I am not sure what is expected of me at work/Je ne suis pas certain de ce que l'on attend de moi au travail"*; 6 items; α = . 87) and role conflict (e.g., *" In my job, I often feel like different people are pulling me in different directions/Au travail, j'ai souvent l'impression que différentes personnes me demandent des choses contradictoires"*; 6 items; α = .77). Items were scored on a seven-point scale ranging

from 1 (strongly disagree) to 7 (strongly agree).

Resources: Job resources were assessed with a French translation and adaptation of the Work Performance Inventory (Griffin et al., 2007). Initially, the Inventory measures work behaviors that contribute to effectiveness at the individual level, but was adapted to reflect job resources, namely adaptivity (i.e., cope with changes the organization is going through) and proactivity (i.e., self-starting, future-oriented behavior to improve work situations). Sample items are: adaptivity (e.g., *" Coped well with changes to the way you have to do your core tasks/Accepté les changements dans la façon dont vous devez accomplir vos tâches"*; 3 items; α = .93) and proactivity (e.g., *"Come up with ideas to improve the way in which your core tasks are done /Réfléchis à des idées pour améliorer la manière dont vos tâches sont effectuées"*; 3 items; α = .94). Items were scored on a seven-point scale ranging from 1 (very little) to 7 (a great deal).

Burnout: The construct was assessed with the French-Canadian version (Papineau et al., 2005) of Maslach Burnout Inventory General Survey (MBI-GS; Maslach & Jackson, 1986). The MBI-GS includes three sub-scales: exhaustion (e.g., *"I feel used up at the end of a work day/Je me sens épuisé(e) à la fin de ma journée de travail";* 5 items; α = .90); cynicism (e.g., *"I doubt the significance of my work/ Je doute du sens de mon travail/Je peux solutionner efficacement les problèmes qui surviennent dans mon travail";* 5 reversed-items; α = .79) and professional efficacy (e.g., "*I can effectively solve the problems that arise in my work/Je peux solutionner efficacement les problèmes qui surviennent dans mon travail*"; reverse scoring; 6 items; α = .71). Items were scored on a seven-point scale ranging from 1 (never) to 7 (every day).

Work Engagement: The construct was assessed with the French-Canadian version (Zecca et al., 2015) of the Utrech Work Engagement Scale (UWES; Schaufeli et al., 2006). Sample items are: vigor (e.g., " *At my work, I feel bursting with energy/Je déborde d'énergie pour mon travail";* 3

items; α = .84), dedication (e.g., "*I am enthusiastic about my job/ Je suis passionné par mon travail";* 3 items; α = .89) and absorption (e.g., "*I feel happy when I am working intensely/Je suis content lorsque je suis captivé par mon travail";* 3 items; α = .79). Items were scored on a seven-point scale ranging from 1 (never) to 7 (every day).

Results

The result section is structured in four sections. The first section is about the confirmatory factor analysis (CFA) made prior the main analysis. The second section is about structural equation modeling (SEM) and each fit indices used in the main analysis. The third section is about the interaction approaches and methods used in SEM. The last section is divided in two: the main analyses for Study 2.1 and the main analysis for Study 2.2. Study 2.1 test all processes postulated by the theoretical JD-R model (i.e., *H2.2a* to *H2.2e*) and Study 2.2 establish if directionality between variables can be inferred (i.e., *H2.2f* to *H2.2i*).

Confirmatory Factor Analysis (CFA)

Pre-confirmatory factor analysis (CFA) data analysis was performed to obtain descriptive statistics and the correlation matrix (Table 3 and 4). Pre-CFA descriptive statistics reveal unsatisfactory internal consistency for exhaustion at T1 and for proactivity and exhaustion at T2. Except workload, socio-demographic and control variables such as sex, age and experience does not greatly correlate with the other variable of interest. Most of the significant correlations at T1 are comparable at T2 with some exceptions.

Table 3. Pre-CFA: Means, standard deviations, internal consistency and inter-correlations

T1 N = 719	M	SD	γ1	γ2	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Ambiguity	1.93	1.06	1.23	1.24	(.74)													
2.Conflict	3.12	1.36	.20	-.73	.37**	(.77)												
3.Adaptativity	6.15	.91	-1.25	1.99	-.13**	-.04	(.87)											
4.Proactivity	6.05	1.04	-1.41	2.70	-.10**	-.01	.76**	(.71)										
5.Exhaustion	2.93	1.30	.66	-0.31	.12**	.17**	-.14**	-.18**	(.68)									
6.Cynicism	2.14	1.04	1.03	.73	.15**	.12**	-.19**	-.21**	.48**	(.86)								
7.Prof. efficacy	1.58	.69	1.93	5.86	.23**	.08*	-.36**	-.30**	.16**	.31**	(.90)							
8.Vigor	6.12	1.00	-1.58	2.69	-.13**	-.10**	.30**	.28**	-.41**	-.50**	-.49**	(.86)						
9.Dedication	6.40	.90	-1.93	3.93	-.14**	-.07	.36**	.31**	-.35**	-.53**	-.54**	.78**	(.82)					
10.Absorption	6.25	.98	-1.86	3.77	-.15**	-.02	.34**	.32**	-.18**	-.35**	-.48**	.63**	.67**	(.91)				
11.Sex[a]	1.22	.42	1.34	-.21	-.07	-.11**	.05	.04	.04	-1.02	-.00	-.01	-.06	.01	-			
12.Age	48.22	10.52	.02	-.73	-.01	-.05	.07	.08*	-.16**	-.01	-.01	.13**	.13**	.08*	-.11**	-		
13.Workload[b]	49.90	11.64	.49	.25	-.07	.12**	.07	.09*	.03	-.11**	-.13**	.14**	.15**	.19**	-.20**	-.17**	-	
14.Experience[c]	12.82	9.85	1.14	.18	.02	-.02	-.02	-.02	-.09*	.03	.06	.06	.03	.03	.19**	.21**	-.09*	-

Note. Cronbach's alphas are shown on the diagonals in italics.
Correlation significance: * *p* < .05; ** *p* < .01; *** *p* < .001
[a] 1 = male, 2 = female.
[b] Average number of hours worked per week during the last four weeks.
[c] Number of years since the company's creation.

Table 4. Pre-CFA: Means, standard deviations, internal consistency and inter-correlations

T2 N = 205	M	SD	γ1	γ2	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.Ambiguity	2.08	1.24	1.16	0.73	(.87)													
2.Conflict	3.23	1.53	.11	-.85	.54**	(.88)												
3.Adaptativity	6.01	1.09	-1.34	2.01	-.11	-.08	(.91)											
4.Proactivity	5.85	1.13	-1.26	2.44	-.06	.01	.74**	(.68)										
5.Exhaustion	2.83	1.40	0.99	.16	.24**	.27**	-.11	-.08	(.66)									
6.Cynicism	2.34	1.08	1.14	1.61	.31**	.28**	-.18*	-.12	.55**	(.87)								
7.Prof. efficacy	1.68	.65	1.10	1.24	.36**	.25**	-.26**	-.22**	.28**	.33**	(.87)							
8.Vigor	6.03	1.10	-1.66	2.67	-.43**	-.23**	.29**	.23**	-.43**	-.41**	-.49**	(.82)						
9.Dedication	6.23	1.04	-1.64	2.67	-.37**	-.23**	.28**	.22**	-.41**	-.51**	-.54**	.79**	(.88)					
10.Absorption	6.09	1.04	-1.69	3.48	-.35**	-.19**	.22**	.17*	-.22**	-.38**	-.51**	.74**	.73**	(.90)				
11.Sex[a]	1.26	.44	1.11	-.77	-.09	.02	-.05	-.00	-.01	-.02	.00	-.05	-.03	-.01	-			
12.Age	47.80	10.19	.03	-.88	.05	-.06	.02	.04	.02	.09	.07	-.13	-.06	-.09	-.16*	-		
13.Workload[b]	42.46	15.21	-.45	.81	-.07	.07	0.1	.11	.16*	-.06	-.16*	.23**	.12	.24**	-.05	.02	-	
14.Experience[c]	13.49	10.25	.99	-.29	-.02	-.07	-.04	.02	-.10	-.02	.10	-.05	-.06	-.01	.13	.25**	-.13	-

Note. Cronbach's alphas are shown on the diagonals in italics.

Correlation significance: * $p < .05$; ** $p < .01$; *** $p < .001$

[a] 1 = male, 2 = female.

[b] Average number of hours worked per week during the last four weeks.

[c] Number of years since the company's creation.

Prior to model construction, confirmatory factor analysis (CFA) was used to verify the measurement quality of the latent constructs. Latent constructs or factors are variables that cannot directly be measured. It is measured by a set of observable variables or indicators that are weighted based on their variance/covariance structure. Latent construct cannot be computed using the average of its indicators, because they influences the strength of the latent construct unequally. In addition, even if most of the scales used in the questionnaire had already been validated in English and French, the job demands and resource scales, both, needed validation after translation and adaptations.

Factor loadings of the indicators were calculated for each individual sub-scale (i.e., role ambiguity, role conflict, adaptivity, proactivity, exhaustion, cynicism, professional efficiency, vigor, dedication, absorption). Those sub-scales refer to the latent constructs of the CFA, but are sub-dimensions of the latent variables used in the main SEM model (i.e., job demands and resources, burnout, engagement). The standardized factor loading squared is the estimate of the amount of the variance of the indicator that is accounted for by the latent construct. There is no clear consensus around the cut-off point of standardized factor loading. However, many authors theorized about the optimal threshold to respect. For simple interpretative purposes, Stevens (1992) suggests using a cut-off of 0.40, irrespective of sample size. However, Field (2013) advocates the suggestion of Guadagnoli & Velicer (1988) to regard a factor as reliable if it has four or more loadings of at least 0.60 regardless of sample size. On the other hand, MacCallum et al. (1999, 2001) advocate that all items in a factor model should have communalities of over 0.60 or an average communality of 0.70 to justify performing a factor analysis with small sample sizes. Finally, when the items have different frequency distributions, other authors suggested using more stringent cut-offs going from poor (0.32), fair (0.45), good (0.55), very good (0.63)

or excellent (0.71) (Comrey & Lee, 1992; Tabachnick & Fidell, 2007). Altogether, considering that certain factors have fewer than four indicators and because the sample size from T2 is rather small, the cut-off value chosen was 0.70. Removing the indicators with low factor loadings helps improve the model fit. Comparison of the fit indices between the initial and revised measurement models are presented in Table 5 and the standardized factor loadings and covariance are described in Figure 7 and 8. The figures show that professional efficacy had to be completely removed and that certain individual items for each factors also had to be removed. Due to the translation and adaptation of certain scales, this was greatly needed in order to ensure measurement quality of the latent constructs.

Creating this CFA measurement model was needed in order to check convergent validity of the constructs. Convergent validity translate into high indicator loadings, which shows theoretical strength and similarity between indicators. It also permitted to check discriminant validity, which exists when constructs are not highly correlated (greatest correlation reported being .87 between adaptivity and proactivity). Professional efficacy was removed from the model because of five out of six factor loadings under the recommended threshold.

Table 5. Confirmatory Factor Analysis (CFA): Fit indices of the initial and final measurement model ($N = 719$)

	χ^2	Df	RMSEA	C.I.	p	RMSR	CFI	TLI
Initial	3366.68***	815	.066	.064/.068	<.001	.076	.850	.833
Revised	524.74***	216	.045	.040/.049	.967	.034	.974	.966

Note. χ^2 = Chi Square; Df = Degree of freedom; RMSEA = Root Mean Square Error of Approximation; C.I. = Confidence interval; RMSR = Standardized Root Mean Square Residuals; CFI = Comparative Fit Index; TLI = Tucker-Lewis index
* $p < .05$; ** $p < .01$; *** $p < .001$.

Figure 7. Confirmatory Factor Analysis: Initial measurement model
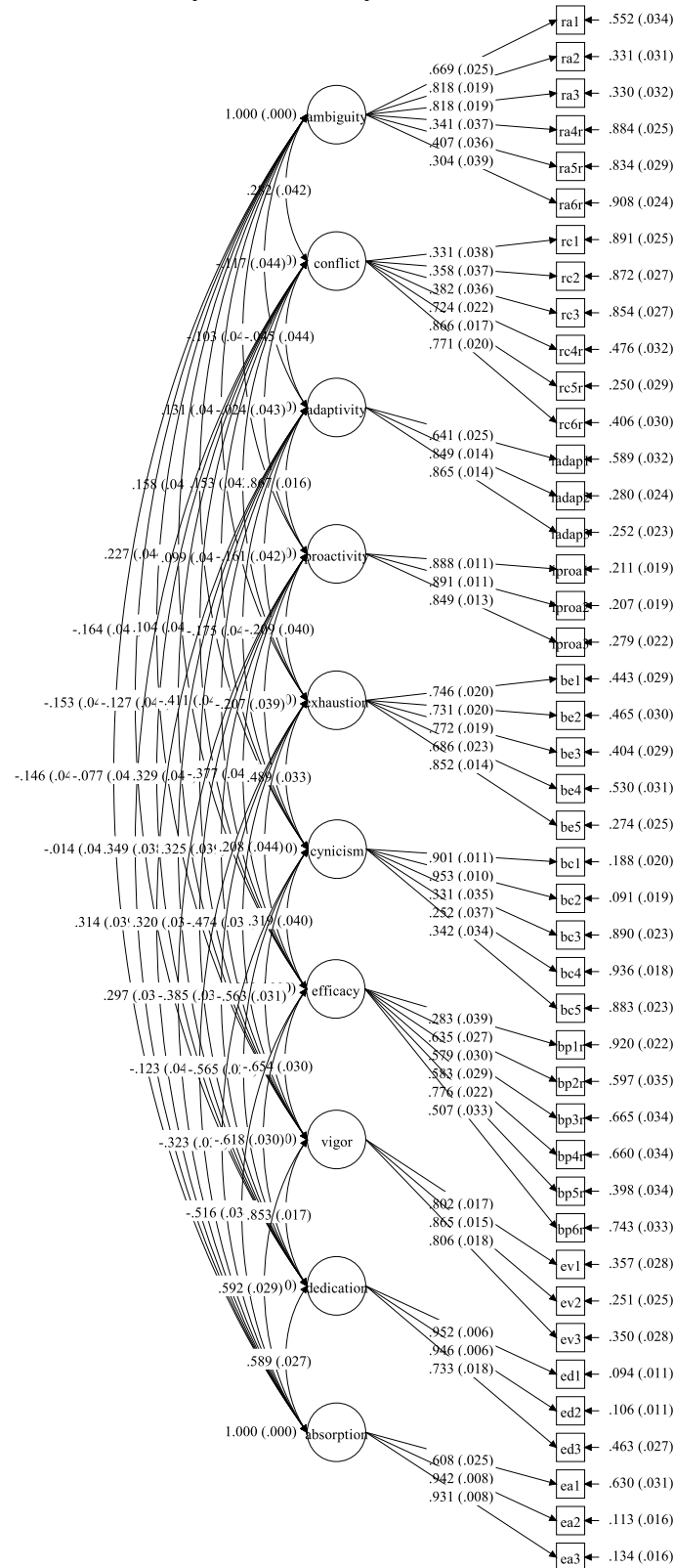
Note. ra=role ambiguity, rc=role conflict, iadapt=adaptivity, iproa=proactivity, be=exhaustion, bc=cynicism, bp=professional efficacy, ev=vigor, ed=dedication, va=absorption.

Figure 8. Confirmatory Factor Analysis: Revised measurement model
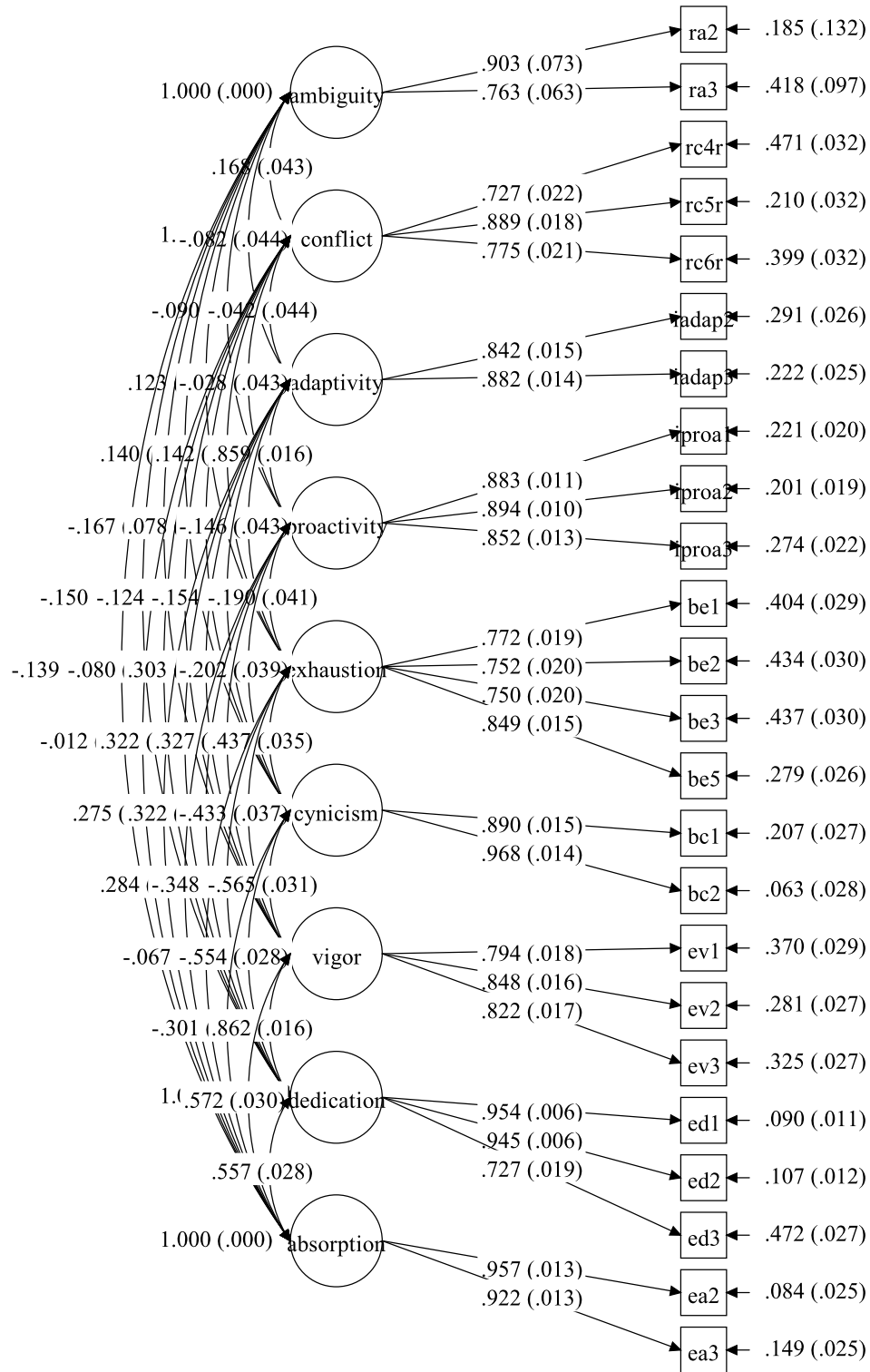
Note. ra=role ambiguity, rc=role conflict, iadapt=adaptivity, iproa=proactivity, be=exhaustion, bc=cynicism, bp=professional efficacy, ev=vigor, ed=dedication, va=absorption.

55

Before proceeding with the Structural Equation Modeling (SEM) analysis, preliminary analyses were performed. An examination of the correlation matrix post-CFA (see Table 6 and 7) confirmed the absence of excessively high correlations between the predictors (i.e., $r > .80$; Field, 2013). Finally, the assumptions of normality (i.e., skewness between -2 and 2 and kurtosis between -7 and 7; Bryne, 2010; Kline, 2010; George & Mallery, 2019; Hair et al., 1998), homoscedasticity, outliers and independence of the residuals were verified using scatter plots (Pallant, 2016). Thus, standard assumptions of SEM (i.e., linearity, normality, homogeneity of error variance, and independence of errors) were tested and revealed no abnormalities. Descriptive statistics and the correlation matrix post-CFA are presented in Table 6 and 7.

Table 6. Post-CFA: Means, standard deviations, internal consistency and inter-correlations

T1 N = 719	M	SD	γ1	γ2	1	2	3	4	5	6	7	8	9	10	11	12	13
1.Ambiguity	1.79	1.33	1.93	3.37	(.81)												
2.Conflict	3.27	1.75	.34	-.77	.14**	(.84)											
3.Adaptativity	6.04	1.07	-1.41	2.62	-.07	-.04	(.86)										
4.Proactivity	6.05	1.04	-1.41	2.70	-.08*	-.02	.75**	(.93)									
5.Vigor	3.15	1.40	.56	-.55	.10*	.13**	-.13**	-.17**	(.86)								
6.Dedication	2.32	1.62	1.30	.78	.12**	.07	-.13**	-.17**	.40**	(.90)							
7.Absorption	6.12	1.00	-1.58	2.7	-.14**	-.11**	.25**	.28**	-.37**	-.50**	(.94)						
8.Exhaustion	6.40	0.90	-1.93	3.93	-.14**	-.08*	.31**	.31**	-.31**	-.52**	.78**	(.85)					
9.Cynicism	6.18	1.14	-2.01	4.64	-.12**	-.01	.24**	.26**	-.06	-.28**	.52**	.55**	(.91)				
10.Sexe[a]	1.22	.42	1.34	-0.21	-.11**	-.07	.04	.04	.05	-.01	-.01	-.06	.03	-			
11.Age	48.22	10.52	.02	-.73	.04	-.13**	.09*	.08*	-.19**	.05	.13**	.13**	.05	-.11**	-		
12.Workload[b]	49.90	11.64	.49	.25	-.06	.08*	.05	.09*	.06	-.10*	.14**	.15**	.20**	-.20**	-.17**	-	
13.Experience[c]	12.82	9.85	1.14	.18	-.01	-.03	-.02	-.02	-.10**	.04	.06	.03	.03	.19**	.21**	-.09*	-

Note. Cronbach's alphas are shown on the diagonals in italics.
Correlation significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] 1 = male, 2 = female.
[b] Average number of hours worked per week during the last four weeks.
[c] Number of years since the company's creation.

Table 7. Post-CFA: Means, standard deviations, internal consistency and inter-correlations

T2	M	SD	$\gamma1$	$\gamma2$	1	2	3	4	5	6	7	8	9	10	11	12	13
$N = 205$																	
1.Ambiguity	2.06	1.48	1.20	.33	(.77)												
2.Conflict	3.22	1.73	.20	-.97	.46**	(.83)											
3.Adaptativity	5.92	1.21	-1.38	2.17	-.09	-.15*	(.86)										
4.Proactivity	5.85	1.13	-1.26	2.44	-.07	-.04	.77**	(.94)									
5.Vigor	3.01	1.49	.87	-.15	.25**	.18**	-.10	-.07	(.87)								
6.Dedication	2.50	1.63	1.16	.47	.35**	.21**	-.11	-.08	.50**	(.91)							
7.Absorption	1.68	.65	1.10	1.24	.36**	.24**	-.24**	-.22**	.25**	.30**	(.94)						
8.Exhaustion	6.03	1.10	-1.66	2.67	-.40**	-.18*	.27**	.23**	-.38**	-.48**	-.49**	(.85)					
9.Cynicism	6.23	1.04	-1.64	2.67	-.36**	-.18*	.25**	.22**	-.38**	-.55**	-.54**	.79**	(.81)				
10.Sexe[a]	1.26	.44	1.11	-.77	-.09	-.01	-.04	-.00	-.00	.00	.00	-.05	-.03	-			
11.Age	47.80	10.19	.03	-.88	.09	-.04	.03	.04	.01	.11	.07	-.13	-.06	-.16*	-		
12.Workload[b]	42.46	15.21	-.45	.81	-.07	.13	.08	.11	.22**	-.06	-.16*	.23**	.12	-.05	.02	-	
13.Experience[c]	13.49	10.25	.99	-.29	.05	-.05	-.03	.02	-.11	.06	0.10	-.05	-.06	.13	.25**	-.13	-

Note. Cronbach's alphas are shown on the diagonals in italics.
Correlation significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] 1 = male, 2 = female.
[b] Average number of hours worked per week during the last four weeks.
[c] Number of years since the company's creation.

Structural Equation Modeling (SEM), fit indices and interaction approaches

In order to test the hypothesized model, we performed structural equation modeling (SEM) analyses using Mplus version 8 (Muthén & Muthén, 1998-2017). Two exogenous latent factors were created representing job demands (i.e., role ambiguity and conflict) and resources (i.e., adaptivity and proactivity). Burnout and engagement were indicated with multi-item scales and included as endogenous outcome variables. Finally, the latent factors of burnout and engagement were allowed to correlate and the hypothesized relationships were included in the model. The fit of the research model to the data was examined with the Chi Square (χ^2) absolute goodness-of-fit statistic, the Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residuals (SRMR) approximate goodness-of-fit indices and the comparative fit index (CFI) and Tucker–Lewis index (TLI) incremental goodness-of-fit statistic. Interaction was performed using the unconstrained and residual centering approaches. Fit indices and interaction approaches are detailed in the following sections.

Chi-Square (χ^2)

The Chi-Square (χ^2) value measures the overall model fit and evaluates the importance of the discrepancy between the sample and fitted covariance matrices (Hu & Bentler, 1999). A good model fit would provide an insignificant result at a $p > .05$ threshold (Barrett, 2007). However, this test of absolute goodness-of-fit statistic exhibits number of severe limitations (Hooper et al., 2008). The test assumes multivariate normality and severe deviations from normality can result in model rejections (McIntosh, 2007). Furthermore, the Chi-Square statistic nearly always rejects the model when large samples are used (i.e., Bentler & Bonnet, 1980). Alternatively, small samples can lack power and may not be properly discriminating (Kenny & McCoach, 2003).

Root Mean Square Error of Approximation (RMSEA)

RMSEA describes how well the model would fit the population covariance matrix (Byrne, 1998). In recent years, this indice became mandatory when reporting SEM results and one of the most informative fit indices (Diamantopoulos & Siguaw, 2000). The indice is sensitive to the number of estimated parameters in the model and favors parsimony by choosing the model with the least parameters. The closer the value to zero, the better the fit. Values lower than .06 are regarded as good fit (Hu & Bentler, 1999). The major advantage of the RMSEA is the possibility to calculate confidence intervals (MacCallum et al., 1996). In a well-fitting model, the lower limit of the confidence interval should be close to zero, while the upper limit should be less than .08.

Standardized Root Mean Square Residuals (SRMR)

SRMR is the square root of the difference between the residuals of the sample covariance matrix and the hypothesized covariance model. The standardized SRMR range from zero to 1.0 with well-fitting models having values smaller than .05 (Byrne, 1998; Diamantopoulos & Siguaw, 2000). However, SRMR will be lower when there is a high number of parameters in the model and when accounting for large sample sizes.

Comparative Fit Index (CFI) & Tucker-Lewis index (TLI)

CFI assesses the model by comparing the χ^2 value of the model to the χ^2 of the null model. However, this index is sensitive to sample size, underestimating fit for samples less than 200 (Mulaik et al., 1989; Bentler, 1990). However, the TLI, an index that prefers simpler models, rectified this problem. Still, in small samples, the value of the TLI can indicate poor fit despite other statistics pointing towards good fit (Bentler, 1990; Kline, 2010; Tabachnick & Fidell, 2007). Additionally, due to its non-normed nature, CFI and TLI values can go above 1.0 and

thus, can be harder to interpret (Byrne, 1998). For this reason, Kline (2010) recommended combining it with other fit statistics. A value of CFI and TLI ≥ 0.95 is recognized as indicative of good fit (Hu & Bentler, 1999). These two indexes are included in many SEM programs and is one of the most popularly reported fit indices (Fan et al., 1999).

Interaction Approaches in SEM

Similar to Study 1, interactions normally rely on methods like moderated regression with observed variables. These models include multiplicative terms of the interacting variables. One of the main problems with such analyses is that they suffer from low power. Control for measurement errors of explanatory variables cannot be done, and thus interaction effects are blurry and can remain undetected (Busemeyer & Jones, 1983). Latent interaction modeling can control for measurement errors because they are not directly observed, but are rather inferred from other observed variables. Altogether, the main advantage of using latent variables is the possibility to control for different kinds of random and non-random measurement errors. As a result, parameter estimates in the model are more accurate (For further details, see Bollen, 1989).

Structural equation modeling is used when the variables of interest cannot be measured with precision (e.g., human and social sciences). Self-reported and fallible measurements of a variable are reflected as a hypothetical construct (e.g., burnout) using different instruments. The latent variables, or factors, are interpreted as constructs, underlying the measured items and inducing dependence among them (Yuan & Bentler, 2007). This multivariate statistical technique is used for testing hypotheses about the influences of sets of variables on other variables. The most commonly used method for estimation and testing is the maximum likelihood (ML) based on the normal theory. Hypotheses are evaluated by modeling the mean and covariance structures of the observed variables. Overall model evaluation is accomplished

by referring the likelihood ratio (LR) statistic to a chi-square distribution (Yuan & Bentler, 2007). In order to test for interaction, specification of nonlinear constraints are needed. These constraints determine that the parameters of the measurement model of the product latent variable (i.e., loadings of the indicators and (co)variances error) are not freely estimated. They rather are expressed in terms of the parameters of the measurement models of the first-order effect variables. Constraints in detail were initially formulated by Kenny and Judd (1984) and then revisited by other authors (e.g. Algina & Moulder, 2001; Jöreskog & Yang, 1996). For this study, it implies that the parameters of the interaction latent variable (i.e., job demands X job resources) should be expressed in terms of the parameters of the measurement models of the two first-order effects latent variables, job demands and resources. However, these constraints are highly complicated to apply, because it includes a list of several complex equations that have to be introduced into the syntax of the model and could potentially lead to specification errors in the model when improperly applied. For that reason, most researchers continue to rely on traditional methods like moderated regression with observed variables. Based on Study 1, these analyses are simpler to use, but have lower power to detect interaction effect.

However, new approaches to interaction modeling, which possess the positive aspects of structural equation modeling (i.e., controlling for measurement errors and providing a model fit) have been proposed: the unconstrained approach (Marsh et al., 2004, 2007) suggests omitting most of the constraints and the residual centering approach (Little et al., 2006) uses residuals as product indicators. Marsh et al. (2004) and Little et al. (2006) both specified interaction model containing no constraints and provided evidence from Monte Carlo simulations demonstrating that both approaches were comparable with the constraints approaches described above, in terms of Type I error and parameter bias. Marsh et al., 2007 also showed that both approaches can be

algebraically integrated. Furthermore, other authors have replicated these findings (e.g.,

Steinmetz et al., 2011). Altogether, those two approaches were used and compared in Study 2 in

order to create the interaction term needed for testing the buffering effects of job demands and

resources.

Unconstrained Approach

It proposed to rely on centered indicator variables and use the products of centered

indicators as indicators of the latent product variable (Marsh et al., 2004, 2007). This is similar to

the constraints model (Algina & Moulder, 2001), but this approach omit most of the constraints.

The only remaining constraint is to fix the latent first-order effect variables to zero and the means

of the latent product variable equals the covariance of the two first-order effect variables. This

model does not impose any constraints derived from the multivariate normality assumption of

the latent variables, in contrast to the constrained approach (Marsh et al., 2004). However, Marsh

et al. (2004) simulation studies did not test the influence of multicollinearity on models fit,

convergence, and bias of estimates. It is unclear if the unconstrained approach delivers efficient

estimates because real data often imply substantially correlated predictors.

In relation to Study 2, the unconstrained model required centering the indicators of job

demands and resources before multiplying them. The products serve as indicators of the

interaction latent variable (job demands X job resources). In addition, the means of the latent

variables job demands and resources was fixed to zero and the means of the interaction latent

variable (job demands X job resources) equal the covariance between the latent variables job

demands and resources.

Residual Centering Approach

It avoids statistical dependency between indicators of first-order effect variables and those of the latent product variable, because it uses residuals to form the indicators for the product variable (Little et al., 2006). Residual centering (i.e., orthogonalizing) also serves to eliminate nonessential multicollinearity in regression analyses. Residual centering is essentially a two-stage ordinary least squares procedure in which a product term is regressed onto its respective first-order effects (Lance, 1988). The residuals of this regression are then used to represent the interaction. The variance of this orthogonalized interaction contains the unique variance that fully represents the interaction effect. It is independent of the first-order effect variance as well as general error or unreliability. Ultimately, the variance of the orthogonalized product term only contains the variance accounted for by the curvature component of a nonlinear relation, independent of the linear components. Unlike mean centering, orthogonalizing using residual centering ensures independence between the product term and its main constituent effects.

In relation to Study 2, the uncentered indicators of the first-order effect variables (i.e., uncentered indicator measuring job demands and resources) were multiplied and the resulting product was then regressed on all first-order effect indicators. The residuals of these regression analyses were saved in the data set. Then, the residuals were used as indicators of the product variable in the latent interaction model. Simulations have shown that the residual centering approach performs well and demonstrates reasonable model fit and standard errors (Little et al., 2006).

Main Analysis

Study 2.1

As described above, each interaction approaches have its own advantage and reasoning, thus justifying the usage of both. In Study 2, both statistical approaches were used comparatively and helps consolidate our results, thus the hypothesized model was tested using both latent interaction approaches. The uncentered approach (SB χ^2 (419) = 1760.50***; RMSEA = .067, p <.001; CFI = .944; TLI = 0.925; SRMR = .100) and the residual centering approach (SB χ^2 (419) = 1550.90***; RMSEA = .061, p <.001; CFI = .953; TLI = 0.937; SRMR = .097) did not yield results satisfactory enough to assess overall good model fit. Alternatively, by removing the interaction product term from the model, we obtained a revised model that did not fit the data perfectly, but with excellent overall fit (SB χ^2 (21) = 66.19; RMSEA = .055, p = .280, CFI = .978, SRMR = .963). All of the fit indices of the revised model are under or over the required threshold except the absolute goodness-of-fit statistic (Chi Square χ^2), which assess the overall fit and the discrepancy between the sample and fitted covariance matrices. It indicates that the model did not fit the data perfectly. However, like mentioned above, this test exhibits many limitations (Hooper et al., 2008), one of which is to reject models when large samples are used (i.e., Bentler & Bonnet, 1980; Jöreskog & Sörbom, 1993). Altogether, approximate goodness-of-fit indices (i.e., RMSEA and SRMR) and incremental goodness-of-fit statistic (i.e., CFI and TLI) are all satisfactory and suggest good overall fit of the model. Rejection of both models with an interaction product term and good overall fit of the revised model, suggests that similarly to Study 1, no significant interactions were found in Study 2. Again, job demands (i.e., role ambiguity and role conflict) and resources (i.e., adaptivity and proactivity) had two main significant effects on burnout and engagement, which means that both are relevant, but work independently from each other. Hypotheses H2.1a, H2.1b, H2.1e, which are related to the direct effects of job demands and resources on burnout and engagement were supported. However,

hypothesis H2.1c and H2.1d, which relate to the buffering effect of job demands and resources were refuted. Results from the unconstrained model, residual centering model and the revised model are presented in Table 8. Figure 9, 10 and 11 describe the unconstrained model, the residual model and the revised model.

Table 8. Fit indices of the interaction and revised model: The impact of job demands and resources on burnout and engagement ($N = 719$)

	χ^2	Df	RMSEA	C.I.	p	RMSR	CFI	TLI
Unconstrained	1760.50***	419	.067	.064/.070	<.001	.100	.944	.925
Residual	1550.90***	419	.061	.058/.065	<.001	.097	.953	.937
Revised	66.19***	21	.055	.040/.070	.280	.031	.978	.963

Note. χ^2 = Chi Square; Df = Degree of freedom; RMSEA = Root Mean Square Error of Approximation; C.I. = Confidence interval; RMSR = Standardized Root Mean Square Residuals; CFI = Comparative Fit Index; TLI = Tucker-Lewis index
* $p < .05$; ** $p < .01$; *** $p < .001$.
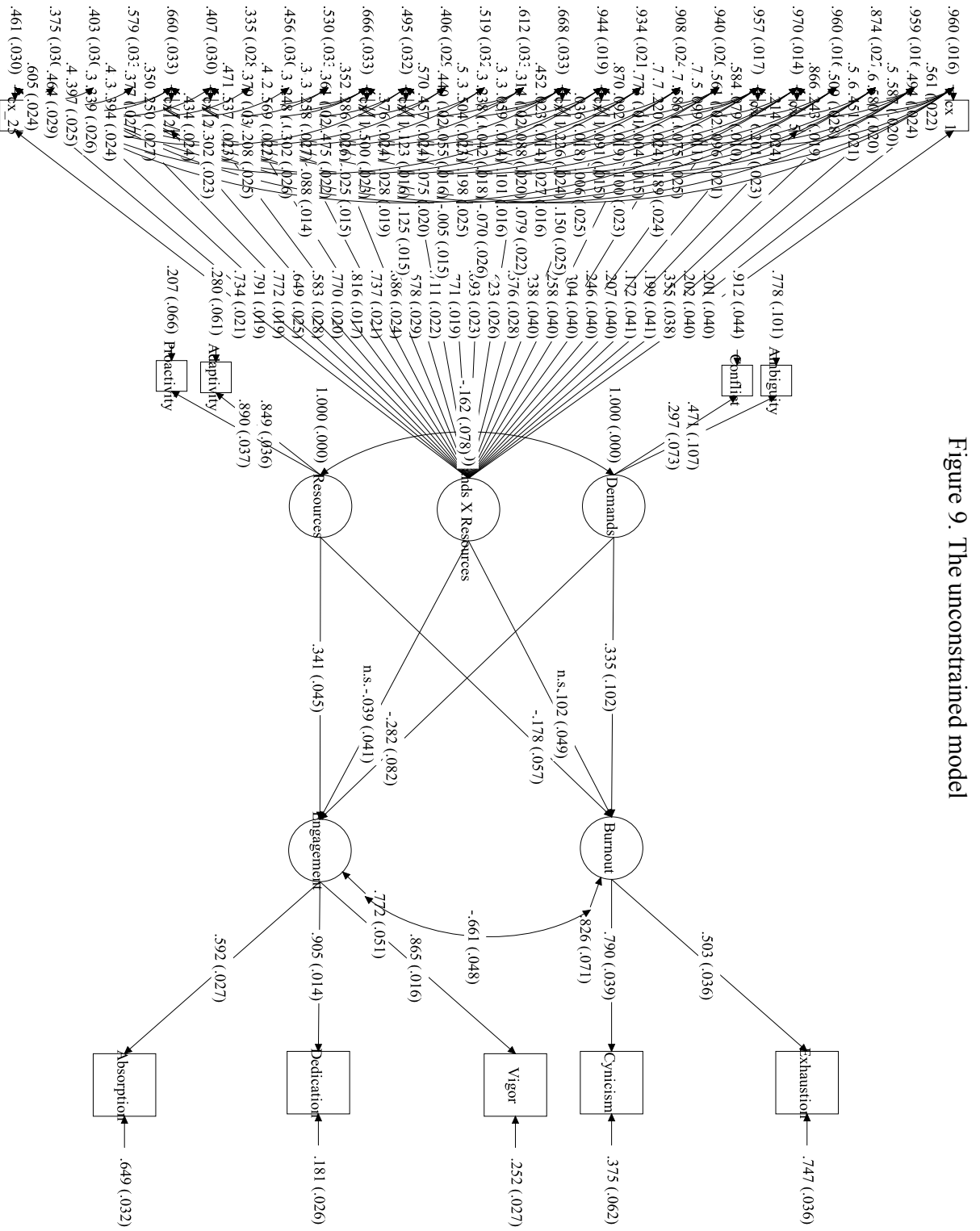
Figure 9. The unconstrained model

67

Figure 10. The residual centered model

68

Figure 11. The revised model
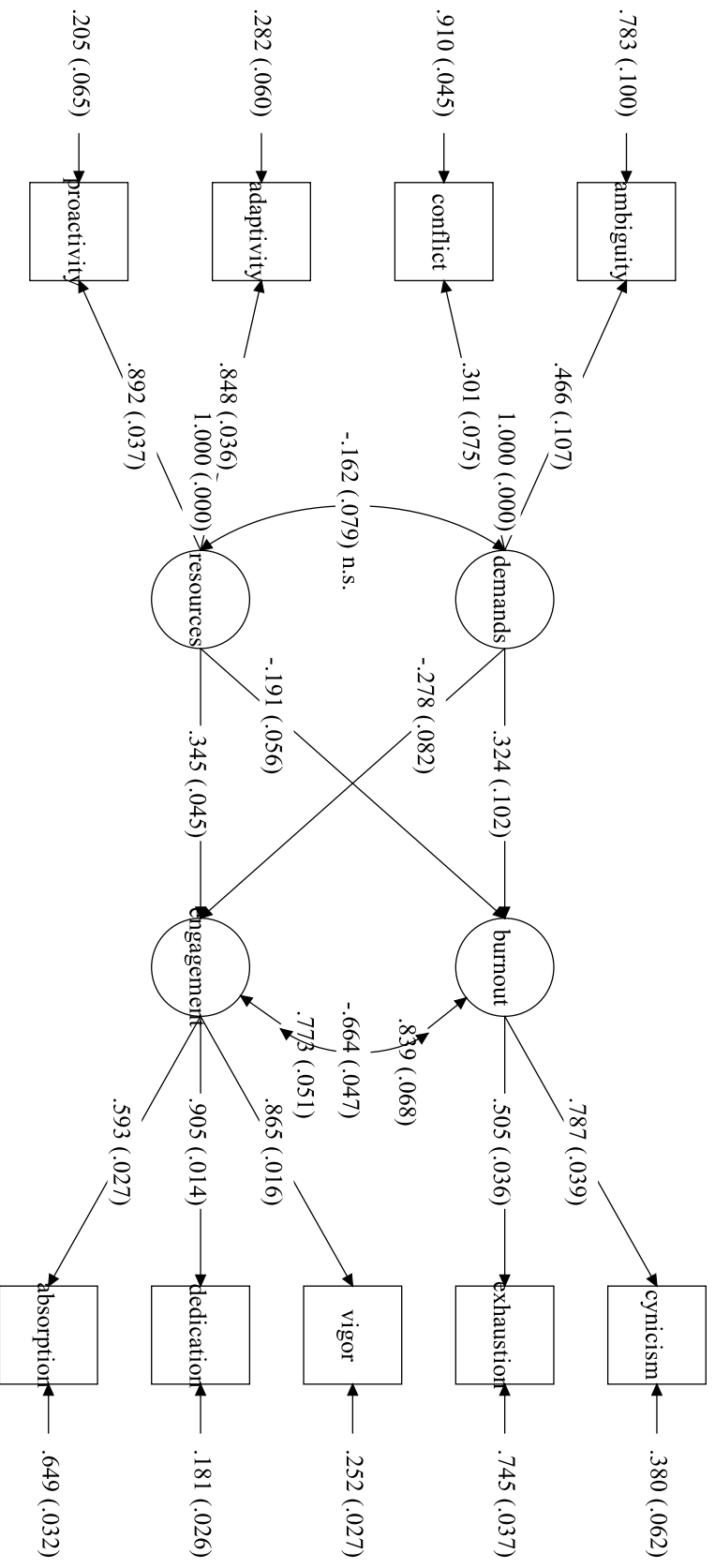
Study 2.2

In the second half of Study 2, the effects over time of the revised model (Figure 11) were tested with the smaller sample of entrepreneurs (N =205) who had answered both measure points, using potential reversed and reciprocal cross-lagged relationships between the study variables (Zapf et al., 1996). In order to test the hypothesized cross-lagged structural model, we tested directional relationships of the exogenous (i.e., job demands and resources) and endogenous variables between T1 and T2 (burnout and engagement) (Cole & Maxwell, 2003; Taris & Kompier, 2006). Auto-regression effects were included in order to control for baseline levels of each endogenous variable (Gollob & Reichardt, 1991; Marsh et al., 2004). In addition, synchronous correlations between the variables were allowed in all cross-lagged tested models. Moreover, the error terms of each indicator at T1 were allowed to covary with the corresponding indicator at T2. Additionally, the stability model (i.e., including the autoregressive effects over time of each latent variable, but excluding any cross-lagged associations), the reversed directionality model (i.e., including the autoregressive effects combined with the reversed effects of the directional paths), and the reciprocal model (i.e., a combination of the directionality model and the reverse model) were all tested (Hakanen et al., 2008).

Results of the fit indices are presented in Table 9 and Figure 12. The absolute goodness-of-fit statistic (Chi Square χ^2), the approximate goodness-of-fit indices (i.e., RMSEA and SRMR) and incremental goodness-of-fit statistic (i.e., CFI and TLI) are all over or under the recommended threshold. Relationships between variables from T1 and T2 in all models were not significant, thus no fit comparison between models were tested. Thus, these models do fit the data well and have a good overall fit. However, non-significant relationship between T1 and T2 are suggesting no stability over time between the variables and no cross-lagged effect.

Altogether, these results did not support hypotheses H2.2f, H2.2g, H2.2h, H2.2i and

directionality between the studied variables.

Table 9. Fit indices of the different Cross-Lagged Panel Model : Directionality at T1 and T2 of the revised model (N^{T1} = 719 / N^{T2} = 205)

	χ^2	Df	RMSEA	C.I.	p	RMSR	CFI	TLI
Stability	168.37	119	.045	.028/.060	.692	.048	.961	.950
Directionality	167.61	115	.047	.031/.062	.602	.048	.959	.945
Reversed	166.95	115	.047	.030/.062	.614	.048	.959	.946
Reciprocal	166.34	111	.049	.033/.064	.513	.048	.957	.940

Note. χ^2 = Chi Square; Df = Degree of freedom; RMSEA = Root Mean Square Error of Approximation; C.I. = Confidence interval; RMSR = Standardized Root Mean Square Residuals; CFI = Comparative Fit Index; TLI = Tucker-Lewis index
* p < .05; ** p < .01; *** p < .001.

Figure 12. Directionality model: Cross-lagged relationships between job demands, job resources, burnout, and work engagement (N = 205). χ^2 = 167.61; df = 115; RMSEA = .047; CFI = .959; TLI = .945.
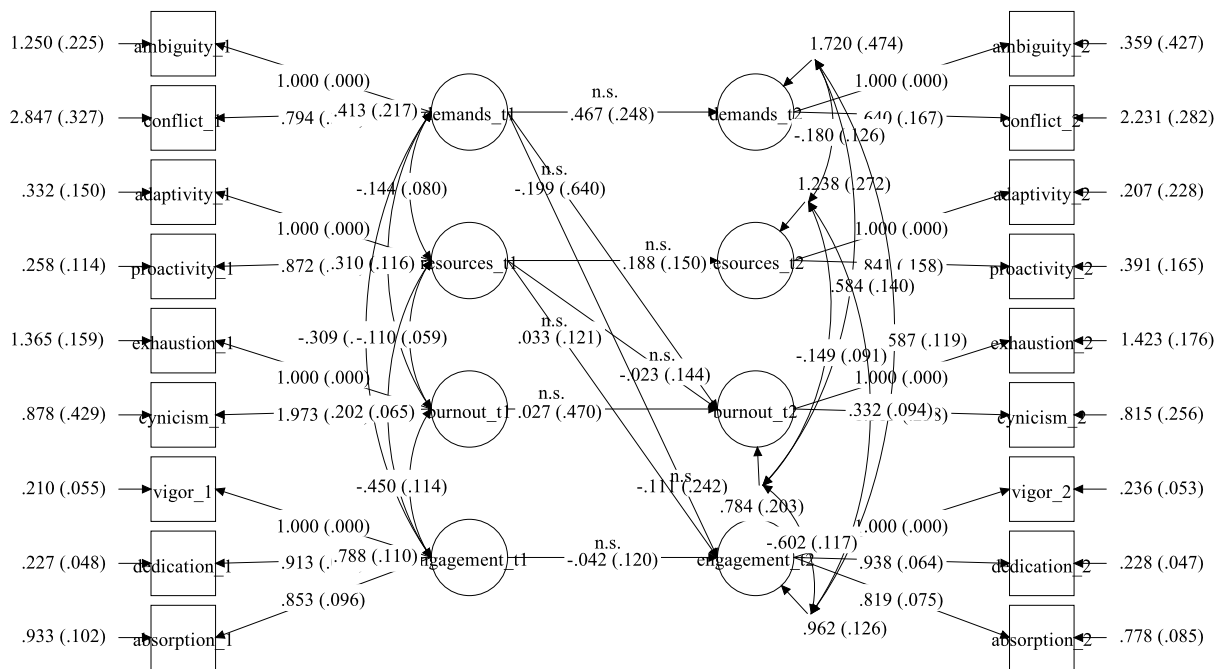
However, after testing the cross-lagged structural model, paired-samples t-tests between

T1 and T2 were made in order to identify potential significant differences between time

measurement, explain the impact of the COVID-19 lockdown on the CLPM and to justify the absence of significant relationship between T1 and T2. Intra-subject comparison between T1 and T2 suggest more ambiguity t(200) = -2.97, p < .001, but a decrease in adaptivity t(196) = 2.16, p = .032, proactivity t(196) = 3.84, p < .001 and workload t(201) = 5.80, p < .001. Otherwise, the paired-samples t-tests results indicate no other significant difference between T1 and T2, suggesting that T2 is a representative subsample of T1 with specific characteristics. These results support the different aspect of T2 and support that the results associated with this time measurement is possibly bias.

Table 10. Paired-Samples T-Tests between T1 and T2 ($N = 205$)

	ΔM	SD	SE Mean	t	Df	p
Ambiguity	-.40	1.89	.13	-2.97	200	.003***
Conflict	-.08	2.40	.17	-.46	200	.646
Adaptativity	.23	1.49	.11	2.16	196	.032*
Proactivity	.35	1.27	.09	3.84	196	<.001***
Exhaustion	.07	2.07	.14	.51	204	.613
Cynicism	-.27	2.37	.17	-1.65	204	.100
Vigor	.11	1.48	.10	1.02	199	.308
Dedication	.19	1.40	.10	1.91	200	.058
Absorption	.17	1.65	.12	1.45	200	.148
Workload[a]	8.10	19.83	1.40	5.80	201	<.001***

Note. M = Mean, SD = Std. Deviation, SE = Std. Error Mean, t = T-Score, Df = Degree of freedom and p = p-value.
T-Tests significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] Average number of hours worked per week during the last four weeks.

Additional t-tests compared means from entrepreneurs that participated at both T1 and T2 ($N = 205$) and entrepreneurs that only participated at T1 ($N = 514$) in order to determine significant differences between both groups. Results suggest that entrepreneurs that participated in both measurements had greater adaptivity, t(442) = 2.01, p = .045, and proactivity, t(501) = 3.07, p = .002 than their counterpart. These results suggest the possibility that T2 is a sub-sample of T1 with specific characteristics, namely greater job resources.

Table 11. T-Tests between entrepreneurs from T1 and T2 ($N = 205$) and entrepreneurs from T1 only ($N = 514$)

	ΔM	ΔSE	t	Df	p
Ambiguity	-.17	.11	-1.59	384	.114
Conflict	-.14	.15	-.97	714	.335
Adaptativity	.17	.09	2.01	442	.045*
Proactivity	.23	.09	3.07	501	.002**
Exhaustion	-.09	.12	-.80	717	.426
Cynicism	-.13	.13	-.98	717	.326
Vigor	.02	.08	.24	709	.815
Dedication	.03	.07	.39	710	.700
Absorption	-.01	.09	-.15	710	.881
Sexe[a]	.05	.03	1.42	351	.157
Age	-.60	.87	-.69	717	.492
Workload[b]	.94	.81	.79	717	.433
Experience[c]	.75	.96	1.16	717	.248

Note. M = Mean, SD = Std. Deviation, SE = Std. Error Mean, t = T-Score, Df = Degree of freedom and p = p-value.
T-Tests significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] 1 = male, 2 = female.
[b] Average number of hours worked per week during the last four weeks.
[c] Number of years since the company's creation.

Brief Discussion of Study 2

Study 2 aimed to test the JD-R model in the field of entrepreneurship. The above results replicate the findings from Study 1 with a different sample and a more sophisticated design. It used SEM in order to assess multiple relationship simultaneously. Results confirm that the proposed theoretical model fit with the data, thus, suggesting that job demands and resources relationship with burnout and engagement in the field of entrepreneurship is similar to what had previously been found with employees. Job demands (i.e., role ambiguity and role conflict) and resources (i.e., adaptivity and proactivity) were found to positively influence burnout and engagement. Thus, the proposed SEM model replicated the JD-R model health impairment and motivational processes found in the employment literature (Bakker & Demerouti, 2017). However, no clear interactions were found to be significant between job demands and resources, which do not support the buffing effect posited in the JD-R model. However, cross-link negative

direct effect from job demands on engagement and job resource on burnout were found. Those relationships are not interactions, but are still important findings because it suggests independent processes. Altogether, those findings support the transferability of the JD-R model to the entrepreneurial field.

This study also used two time measurements in order to evaluate directionality between variable using a CLPM. Model comparison did not reveal any auto-regressive and cross-lagged associations between T1 and T2, thus suggesting no stability in time of the studied variables and suggesting no specific or clear directionality. However, those results could have been influenced by the COVID-19 lockdown (i.e., mandatory closing for an undetermined duration), which occurred in between T1 and T2. Paired-samples t-tests between T1 and T2 suggest that the COVID-19 lockdown decrease workload $t(201) = 5.80$, $p < .001$ and reduced entrepreneurs perceived adaptivity $t(196) = 2.16$, $p = .032$, and proactivity $t(196) = 3.84$, $p < .001$. Conversely, ambiguity $t(200) = -2.97$, $p < .001$ have increased between T1 and T2. Otherwise, the paired-samples t-tests results indicate no other significant difference between T1 and T2. More precisely, entrepreneurs from T2 are probably a subsample of T1 with specific characteristics. These results support the different aspect of T2 and support that the results associated with T2 is possibly bias. In addition, the attrition rate from T1 and T2 could explain the results. Additional t-tests comparison showed that entrepreneurs that participated at both T1 and T2 ($N = 205$) had greater adaptivity, $t(442) = 2.01$, $p = .045$, and proactivity, $t(501) = 3.07$, $p = .002$, than the participants that only participated at T1 ($N = 514$). Results suggest that they had greater amount of job resources (i.e., adaptivity and proactivity) and it probably justify why they were able to participate at both time measurements. Ultimately, T2 was composed of entrepreneurs whose companies survived the COVID-19 lockdown and were still operational and able to participate to

74

the study after the lockdown. It again, reinforces the possibility that T2 is a sub-sample of T1. Future studies should investigate directionality with additional time measurement and without any contextual influence.

Ultimately, Study 2 tested all processes postulated by the theoretical JD-R model (i.e., motivational, health impairment and buffering effect) and tried to establish if directionality between variables could be inferred. Altogether, the results supported assumptions regarding the direct effects, while the buffering effects and the directionality need further investigations. Findings suggest that JD-R model is transferable to entrepreneurs, but certain assumptions of the JD-R model, namely the buffering effects, remain inconsistent with this population. In order to better understand these different results, Study 3 aimed to determine the main differences between entrepreneur and employees using a comparative study.

Study 3

The goal of Study 3 is to determine the specific differences between entrepreneurs and employees regarding the use of the JD-R model. It aimed to use the theoretical model from Study 2 in order to compare each relationship found in Study 2 with a sample strictly composed of employees. Altogether, this additional and final study aims to determine the specific point of convergence between those two seemingly different populations and demonstrate the transferability of the JD-R with entrepreneurs.

Hypothesis

H3a: Job demands relationship on burnout is stronger for employees than entrepreneurs.

H3b: Job demands relationship on engagement is stronger for employees than entrepreneurs.

H3c: Job resources relationship on burnout is stronger for employees than entrepreneurs.

H3d: Job resources relationship on engagement is stronger for employees than entrepreneurs.

Method

Participants

Participants were comprised of entrepreneurs from Study 2 (N = 719) and employees (*N* = 329) recruited online through various social media platforms (e.g., LinkedIn). Inclusion criteria for participants were, at least 18 years of age, in paid employment (i.e., more than 25 hours per week), and had at least three months of experience in their current job. The majority of participants were women 71.00%. Participants had a mean age of *M*=41.61 years (*SD* = 11.90) and the average of worked hours during the week preceding the completion of the questionnaire was *M*=39.17 (*SD*=7.63).

Procedure

Participants were invited to fill an online survey out during March 2021. The confidentiality and anonymity of their responses were emphasized and no incentive was given in exchange for participation.

Measures

Measures were administered in French using the same questionnaire as in Study 2. Properties (means, standard deviations, internal consistency, and correlations) of the measures are presented in the result section (Table 12).

Results

First, we performed preliminary data analyses to obtain descriptive statistics and the correlation matrix (Table 8). Standard assumptions of SEM (i.e., linearity, normality, homogeneity of error variance, and independence of errors) were tested and revealed no abnormalities.

Table 12. Means, standard deviations, internal consistency and inter-correlations

N = 329	M	SD	γ1	γ2	1	2	3	4	5	6	7	8	9	10	11	12
1.Ambiguity	2.17	1.47	1.18	.39	(.88)											
2.Conflict	3.28	1.69	.16	-.99	.32**	(.83)										
3.Adaptivity	5.96	1.05	-1.34	3.16	-.10	-.03	(.95)									
4.Proactivity	5.78	1.15	-1.37	2.79	-.19**	-.12*	.61**	(.90)								
5.Exhaustion	3.21	1.48	.62	-.46	.25**	.19**	-.09	-.13*	(.87)							
6.Cynicism	2.74	1.86	.94	-.25	.25**	.18**	-.11*	-.23**	.51**	(.90)						
7.Vigor	5.61	1.29	-1.34	1.72	-.22**	-.09	.21**	.30**	-.44**	-.50**	(.92)					
8.Dedication	5.81	1.32	-1.38	1.50	-.20**	-.07	.22**	.38**	-.40**	-.56**	.79**	(.82)				
9.Absorption	5.44	1.58	-1.34	1.18	-.13*	-.05	.16**	.31**	-.16**	-.36**	.52**	.64**	(.91)			
10.Gender	1.71	.46	-.84	-1.03	-.04	-.14*	.02	.03	.03	-.01	-.03	-.03	.04	-		
11.Age	41.61	11.90	-.08	-.95	-.18**	-.04	.02	.16**	-.15**	-.13*	.19**	.21**	.19**	-.10	-	
12.Workload[b]	39.17	7.63	1.02	3.57	.05	.08	.04	.08	.05	-.04	.12*	.15**	.29**	-.12*	.18**	-

Note. Cronbach's alphas are shown on the diagonals in italics.

Correlation significance: * $p < .05$; ** $p < .01$; *** $p < .001$

[a] 1 = male, 2 = female.

[b] Average number of hours worked per week during the last four weeks.

[c] Number of years since the company's creation.

In order to compare the hypothesized models with the revised model from Study 2, we performed multi-group structural equation modeling (SEM) analyses using Mplus version 8 (Muthén & Muthén, 1998-2017) and compared our employees sample ($N = 319$) with our entrepreneurs sample from Study 2 ($N = 719$). The revised model presented in Study 2 was replicated with an added multi-group structure. Again, one exogenous latent factor was created representing job demands (i.e., role ambiguity and conflict) and resources. Burnout (i.e., exhaustion and cynicism), engagement (i.e., vigor, dedication and absorption) were respectively indicated with multi-item scales and included as endogenous outcome variables. Finally, the latent factors of burnout and engagement were allowed to correlate and the hypothesized relationships were included in the model.

Tsonaka and Moustaki (2007) suggest taking two steps prior to comparison. Firstly, constraints among the parameters of interest must be imposed on the model. Therefore, all regression coefficients were constrained in order to be the same between samples (Andrews, 1996, 2000). Secondly, the constraints were removed in order to make the model unconstrained and the parameters free to variate for both samples (Ritov & Gilula, 1993; Stoel et al., 2006). Next, to compare our created constrained and unconstrained models, the likelihood ratio test (LRT) was used to test the inequality constraint hypothesis (Barlow et al., 1972; Robertson et al., 1988; Silvapulle & Sen, 2004). While Mplus (Muthén & Muthén, 2008) allows for such user-specified constraints and order constraint parameter estimation, it does not provide a null hypothesis test for the evaluation of an informative hypothesis (Van De Schoot et al., 2010). For this reason, we evaluated the constraint and unconstrained parameters of the hypothesized model by comparing the χ^2 distribution of both samples using Microsoft Office Excel (Table 13). The null distribution of this test is a Chi-square distribution with degrees of freedom equal to the

difference between the number of parameters of the models under comparison (Bollen, 1989).

The results revealed no differences between the constrained and unconstrained models, which suggested that neither group were different. Therefore, we conducted another analysis in order to test our hypothesis for each regressive effect. More specifically, each path in the model was compared between samples using the same procedure described above. Results for each path suggested that each relationship were the same except for the impact of job resources on engagement (entrepreneurs, $b = .28$, $SE = .04$, $p < .001$ / employees, $b = .47$, $SE = .08$, $p < .001$). These results supported hypothesis H3d, but not H3a, H3b, and H3c.

Table 13. Comparison of constrained and unconstrained model and paths

		Constrained	Unconstrained	Difference	p
Model	χ^2	167.762	159.386	8.376	.079
	Df	56	52	4	
Burnout on demands	χ^2	167.762	167.531	.231	.631
	Df	56	55	1	
Engagement on demands	χ^2	167.762	167.606	.156	.693
	Df	56	55	1	
Burnout on resources	χ^2	167.762	166.236	1.526	.217
	Df	56	55	1	
Engagement on resources	χ^2	167.762	160.853	6.909	.009**
	Df	56	55	1	

Note. $p < 0.05$ = significant difference

Additional t-tests compared means from entrepreneurs ($N = 719$) and employees ($N = 329$) in order to determine additional convergence and divergence between the two populations. Entrepreneurs had significantly greater scores for proactivity, $t(1012) = 3.80$, $p < .001$, vigor, $t(509) = 6.44$, $p < .001$, dedication, $t(469) = 7.33$, $p < .001$, and absorption, $t(487) = 7.60$, $p < .001$ than employees. Alternatively, employees had significantly greater scores for role ambiguity $t(583) = -4.02$, $p < .001$ and cynicism $t(564) = -3.53$, $p < .001$ than entrepreneurs. These additional results add depth to the model comparison, namely that the

processes for both populations are the same even if they have different levels of job demands, job resources, engagement, or burnout.

Table 14. T-Tests between entrepreneurs ($N = 719$) and employees ($N = 329$)

	ΔM	ΔSE	t	Df	p
Ambiguity	-.38	.10	-4.02	583	<.001
Conflict	-.01	.12	-0.05	1043	.958
Adaptativity	.08	.07	1.11	1012	.267
Proactivity	.28	.07	3.80	1012	<.001
Exhaustion	-.05	.09	-0.56	1046	.576
Cynicism	-.42	.12	-3.53	564	<.001
Vigor	.52	.08	6.44	509	<.001
Dedication	.59	.08	7.33	469	<.001
Absorption	.74	.10	7.60	487	<.001
Sexe[a]	-.49	.03	-16.42	582	<.001
Age	6.61	.77	8.65	571	<.001
Workload[b]	10.73	.60	17.74	921	<.001

Note. M = Mean, SD = Std. Deviation, SE = Std. Error Mean, t = T-Score, Df = Degree of freedom and p = p-value.
T-Tests significance: * $p < .05$; ** $p < .01$; *** $p < .001$
[a] 1 = male, 2 = female.
[b] Average number of hours worked per week during the last four weeks.

Brief Discussion of Study – Study 3

The aim of Study 3 was to compare entrepreneurs and employees for each relationship found in Study 2. The comparative results support a clear overall resemblance between entrepreneurs and employees regarding the JD-R model assumptions. It demonstrates that the motivational and health impairment process largely found within the employee's literature are

transferable to entrepreneurs. However, comparison of each individual relationship in the model from Study 3 revealed that the relationship of job resources on engagement differ between the samples. More specifically, when facing the same amount of job resources, the impact on engagement is more important for employees than entrepreneurs. These findings partially support our hypothesis, but also exemplify how job resource is less important for entrepreneurs. These findings are coherent with Study 1 and 2. Finally, mean comparison between samples reveals that entrepreneurs had greater levels of engagement and proactivity than employees. Alternatively, employees had more role ambiguity and cynicism. Moreover, even if entrepreneurs and employees have different levels of job demands, job resources, engagement, or burnout, the JD-R model processes for both populations are still the same. Theoretical and practical implications are discussed in the following sections.

Discussion

Theoretical Implications

The present investigation sought to use the JD-R model with entrepreneurs. It examines the impact of job demands (i.e., role overload, role ambiguity, role conflict) and resources (i.e., autonomy, adaptivity and proactivity) on well-being (i.e., burnout and engagement) and performance (i.e., in-role, intention to quit). It also compares certain of those relationships with employees. Each study part of this research thesis contributed to the aforementioned investigation and generated important theoretical findings.

Study 1 was to determine if the fundamental processes proposed by the JD-R (i.e., motivational, health impairment and buffering) were applicable to entrepreneurs. Results from this cross-sectional study reveal main direct effects of job demands (i.e., role overload) and resources (i.e., autonomy) on burnout and engagement, suggesting that the health impairment

and motivational processes were applicable to entrepreneurs and that cross-links are plausible. However, no interaction was found between job demands and resources, thus refuting the buffering process between these two variables with entrepreneurs. These results support the application of the JD-R model (Bakker & Demerouti, 2017; Demerouti et al., 2001) with other populations than employees, in this case entrepreneurs. However, additional research was needed regarding interaction between demands and resources.

Study 2.1 used structural equation modeling in order to conceptualize a comprehensive model describing relationships between variables of interest. Results showed that job demands (i.e., role ambiguity and role conflict) increased burnout and decreased engagement. Job resources (i.e., adaptivity and proactivity) decreased burnout and increased engagement. Similarly to Study 1, these results suggested that the health impairment and motivational processes were applicable to entrepreneurs and supported again the transferability of the JD-R model with entrepreneurs. However, still in line with Study 1, no clear interactions were found to be significant between job demands and resources, which refute the buffing effect proposed in the JD-R model. On the other hand, negative direct effect from job demands on engagement and job resource on burnout were found, suggesting an additive model rather than a multiplicative one. Those relationships are not interactions, but are still important findings because it suggests independent processes. In other words, when entrepreneurs are facing high job demands, job resources are not able to buffer the negative effect and protect the entrepreneur. Alternatively, high job demands don't positively stimulate engagement when sufficient job resources are available to the entrepreneur.

In terms of theoretical implications, Study 1 and 2.1 seem to suggest that the buffering process proposed by the JD-R model is not transferable to entrepreneurs. However, certain

scholars from the employment literature have criticized this multiplicative model on the basis of mixed empirical support and unclear theoretical predictions (i.e., Ganster & Rosen, 2013). Thus, Gonzalez-Mulé et al. (2020) recently investigated the validity of the multiplicative and additive models using a meta-analytic framework based on raw data gathered from primary study authors (Van Iddekinge et al., 2018). Similar to our studies, their results found some support for the additive model and were unsupportive of the multiplicative model in almost all cases. More precisely, they tested the multiplicative (i.e., impact of job demands X resources) and additive (i.e., impact of job demands + resources) models from 77 unique samples and over 141,505 participants and found that job demands and control nor job demands and social support interactions were meaningfully related to strain in almost all cases (Gonzalez-Mulé et al., 2020). It goes to show that interactions are not always found within the JD-R literature with employees and inconclusive interaction results from Study 1 and 2.1 should not be used to discredit the transferability of the other JD-R processes (i.e., motivational and health impairment) with entrepreneurs. However, as stated by Bakker & Demerouti (2017), it's possible that the cross-link paths found are the results using a cross-sectional design. The lack of proven directionality support the proposition that cross-links are more likely in cross-sectional studies, because common method variance can affect the validity of the results (Bakker & Demerouti, 2017). Moreover, it's possible that diminished health and motivation have mutual relations and influence each other mostly because burnout includes a motivational component (i.e., cynicism) and a more distinctive health impairment component (i.e., exhaustion) (see Bakker & Demerouti, 2017; Leiter, 1993).

Study 2.2 aimed to infer directionality between the variable of interest of Study 2.1. It tested the effects over time using a CLPM with two-time measurements. However, relationships

between variables from T1 and T2 in all models were not significant and suggests no stability over time between the variables and no cross-lagged effect. However, those results could have been influenced by the COVID-19 lockdown (i.e., mandatory closing for an undetermined duration), which occurred in between T1 and T2. Based on the attrition rate (71.49%) between T1 and T2, the COVID-19 lockdown may have pushed certain entrepreneurs to close their businesses or to be too busy and overwhelm by the situation to participate further at T2. Complimentary analyses supported that the changing context between measurements instigate greater role ambiguity and reduce workload due to the lockdown restrictions for participants of T2. Moreover, complementary analyses also supported that T2 is probably a subsample of T1 with specific characteristics, namely entrepreneurs with a greater amount of job resources (i.e., adaptivity and proactivity) than their counterpart. This uncaptured variability is one major limitation of Study 2.2. Ultimately, the disruptive context between T1 and T2 could have caused disruption and prevents the establishment of directionality between variables.

Study 3 compared entrepreneurs with employees using the model and variable of interest from Study 2.1. The multi-group comparison revealed no differences between the two samples, except that the beneficial effect of job resources on engagement was less pronounce for entrepreneurs. In other words, the relationships found are similar for both samples, but the impact association between job resources and engagement is less important for entrepreneurs than employees. Complementary analyses reveal that entrepreneurs had significantly greater mean score for proactivity and all three dimensions of engagement (i.e., vigor, dedication and absorption). Conversely, they had lower score than employees for role ambiguity and cynicism. These additional results highlight another important finding about entrepreneurs and employees, namely that the JD-R processes for both populations are the same even if they have different

levels of job demands, job resources, engagement, or burnout. Finally, those results could suggest that entrepreneurs are more involved in their work than employees. It is to be expected because they work in their own business and is also reflected through the lower relationship between resources and engagement. It is fair to imagine that entrepreneurs are engaged for other reasons than their amount of resources. Ultimately, creating something new, helping others, make profit or changing the world with your business are all other potentially great lever to entrepreneur engagement. This distinction between employees and entrepreneur is worth exploring and could explain how being the owner of your own business can be stimulating and engaging. It is also worth mentioning the important gender disparity between samples: 88.00% of entrepreneurs were men and 71.00% of employees were women. Although the severity and mortality rate of COVID-19 are twice as high for men (Jin et al., 2020), the virus disproportionately affected the psychological and physical health of women (Fisher & Ryan, 2021). It has also been shown that female dominated service sector jobs were the first to disappear (Gupta, 2020) compared to male-dominated sectors (e.g., construction work; Fisher & Ryan, 2021). Moreover, women and gender minorities tend to earn less, save less, hold less secure jobs, and are more likely to be employed in informal sectors (United Nations, 2020). These conditions make them even more vulnerable to the economic impact related to the COVID-19. Finally, women's roles during the COVID-19 expanded to being primary caregivers within their families in addition to productive workers (Power, 2020). Those sociodemographic distinctions could also explain part of the results obtained.

Practical Implications

These studies support the fact that job demands are detrimental and that resources are favorable to entrepreneurs. These findings replicated what was found previously in the employment literature and translate it to entrepreneurs. However, conversely to employees, the lack of interaction contradicts that high workloads on entrepreneurs have little cost in terms of increased strain as long as satisfactory resources are available. This maybe is true with employees, but not with entrepreneurs. Both job demands and resources are similarly related to burnout and engagement respectively. However, given that role ambiguity and role conflict are actually more strongly and negatively related to engagement than adaptivity and proactivity are negatively related to burnout, entrepreneurs should be careful of this imbalance. They should avoid circumstances favorable to make role ambiguity and conflict arise (e.g., uncertainty, loss of control, divergent engagement, etc.) and assiduously strive to reduce those demands. Based on the employment literature about role ambiguity, this demand can be reduced with role clarification (Schaubroeck et al., 1993). The role would have to evolve base on the continuing series of interactions between the role incumbent and the various role senders (Kahn, et al., 1964). In the case of entrepreneurs, it would mean that they would have to constantly validate their current role by verifying if their tasks and responsibilities are in accordance with their stakeholders (i.e., clients, partners, employees, etc.). However, based on Bauer & Simmons (2000) role clarity needs other important ingredients, which are clearly articulated goals, ongoing training, recognition and rewards. However, conversely to employees that depend on their organization to get those, entrepreneurs have the chance and possibility to acquire them independently. For example, they can transform an ambiguous mandate by establishing clear goals, with details objectives and milestones. They can adhere to the required training need for

specific tasks and responsibilities. They can reward themselves according to the value they created through their business. However, as for employees, these fixes assume that the entrepreneur has the capability, time and financial resources needed to create those changes. In the end, business decision leading to risk and uncertainty should be planned carefully and with help if needed. About role conflict, many studies found a negative link with leadership (e.g. closeness of supervision, supportive leader behaviors, leader consideration and supervisory support) (Kahn et al., 1964; House & Rizzo,1972; Teas, 1983; Babin & Boles, 1996). It supposed that reducing role conflict is effective when the leadership gives task-specific inputs which clarify roles, goals and expectations. It allows employees to know what is expected. More precisely, when expectations are clearly explained and clarified, employees can make better choices and fulfill their tasks and responsibility to reduce role conflict. Translating again employment literature to entrepreneurs, they need to work with their stakeholders in a similar fashion. They have to specify, clarify, adjust, update and limit the amount of engagement they take with others (e.g., clients, partners, employees, family, friends, etc.) and they need to constantly validate if they meet the required expectations. Ultimately, strategic planning and delegation are required and need to be executed through the hierarchical levels to reduce entrepreneurial role conflict (Miles & Perreault, 1976). Failing to reduce those demands will result in increased burnout, reduce performance and intention to quit.

Furthermore, based on the conflicting COVID-19 impact on our results, it suggests that the work context impacting entrepreneurs also has a strong effect on their functioning. In addition to the required resources needed to reduce job demands, this additional element reiterate the importance of accessible services, relate to training and mental health, but also the

importance of external support related to financial resources, leadership, management, planning and business development.

Limits and Future Research

A number of limitations were present in this investigation. As the entrepreneurs were drawn from the *Enterprise Register*, a system of legal publicity for all enterprises operating in Quebec, regardless of their legal form, generalizability to all other types of entrepreneurs, and from other provinces and countries is limited. In addition, the homogeneity of the sample and the lack of variability in the responses regarding performance reinforce this limit. Further research using a more diverse sample would be beneficial. Another limitation is born from the disruptive COVID-19 context, which is inherent to Study 2.2. Without having any disruptive events, further studies should be able to increase the number of participants and reduce attrition between measurements. This would allow collecting more than two measurement points. A greater sample size would have helped introduce a greater number of parameters in the proposed model, for example performance. Job demands, job resources and well-being (i.e., burnout and engagement) were the main focus in Study 2.1. However, in order to present a more holistic and complete theoretical model, future researches should include self-reported (i.e., in-role and contextual) and objective (e.g., profit, client satisfaction) performance. In addition, the Challenge-Hindrance model, which is a submodel of the JD-R model, should be used to investigate further differences between entrepreneurs and employees in regards to their job demands (e.g., LePine et al., 2005). Some research suggests that it is important to distinguish between two types of job demands: challenges and hindrances. Categorized as job demands, challenges (e.g., job responsibilities, problem-solving, organizational objectives) are perceived by individuals as demanding but useful for personal and professional gains (Cavanaugh et al.,

2000; Van den Broeck et al., 2010). In contrast, hindrances are seen as detrimental to personal growth and the achievement of work-related goals (e.g., job insecurities, office politics). Meta-analyses illustrate the distinct effects of challenges and hindrances (Crawford et al., 2010; LePine et al., 2005): challenges predict engagement, motivation, and performance, while hindrance cause harm to these indicators of health and professional functioning. Despite the recent popularity of this model and the growing number of studies based on it, some gaps limit our current understanding of the effects of both types of job demands on employees' health and job functioning (Gonzalez-Mulé et al., 2020). One of the major limitations of this model is that specific challenges and hindrances are hard to classify. Depending on the individual and its context, the same demand can induce either a challenge and/or a hindrance. Moreover, this new duality can help investigate further the additive and multiplicative relationship of job demands and resources. Altogether, this addition to the JD-R model can help explain further how the JD-R model applies differently for entrepreneurs and employees. Finally, further investigation is also needed in order to examine entrepreneurial- (e.g., number of employees, field of operations, financial metrics, etc.) and psychological (e.g., personality traits, leadership style, coping mechanisms, etc.) related differences.

Conclusion

Despite the aforementioned limitations, findings from these studies build upon the JD-R model literature (Bakker & Demerouti 2017; Demerouti et al., 2001) by highlighting important relationship specific to the field of entrepreneurship. More specifically, the main model proposed to demystify the detrimental effect of job demands (i.e., role overload, role ambiguity, role conflict) and favorable effects of job resources (i.e., autonomy, adaptivity and proactivity) on entrepreneurs' well-being (i.e., burnout and engagement) and its effect on performance (i.e., in-

89

role, intention to quit). Additionally, results demonstrated the damaging impact of job demands and beneficial impact of job resources on both, entrepreneurs and employees, and helped differentiate between samples the impact of job resources. As such, employees are relying more heavily on job resources when conducting their work than entrepreneurs when having equivalent job resources (i.e., adaptivity and proactivity). These findings highlight the usefulness of the JD-R model apart from employees. It also helped understand that the model could be applied to entrepreneurs and what differentiates this population.

Ethical Considerations

The studies described above have been conducted in accord with the regulations of the *Comité d'éthique de la recherche en arts et en sciences (CERAS)*. It received ethics approval according to the procedures in effect, and complies with the rules and policies of the *Université de Montréal* about research involving humans. A consent form describing the goals of the studies and the rights of the participants (e.g., to withdraw from the studies) were electronically signed by participants before they start the questionnaires. A reference number and the main experimenter's email address was included at the end of the survey for participants that have questions regarding the studies. The anonymity of participants was preserved by using anonymous online links and no personal information about the participants were provided to the researchers, thus ensuring complete anonymity. The data was only accessible to the study's main experimenter (Dr. Kaspar Schattke and Felix A. Proulx).

<center>**References**</center>

Abell, D., & Hammond, J. (1979). *Strategic market planning: Problems and analytical approaches*. New York: Englewood Cliffs.

Adebowale, A. (1994). Coping with entrepreneurial stress. *Journal of Small Business Management*, *32*(1), 83-87.

Ahmad, S. Z., & Xavier, S. R. (2010). Stress and coping styles of entrepreneurs: A Malaysian survey. *International Journal of Entrepreneurship*, *14*, 25-35.

Algina, J., & Moulder, B. C. (2001). Sample sizes for confidence intervals on the increase in the squared multiple correlation coefficient. *Educational and Psychological Measurement*, *61*(4), 633-649. https://doi.org/10.1177/00131640121971400

Andrews, D. W. K. (1996). Admissibility of the likelihood ratio test when the parameter space is restricted under the alternative. *Econometrica, 64*(3)*,* 705-718. https://doi.org/2171868

Andrews, D. W. K. (2000). Inconsistency of the bootstrap when a parameter is on the boundary of the parameter space. *Econometrica, 68*(2)*,* 399-405. https://doi.org/10.1111/1468-0262.00114

Antonovsky, A. (1987). Health promoting factors at work: the sense of coherence. In R. Kalimo, M. Eltatawi & C. Cooper (Eds.) *Psychosocial Factors at Work and Their Effects on Health* (pp. 153-167). Geneva, CH: World Health Organization publications.

Babin, B. J., & Boles, J. S. (1996). The effects of perceived co-worker involvement and supervisor support on service provider role stress, performance and job

satisfaction. *Journal of retailing*, *72*(1), 57-75. https://doi.org/10.1016/S0022-4359(96)90005-6

Bakker, A. B. (2011). An evidence-based model of work engagement. *Current directions in psychological science*, *20*(4), 265-269. https://doi.org/10.1177/0963721411414534

Bakker, A. B., & Demerouti, E. (2007). The job demands-resources model: State of the art. *Journal of managerial psychology*, *22*(3), 309-328. https://doi.org/10.1108/02683940710733115

Bakker, A. B., & Demerouti, E. (2008). Towards a model of work engagement. *Career development international*, *13*(3), 209-223. https://doi.org/10.1108/13620430810870476

Bakker, A. B., & Demerouti, E. (2014). Job demands-resources theory. In P. Y. Chen & C. L. Cooper (Eds.) *Work and wellbeing* (pp. 37-64). Wiley Blackwell. https://doi.org/10.1002/9781118539415.wbwell019

Bakker, A. B., & Demerouti, E. (2017). Job demands-resources theory: taking stock and looking forward. *Journal of occupational health psychology*, *22*(3), 273-285. http://dx.doi.org/10.1037/ocp0000056

Bakker, A. B., Demerouti, E., & Euwema, M. C. (2005). Job resources buffer the impact of job demands on burnout. *Journal of occupational health psychology*, *10*(2), 170-180. https://doi.org/10.1037/1076-8998.10.2.170

Bakker, A. B., Demerouti, E., De Boer, E., & Schaufeli, W. B. (2003a). Job demands and job resources as predictors of absence duration and frequency. *Journal of vocational behavior*, *62*(2), 341-356. https://doi.org/10.1016/S0001-8791(02)00030-1

Bakker, A. B., Demerouti, E., & Schaufeli, W. (2003b). Dual processes at work in a call centre: An application of the job demands-resources model. *European Journal of work and organizational psychology*, *12*(4), 393-417. doi: 10.1080/13594320344000165

Bakker, A. B., Demerouti, E., Taris, T. W., Schaufeli, W. B., & Schreurs, P. J. (2003c). A multigroup analysis of the job demands-resources model in four home care organizations. *International Journal of stress management*, *10*(1), 16-38. https://doi.org/10.1037/1072-5245.10.1.16

Bakker, A. B., Emmerik, H. V., & Euwema, M. C. (2006). Crossover of burnout and engagement in work teams. *Work and occupations*, *33*(4), 464-489. https://doi.org/10.1177/0730888406291310

Bakker, A. B., Hakanen, J. J., Demerouti, E., & Xanthopoulou, D. (2007). Job resources boost work engagement, particularly when job demands are high. *Journal of educational psychology*, *99*(2), 274-284. https://doi.org/10.1037/0022-0663.99.2.274

Bakker, A. B., Van Veldhoven, M., & Xanthopoulou, D. (2010). Beyond the demand-control model: Thriving on high job demands and resources. *Journal of Personnel Psychology*, *9*(1), 3-16. https://doi.org/10.1027/1866-5888/a000006

Barlow, R. E., Bartholomew, D. J., Bremner, H. M., & Brunk, H. D. (1972). *Statistical inference under order restrictions*. New York: Wiley.

Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of personality and social psychology*, *51*(6), 1173-1182. https://doi.org/10.1037/0022-3514.51.6.1173

Barrett, P. (2007). Structural equation modelling: adjudging model fit. *Personality and Individual Differences, 42*(5), 815-824. https://doi.org/10.1016/j.paid.2006.09.018.

Bauer, J. C., & Simmons, P. R. (2000). Role ambiguity: A review and integration of the literature. *Journal of Modern Business*, *3*(1), 41-47.

Beehr, T. A., Walsh, J. T., & Taber, T. D. (1976). Relationships of stress to individually and organizationally valued states: Higher order needs as a moderator. *Journal of applied psychology*, *61*(1), 41-47. https://doi.org/10.1037/0021-9010.61.1.41

Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological bulletin*, *107*(2), 238-246. https://doi.org/10.1037/0033-2909.107.2.238

Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological bulletin*, *88*(3), 588-606. https://doi.org/10.1037/0033-2909.88.3.588

Beutell, N., & Greenhaus, J. (1986). Balancing acts: work-family conflict and the dual career couple. In L. L. Moore (ed.) *Not As Far As You Think: The Realities of Working Women* (pp. 149-162). Lexington, MA: Lexington Books.

Bigot, L., Fouquereau, E., Lafrenière, M. A. K., Gimenes, G., Becker, C., & Gillet, N. (2014). Analyse Préliminaire des Qualités Psychométriques d'une Version Française du Work Design Questionnaire. *Psychologie du Travail et des Organisations*, *20*(2), 203-232. https://doi.org/10.1016/S1420-2530(16)30038-3

Bollen, K. A. (1989). A new incremental fit index for general structural equation models. *Sociological methods & research*, *17*(3), 303-316. https://doi.org/10.1177/0049124189017003004

Bollen, K. A. (1989). *Structural equations with latent variables*. John Wiley & Sons.

Borman, W. C., & Motowidlo, S. J. (1997). Task performance and contextual performance: The meaning for personnel selection research. *Human performance*, *10*(2), 99-109. https://doi.org/10.1207/s15327043hup1002_3

Borman, W. C., & Motowidlo, S. M. (1993). Expanding the criterion domain to include elements of contextual performance. In Schmidt, N. and Borman, W. (eds.) *Personnel Selection in Organizations* (pp. 71-98). San Francisco, CA: Jossey-Bass.

Bose, R. (2017, June) *Entrepreneurship: Canada's Golden Opportunity*. Report for the Canadian Entrepreneurship Initiative, Canada. https://static1.squarespace.com/static/593cd2dcf5e231c052331f1e/t/59441d643e00be c69817da3a/1497636202100/Canada_MainBrochure_Final_V9.pdf

Bothma, C. F., & Roodt, G. (2013). The validation of the turnover intention scale. *SA journal of human resource management*, *11*(1), 1-12. https://doi.org/10.4102/sajhrm.v11i1.507

Bowling, N. A., & Hammond, G. D. (2008). A meta-analytic examination of the construct validity of the Michigan Organizational Assessment Questionnaire Job Satisfaction Subscale. *Journal of Vocational Behavior*, *73*(1), 63-77. https://doi.org/10.1016/j.jvb.2008.01.004

Bowling, N. A., Khazon, S., Alarcon, G. M., Blackmore, C. E., Bragg, C. B., Hoepf, M. R., Barelka, A., Kennedy, K., Wang, Q., & Li, H. (2017). Building better measures of role ambiguity and role conflict: The validation of new role stressor scales. *Work & Stress*, *31*(1), 1-23. https://doi.org/10.1080/02678373.2017.1292563

Boyd, D. P., & Gumpert, D. E. (1983). Coping with entrepreneurial stress. *Harvard business review*, *61*(2), 44-64.

Boyd, D.P. & Gumpert, D.E. (1984). The loneliness of the small-business owner. *Harvard*

      Business Review, 62(6), 18-24.

Breaugh, J. A. (1985). The measurement of work autonomy. *Human relations*, *38*(6), 551-570.

      https://doi.org/10.1177/001872678503800604

Brockner, J. (1988). *Self-esteem at work: Research, theory, and practice*. Lexington

      Books/DC Heath and Com.

Busemeyer, J. R., & Jones, L. E. (1983). Analysis of multiplicative combination rules when

      the causal variables are measured with error. *Psychological Bulletin*, *93*(3), 549-562.

      https://doi.org/10.1037/0033-2909.93.3.549

Business Development Bank of Canada. (2020, November). *Canadian Entrepreneur Mental*

      Health and Well-Being Report: November 2020.

      https://www.bdc.ca/en/about/analysis-research/canadian-entrepreneur-mental-health-

      well-being-report

Business Development Bank of Canada. (2021, May). *Canadian Entrepreneur Mental Health*

      and Well-Being Report: May 2021. https://www.bdc.ca/en/about/analysis-

      research/canadian-entrepreneur-mental-health-well-being-report-part-2

Byrne, B.M. (1998). *Structural Equation Modeling with Lisrel, Prelis, and Simplis*. Lawrence

      Erlbaum Associates, London.

Byrne, B.M. (2010). *Structural Equation Modeling with AMOS: Basic Concepts, Applications,*

      and Programming. Lawrence Erlbaum Associates, Mahwah

Cammann, C., Fichman, M., Jenkins, G. D., & Klesh, J. (1983). Michigan Organizational

      Assessment Questionnaire. In S. E. Seashore, E. E. Lawler III, P. H. Mirvis, & C. E.

Cammann (Eds.) *Assessing organizational change: A guide to methods, measures, and practices* (pp. 71-178). Hoboken, NJ: John Wiley.

Campbell, D. J. (2000). The proactive employee: Managing workplace initiative. *Academy of Management Perspectives*, *14*(3), 52-66. https://doi.org/10.5465/ame.2000.4468066

Campion, M. A., & Thayer, P. W. (1985). Development and field evaluation of an interdisciplinary measure of job design. *Journal of Applied Psychology*, *70*(1), 29-43. https://doi.org/10.1037/0021-9010.70.1.29

Cardon, M. S., & Patel, P. C. (2015). Is stress worth it? Stress-related health and wealth trade-offs for entrepreneurs. *Applied Psychology*, *64*(2), 379-420. https://doi.org/10.1111/apps.12021

Cavanaugh, M. A., Boswell, W. R., Roehling, M. V., & Boudreau, J. W. (2000). An empirical examination of self-reported work stress among US managers. *Journal of applied psychology*, *85*(1), 65-74. https://doi.org/10.1037/0021-9010.85.1.65

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences (2nd Edition)*. Hillsdale, NJ: Lawrence Earlbaum Associates.

Cole, D. A., & Maxwell, S. E. (2003). Testing mediational models with longitudinal data: questions and tips in the use of structural equation modeling. *Journal of abnormal psychology*, *112*(4), 558-577. https://doi.org/10.1037/0021-843X.112.4.558

Collins, C. J., Hanges, P. J., & Locke, E. A. (2004). The relationship of achievement motivation to entrepreneurial behavior: a meta-analysis. *Human Performance, 17*(1), 95-117. https://doi.org/10.1207/S15327043HUP1701_5

Comrey, A. L., & Lee, H. B. (1992). Interpretation and Application of Factor Analytic

    Results. In A. L. Comrey, & H. B. Lee (Eds.) *A First Course in Factor Analysis* (p.

    2). Hillsdale, NJ: Lawrence Eribaum Associates.

Cooper, C. L., Cooper, C. P., Dewe, P. J., Dewe, P. J., O'Driscoll, M. P., & O'Driscoll, M. P.

    (2001). *Organizational stress: A review and critique of theory, research, and*

    applications. Sage Publications.

Cordes, C. L., Dougherty, T. W., & Blum, M. (1997). Patterns of burnout among managers

    and professionals: A comparison of models. *Journal of Organizational Behavior,*

    18(6), 685-701. https://doi.org/10.1002/(SICI)1099-1379(199711)18:6<685::AID-

    JOB817>3.0.CO;2-U

Covin, J. G., & Slevin, D. P. (1989). Strategic management of small firms in hostile and

    benign environments. *Strategic management journal*, *10*(1), 75-87.

    https://doi.org/10.1002/smj.4250100107

Crant, J. M. (2000). Proactive behavior in organizations. *Journal of management*, *26*(3), 435-

    462. https://doi.org/10.1177/014920630002600304

Crawford, E. R., LePine, J. A., & Rich, B. L. (2010). Linking job demands and resources to

    employee engagement and burnout: a theoretical extension and meta-analytic

    test. *Journal of applied psychology*, *95*(5), 834-848.

    http://dx.doi.org/10.1037/a0019364

Cummings, T., & Blumberg, M. (1987). Advanced manufacturing technology and work

    design. In T.D. Wall, C.W. Clegg, & N.J. Kemp (Eds.) *The human side of advanced*

    manufacturing technology (pp. 37-60). New York: John Wiley & Sons.

Deci, E. L., & Ryan, R. M. (2000). The" what" and" why" of goal pursuits: Human needs and the self-determination of behavior. *Psychological inquiry*, *11*(4), 227-268. https://doi.org/10.1207/S15327965PLI1104_01

Demerouti, E. and Bakker, A.B. (2008). The Oldenburg Burnout Inventory: a good alternative to measure burnout (and engagement). In Halbesleben, J. (Ed.) *Handbook of Stress and Burnout in Health Care* (pp. 1-25). Nova Science, New York, NY.

Demerouti, E., & Cropanzano, R. (2010). Thought to action: Employee work engagement and job performance. In A. B. Bakker & M. P. Leiter (Eds.) *Work engagement: A handbook of essential theory and research* (pp. 147-163). Hove, UK: Psychology Press.

Demerouti, E., Bakker, A. B., de Jonge, J., Janssen, P. P., & Schaufeli, W. B. (2001a). Burnout and engagement at work as a function of demands and control. *Scandinavian journal of work, environment & health*, *27*(4), 279-286. https://doi.org/10.5271/sjweh.615

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001b). The job demands-resources model of burnout. *Journal of Applied psychology*, *86*(3), 499-512. https://doi.org/10.1037/0021-9010.86.3.499

Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2000). A model of burnout and life satisfaction amongst nurses. *Journal of advanced nursing*, *32*(2), 454-464. https://doi.org/10.1046/j.1365-2648.2000.01496.x

Demerouti, E., Bakker, A. B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment*, *19*(1), 12-23. https://doi.org/10.1027//1015-5759.19.1.12

Demerouti, E., Bakker, A., Nachreiner, F., & Ebbinghaus, M. (2002). From mental strain to

    burnout. *European journal of work and organizational psychology*, *11*(4), 423-441.

    https://doi.org/10.1080/13594320244000274

Demerouti, E., Mostert, K., & Bakker, A. B. (2010). Burnout and work engagement: a

    thorough investigation of the independency of both constructs. *Journal of*

    occupational health psychology, *15*(3), 209-222. https://doi.org/10.1037/a0019408

Diamantopoulos, A., & Siguaw, J. A. (2000). *Introducing LISREL: A guide for the uninitiated*.

    Sage Publications.

Dijkhuizen, J., Gorgievski, M., van Veldhoven, M., & Schalk, R. (2016). Feeling successful as

    an entrepreneur: a job demands—resources approach. *International entrepreneurship*

    and management journal, *12*(2), 555-573. https://doi.org/10.1007/s11365-014-0354-z

Dijkhuizen, J., Van Veldhoven, M., & Schalk, R. (2014). Development and validation of the

    entrepreneurial job demands scale. *International Journal of Knowledge, Innovation*

    and Entrepreneurship, 2(1), 70-88.

Dollinger, M. J. (2008). *Entrepreneurship strategies and resources*. Marsh Publications.

Drnovsek, M., Örtqvist, D., & Wincent, J. (2010). The effectiveness of coping strategies used

    by entrepreneurs and their impact on personal well-being and venture

    performance. *Journal of Economics and Business, 28*(2), 193-220.

    https://www.proquest.com/scholarly-journals/effectiveness-coping-strategies-

    used/docview/851503721/se-2

Duran-Whitney, M. (2004). *Understanding occupational stress and mental health in aspiring*

    small business owners. Alliant International University, San Francisco Bay.

Edwards, J. R., Scully, J. A., & Brtek, M. D. (1999). The measurement of work: Hierachical representation of the Multimethod Job Design Questionnaire. *Personnel Psychology*, *52*(2), 305-334. https://doi.org/10.1111/j.1744-6570.1999.tb00163.x

Elsass, P. M., & Veiga, J. F. (1997). Job control and job strain: A test of three models. *Journal of Occupational Health Psychology*, *2*(3), 195-211. https://doi.org/10.1037/1076-8998.2.3.195

Fernet, C., Torrès, O., Austin, S., & St-Pierre, J. (2016). The psychological costs of owning and managing an SME: Linking job stressors, occupational loneliness, entrepreneurial orientation, and burnout. *Burnout Research*, *3*(2), 45-53. https://doi.org/10.1016/j.burn.2016.03.002

Fan, X., Thompson, B., & Wang, L. (1999). Effects of sample size, estimation methods, and model specification on structural equation modeling fit indexes. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 56-83. https://doi.org/10.1080/10705519909540119

Field, A. (2013). *Discovering statistics using IBM SPSS statistics*. Sage Publications.

Fisher, A. N., & Ryan, M. K. (2021). Gender inequalities during COVID-19. *Group Processes & Intergroup Relations*, *24*(2), 237-245. https://doi.org/10.1177/1368430220984248

Frese, M., Kring, W., Soose, A., & Zempel, J. (1996). Personal initiative at work: Differences between East and West Germany. *Academy of Management journal*, *39*(1), 37-63. https://doi.org/10.5465/256630

Ganster, D. C., & Fusilier, M. R. (1989). Control in the workplace. In C. L. Cooper & I. T. Robertson (Eds.) *International review of industrial and organizational psychology* (pp. 235-280). Chichester, UK: Wiley.

Ganster, D. C., & Rosen, C. C. (2013). Work stress and employee health: A multidisciplinary review. *Journal of management*, *39*(5), 1085-1122. https://doi.org/10.1177/0149206313475815

George, D., & Mallery, P. (2019). *IBM SPSS statistics 26 step by step: A simple guide and reference*. Routledge.

Gilboa, S., Shirom, A., Fried, Y., & Cooper, C. (2008). A meta-analysis of work demand stressors and job performance: examining main and moderating effects. *Personnel psychology*, *61*(2), 227-271. https://doi.org/10.1111/j.1744-6570.2008.00113.x

Gollob, H. F., & Reichardt, C. S. (1991). Interpreting and estimating indirect effects assuming time lags really matter. In L. M. Collins & J. L. Horn (Eds.) *Best methods for the analysis of change: Recent advances, unanswered questions, future directions* (pp. 243-259). Washington, DC, US: American Psychological Association. https://doi.org/10.1037/10099-015

Gonzalez-Mulé, E., Kim, M. M., & Ryu, J. W. (2020). A meta-analytic test of multiplicative and additive models of job demands, resources, and stress. *The Journal of Applied Psychology, 106*(9), 1391-1411. https://doi.org/10.1037/apl0000840

González-Romá, V., & Lloret, S. (1998). Construct Validity of Rizzo et al.'s (1970) Role Conflict and Ambiguity Scales: A Multisample Study. *Applied Psychology*, *47*(4), 535-545. doi.org/10.1080/026999498377737

Gorgievski, M. J., Moriano, J. A., & Bakker, A. B. (2014). Relating work engagement and workaholism to entrepreneurial performance. *Journal of Managerial Psychology, 29*(2), 106-121. https://doi.org/10.1108/JMP-06-2012-0169

Government of Canada. (2020). *Key Small Business Statistics — 2020.*

    https://www.ic.gc.ca/eic/site/061.nsf/vwapj/KSBS_2020-v2-

    ENG.pdf/$FILE/KSBS_2020-v2-ENG.pdf

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance:

    Positive behavior in uncertain and interdependent contexts. *The Academy of*

    Management Journal, *50*(2), 327-347. https://doi.org/10.5465/amj.2007.24634438

Guadagnoli, E., & Velicer, W. F. (1988). Relation of sample size to the stability of component

    patterns. *Psychological bulletin*, *103*(2), 265-275. http://dx.doi.org/10.1037/0033-

    2909.103.2.265

Gupta, A. H. (2020, May 9). Why some women call this recession a "shecession*". The New*

    York Times. https://www.nytimes.com/2020/05/09/us/ unemployment-coronavirus-

    women.html

Hackman, J. R., & Oldham, G. R. (1975). Development of the job diagnostic survey. *Journal*

    of Applied psychology, *60*(2), 159-170. https://doi.org/10.1037/h0076546

Hackman, J. R., & Oldham, G. R. (1980). *Work redesign.* Reading, MA: Addison-Wesley.

    https://doi.org/10.1177/105960118200700110

Hair, J. F., Anderson, R. E., Tatham, R. L., & Black, W. C. (1998). *Factor analysis.*

    Multivariate data analysis. NJ: Prentice-Hall.

Hakanen, J. J., Bakker, A. B., & Demerouti, E. (2005). How dentists cope with their job

    demands and stay engaged: The moderating role of job resources. *European Journal*

    of Oral Sciences, *113*(6), 479-487. https://doi.org/10.1111/j.1600-0722.2005.00250.x

Hakanen, J. J., Bakker, A. B., & Schaufeli, W. B. (2006). Burnout and work engagement among teachers. *Journal of school psychology*, *43*(6), 495-513. https://doi.org/10.1016/j.jsp.2005.11.001

Hakanen, J. J., Schaufeli, W. B., & Ahola, K. (2008). The Job Demands-Resources model: A three-year cross-lagged study of burnout, depression, commitment, and work engagement. *Work & Stress*, *22*(3), 224-241. https://doi.org/10.1080/02678370802379432

Halbesleben, J. R., & Demerouti, E. (2005). The construct validity of an alternative measure of burnout: Investigating the English translation of the Oldenburg Burnout Inventory. *Work & Stress*, *19*(3), 208-220. https://doi.org/10.1080/02678370500340728

Hallberg, U. E., & Schaufeli, W. B. (2006). "Same same" but different? Can work engagement be discriminated from job involvement and organizational commitment?. *European psychologist*, *11*(2), 119-127. https://doi.org/10.1027/1016-9040.11.2.119

Halliday, C. S., Paustian-Underdahl, S. C., Ordóñez, Z., Rogelberg, S. G., & Zhang, H. (2018). Autonomy as a key resource for women in low gender egalitarian countries: A cross-cultural examination. *Human Resource Management*, *57*(2), 601-615. https://doi.org/10.1002/hrm.21874

Hayes, A. F. (2018). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (2nd ed.). *Methodology in the social sciences*. New York: The Guilford Press. https://www.processmacro.org

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: advancing conservation of resources theory. *Applied psychology*, *50*(3), 337-421. https://doi.org/10.1111/1464-0597.00062

Hockey, G. R. J. (1993). Cognitive-energetical control mechanisms in the management of work demands and psychological health. In A. D. Baddeley & L. Weiskrantz (Eds.) *Attention: Selection, awareness, and control: Attribute to Donald Broadbent* (pp. 328-345). New York, NJ: Clarendon Press/Oxford University Press.

Hooper, D., Coughlan, J., & Mullen, M. (2008, September). Evaluating model fit: a synthesis of the structural equation modelling literature. In *7th European Conference on research methodology for business and management studies* (pp. 195-200).

House, R. J., & Rizzo, J. R. (1972). Role conflict and ambiguity as critical variables in a model of organizational behavior. *Organizational behavior and human performance*, *7*(3), 467-505. https://doi.org/10.1016/0030-5073(72)90030-X

House, R. J., Schuler, R. S., & Levanoni, E. (1983). Role conflict and ambiguity scales: Reality or artifacts?. *Journal of Applied Psychology*, *68*(2), 334-337. https://doi.org/10.1037/0021-9010.68.2.334

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Ilgen, D. R., & Hollenbeck, J. R. (1991). Job design and roles. *Handbook of industrial and organizational psychology*, *2*, 165-207.

Jackson, S. E., & Schuler, R. S. (1985). A meta-analysis and conceptual critique of research on role ambiguity and role conflict in work settings. *Organizational behavior and*

human decision processes, *36*(1), 16-78. https://doi.org/10.1016/0749-5978(85)90020-2

Jelinek, M., & Litterer, J. A. (1995). Toward entrepreneurial organizations: Meeting ambiguity with engagement. *Entrepreneurship: Theory & Practice, 19*(3), 137-168. https://doi.org/10.1177/104225879501900309

Jimmieson, N., & Terry, D. (1999). The Moderating Role of Task Characteristics in Determining Responses to a Stressful Work Simulation. *Journal of Organizational Behavior, 20*(5), 709-736. https://doi.org/10.1002/(SICI)1099-1379(199909)20:5<709::AID-JOB954>3.0.CO;2-7

Jin, J.-M., Bai, P., He, W., Wu, F., Liu, X.-F., Han, D.- M., Liu, S., & Yang, J.-K. (2020). Gender differ- ences in patients with COVID-19: A focus on severity and mortality. *Frontiers in Public Health*, *8*(152), 1-6. https://doi.org/10.3389/fpubh.2020.00152

Johnson, B. B. (2003). Further notes on public response to uncertainty in risks and science. *Risk Analysis: An International Journal*, *23*(4), 781-789. https://doi.org/10.1111/1539-6924.00355

Jöreskog, K. G., & Sörbom, D. (1993). *LISREL 8: Structural equation modeling with the SIMPLIS command language.* Scientific Software International.

Jöreskog, K. G., & Yang, F. (1996). Nonlinear Structural Equation Models: The Kenny-Judd Model With Interaction Effects. In *Advanced structural equation modeling: issues and techniques* (pp. 57-88). Lawrence Erlbaum Associates.

Kahn, R. L., Wolfe, D. M., Quinn, R., Snoek, J. D., &Rosenthal, R. A. (1964). *Organizational stress.* New York: Wiley.

Kahn, R.L. & Byosserie, P. (1992). Stress in organizations. In M.D. Dunette & L.M. Hough

    (Eds.) *Handbook of Industrial and Organizational Psychology* (pp. 571-650). Palo

    Alto, CA: Consulting Psychologists Press.

Kaldenberg, D. O., & Becker, B. W. (1992). Workload and psychological strain: A test of the

    French, Rodgers, and Cobb hypothesis. *Journal of Organizational Behavior*, *13*(6),

    617-624. https://doi.org/10.1002/job.4030130607

Karasek, R. A. (1998). Demand/Control model: A social-emotional, and psychological

    approach to stress risk and active behavior development. In J. M. Stellman (Ed.) *ILO*

    encyclopedia of occupational health and safety (pp. 34.6-34.14). Geneva, CH: ILO.

Katz, D., & Kahn, R. L. (1978). Organizations and the system concept. *Classics of*

    organization theory, *80*, 480.

Kearney, M. W. (2017). Cross lagged panel analysis. In M.R. Allen (Ed.) *The SAGE*

    encyclopedia of communication research methods (pp. 313-314). SAGE Publications

    Ltd, Thousand Oaks, CA.

Kelloway, E. K., & Barling, J. (1990). Item content versus item wording: Disentangling role

    conflict and role ambiguity. *Journal of Applied Psychology*, *75*(6), 738.

    https://dx.doi.org/10.1037/0021-9010.75.6.738

Kenny, D. A., & Judd, C. M. (1984). Estimating the nonlinear and interactive effects of latent

    variables. *Psychological bulletin*, *96*(1), 201-210. https://doi.org/10.1037/0033-

    2909.96.1.201

Kenny, D. A., & McCoach, D. B. (2003). Effect of the number of variables on measures of fit

    in structural equation modeling. *Structural equation modeling*, *10*(3), 333-351.

    https://doi.org/10.1207/S15328007SEM1003_1

Kim, H., & Stoner, M. (2008). Burnout and turnover intention among social workers: Effects of role stress, job autonomy and social support. *Administration in Social work*, *32*(3), 5-25. https://doi.org/10.1080/03643100801922357

King, L. A., & King, D. W. (1990). Role conflict and role ambiguity: A critical assessment of construct validity. *Psychological Bulletin*, *107*(1), 48-64. https://doi.org/10.1037/0033-2909.107.1.48

Kinnunen, U., Feldt, T., & Mäkikangas, A. (2008). Testing the effort-reward imbalance model among Finnish managers: The role of perceived organizational support. *Journal of occupational health psychology*, *13*(2), 114-127. https://doi.org/10.1037/1076-8998.13.2.114

Kline, R. (2010). *Principles and practices of structural equation modeling*. New York: Guilford Press.

Kline, R. (2011). Convergence of structural equation modeling and multilevel modeling. In *The SAGE handbook of innovation in social research methods* (pp. 562-589). SAGE Publications Ltd. https://www.doi.org/10.4135/9781446268261

Koopmans, L., Bernaards, C. M., Hildebrandt, V. H., Schaufeli, W. B., de Vet Henrica, C. W., & van der Beek, A. J. (2011). Conceptual frameworks of individual work performance: A systematic review. *Journal of occupational and environmental medicine*, *53*(8), 856-866. https://doi.org/10.1097/JOM.0b013e318226a763

Lance, C. E. (1988). Residual centering, exploratory and confirmatory moderator analysis, and decomposition of effects in path models containing interactions. *Applied Psychological Measurement*, *12*(2), 163-175. https://doi.org/10.1177/014662168801200205

Latack, J. C. (1981). Person/role conflict: Holland's model extended to role-stress research, stress management, and career development. *Academy of Management Review, 6*(1), 89-103. https://doi.org/10.2307/257143

Lee, R. T., & Ashforth, B. E. (1996). A Meta-analytic Examination of the Correlates of the Three Dimensions of Job Burnout. *Journal of Applied Psychology, 81*(2), 123-133. https://doi.org/10.1037/0021-9010.81.2.123

Leiter, M. P. (1993). Burnout as a developmental process: Consideration of models. In W. B. Schaufeli, C. Maslach, & T. Marek (Eds.) *Series in applied psychology: Social issues and questions. Professional burnout: Recent developments in theory and research* (pp. 237-250). Philadelphia, PA: Taylor & Francis.

Leiter, M. P., & Harvie, P. (1998). Conditions for staff acceptance of organizational change: Burnout as a mediating construct. *Anxiety, Stress, and Coping, 11*(1), 1-25. https://doi.org/10.1080/10615809808249311

Leiter, M. P., & Schaufeli, W. B. (1996). Consistency of the burnout construct across occupations. *Anxiety, stress, and coping, 9*(3), 229-243. https://doi.org/10.1080/10615809608249404

Leiter, M. P., Harvie, P., & Frizzell, C. (1998). The correspondence of patient satisfaction and nurse burnout. *Social science & medicine, 47*(10), 1611-1617. https://doi.org/10.1016/S0277-9536(98)00207-X

LePine, J. A., Podsakoff, N. P., & LePine, M. A. (2005). A meta-analytic test of the challenge stressor-hindrance stressor framework: An explanation for inconsistent relationships among stressors and performance. *Academy of management journal, 48*(5), 764-775. https://doi.org/10.5465/amj.2005.18803921

Little, T. D., Bovaird, J. A., & Widaman, K. F. (2006). On the merits of orthogonalizing

    powered and product terms: Implications for modeling interactions among latent

    variables. *Structural Equation Modeling, 13*(4)*,* 497-519.

    https://doi.org/10.1207/s15328007sem1304_1

Llorens, S., Bakker, A. B., Schaufeli, W., & Salanova, M. (2006). Testing the robustness of

    the job demands-resources model. *International Journal of Stress*

    Management, *13*(3), 378-391. https://doi.org/10.1037/1072-5245.13.3.378

Low, M. B., & MacMillan, I. C. (1988). Entrepreneurship: Past research and future

    challenges. *Journal of management*, *14*(2), 139-161.

    https://doi.org/10.1177/014920638801400202

Lumpkin, G. T., & Dess, G. G. (1996). Clarifying the entrepreneurial orientation construct and

    linking it to performance. *Academy of management Review*, *21*(1), 135-172.

    https://doi.org/10.5465/amr.1996.9602161568

Lysonski, S. (1985). A boundary theory investigation of the product manager's role. *Journal*

    of Marketing, 49(1), 26-40. https://doi.org/10.1177/002224298504900103

MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and

    determination of sample size for covariance structure modeling. *Psychological*

    methods, *1*(2), 130-149. http://dx.doi.org/10.1037/1082-989X.1.2.130

MacCallum, R. C., Widaman, K. F., Preacher, K. J., & Hong, S. (2001). Sample size in factor

    analysis: The role of model error. *Multivariate behavioral research*, *36*(4), 611-637.

    https://doi.org/10.1207/S15327906MBR3604_06

MacCallum, R. C., Widaman, K. F., Zhang, S., & Hong, S. (1999). Sample size in factor analysis. *Psychological methods*, *4*(1), 84-99. https://doi.org/10.1037/1082-989X.4.1.84

MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological methods*, *7*(1), 83-104. https://doi.org/10.1037/1082-989X.7.1.83

Marsh, H. W., Balla, J. R., & Hau, K. T. (1996). An evaluation of incremental fit indices: A clarification of mathematical and empirical properties. In G. A. Marcoulides & R. E. Schumacker (Eds.) *Advanced structural equation modeling: Issues and techniques* (pp. 315-353). New York, NJ: Psychology Press.

Marsh, H. W., Wen, Z., & Hau, K. T. (2004). Structural equation models of latent interactions: evaluation of alternative estimation strategies and indicator construction. *Psychological methods*, *9*(3), 275-300. https://doi.org/10.1037/1082-989X.9.3.275

Marsh, H. W., Wen, Z., Hau, K. T., Little, T. D., Bovaird, J. A., & Widaman, K. F. (2007). Unconstrained structural equation models of latent interactions: Contrasting residual- and mean-centered approaches. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(4), 570-580. https://doi.org/10.1080/10705510701303921

Maslach C., & Leiter, M. P. (1997). *The Truth About Burnout*. San Francisco: Jossey-Bass

Maslach, C. (1982). *Burnout: The cost of caring*. New York: Prentice- Hall.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal of organizational behavior*, *2*(2), 99-113. https://doi.org/10.1002/job.4030020205

Maslach, C., & Jackson, S. E. (1986). *MBI: Maslach Burnout Inventory. Manual Research Edition.* Paolo Alto, CA: Consulting Psychologist Press.

Maslach, C., & Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory Manual.* Paolo Alto, CA: Consulting Psychologist Press.

Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual review of psychology*, *52*(1), 397-422. https://doi.org/10.1146/annurev.psych.52.1.397

McDowell, W. C., Matthews, L. M., Matthews, R. L., Aaron, J. R., Edmondson, D. R., & Ward, C. B. (2019). The price of success: balancing the effects of entrepreneurial commitment, work-family conflict and emotional exhaustion on job satisfaction. *International Entrepreneurship and Management Journal*, *15*(4), 1179-1192. https://doi.org/10.1007/s11365-019-00581-w

McGee, G. W., Ferguson, C. E., & Seers, A. (1989). Role conflict and role ambiguity: do the scales measure these two constructs?. *Journal of Applied Psychology*, *74*(5), 815-818. https://dx.doi.org/10.1037/0021-9010.74.5.815

McIntosh, C. N. (2007). Rethinking fit assessment in structural equation modelling: A commentary and elaboration on Barrett (2007). *Personality and Individual Differences*, *42*(5), 859-867. https://doi.org/10.1016/j.paid.2006.09.020

Meijman, T.F. & Mulder, G. (1998). Psychological aspects of workload. In Drenth, P.J., Thierry, H. & de Wolff, C.J. (Eds.) *Handbook of Work and Organizational Psychology* (pp. 5-33). Hove, UK: Psychology Press.

Miles, M. P., & Covin, J. G. (2002). Exploring the practice of corporate venturing: Some common forms and their organizational implications. *Entrepreneurship theory and practice, 26*(3), 21-40. https://doi.org/10.1177/104225870202600302

Miles, R. H., & Perreault Jr, W. D. (1976). Organizational role conflict: Its antecedents and

consequences. *Organizational Behavior and Human Performance*, *17*(1), 19-44.

https://doi.org/10.1016/0030-5073(76)90051-9

Miller, D. (1983). The correlates of entrepreneurship in three types of firms. *Management

science*, *29*(7), 770-791. https://doi.org/10.1287/mnsc.29.7.770

Miller, D. (2011). Miller (1983) revisited: A reflection on EO research and some suggestions

for the future. Entrepreneurship theory and practice, 35(5), 873-894.

https://doi.org/10.1111/j.1540-6520.2011.00457.x

Montani, F., & Dagenais-Desmarais, V. (2018). Unravelling the relationship between role

overload and organizational citizenship behaviour: A test of mediating and

moderating effects. *European Management Journal*, *36*(6), 757-768.

https://doi.org/10.1016/j.emj.2018.03.001

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ):

developing and validating a comprehensive measure for assessing job design and the

nature of work. *Journal of applied psychology*, *91*(6), 1321-1339.

https://doi.org/10.1037/0021-9010.91.6.1321

Morrison, E. W., & Phelps, C. C. (1999). Taking charge at work: Extrarole efforts to initiate

workplace change. *Academy of management Journal*, *42*(4), 403-419.

https://doi.org/10.5465/257011

Motowidlo, S. J., & Van Scotter, J. R. (1994). Evidence that task performance should be

distinguished from contextual performance. *Journal of Applied psychology*, *79*(4),

475-480. https://doi.org/10.1037/0021-9010.79.4.475

Mulaik, S. A., James, L. R., Van Alstine, J., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological bulletin*, *105*(3), 430-445. https://doi.org/10.1037/0033-2909.105.3.430

Murphy, P. R., & Jackson, S. E. (1999). Managing work-role performance: Challenges for 21st century organizations and employees. In D. R. Ilgen & E. D. Pulakos (Eds.) *The changing nature of work performance* (pp. 325-365). San Francisco: Jossey-Bass.

Muthén, L.K. and Muthén, B.O. (1998-2017). *Mplus User's Guide*. Eighth Edition. Los Angeles, CA: Muthén & Muthén.

Nahrgang, J. D., Morgeson, F. P., & Hofmann, D. A. (2011). Safety at work: a meta-analytic investigation of the link between job demands, job resources, burnout, engagement, and safety outcomes. *Journal of applied psychology*, *96*(1), 71-94. https://doi.org/10.1037/a0021484

Neck, C. P., Houghton, J. D., Sardeshmukh, S. R., Goldsby, M., & Godwin, J. L. (2013). Self-leadership: A cognitive resource for entrepreneurs. *Journal of small business & entrepreneurship*, *26*(5), 463-480. https://doi.org/10.1080/08276331.2013.876762

Netemeyer, R. G., Johnston, M. W., & Burton, S. (1990). Analysis of role conflict and role ambiguity in a structural equations framework. *Journal of applied psychology*, *75*(2), 148-157. https://dx.doi.org/10.1037/0021-9010.75.2.148

Olafsen, A. H., & Frølund, C. W. (2018). Challenge accepted! Distinguishing between challenge-and hindrance demands. *Journal of Managerial Psychology*, *33*(4-5), 345-357. https://doi.org/10.1108/JMP-04-2017-0143

Olafsen, A. H., & Halvari, H. (2017). Motivational mechanisms in the relation between job characteristics and employee functioning. *The Spanish Journal of Psychology*, *20*(38), 10-13. https://doi.org/10.1017/sjp.2017.34

Ozili, P. K., & Arun, T. (2020). Spillover of COVID-19: impact on the Global Economy. *SSRN,* 1-27. http://dx.doi.org/10.2139/ssrn.3562570

Pallant, J. (2016). *EBOOK: SPSS Survival Manual*. McGraw-Hill Education (UK).

Papineau, M., Morin, A., Legault, L., Demers, C., Chevrier, N., & Côté, A. (2005). *MBI-GS, version française*. Groupe de recherche sur l'épuisement professionnel (GREP).

Parasuraman, S., & Simmers, C. A. (2001). Type of employment, work-family conflict and well-being: a comparative study. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior*, *22*(5), 551-568. https://doi.org/10.1002/job.102

Parker, S. (2000). From passive to proactive motivation: The importance of flexible role orientations and role breadth self-efficacy. *Applied Psychology*, *49*(3), 447-469. https://doi.org/10.1111/1464-0597.00025

Parker, S. K. (1998). Enhancing role breadth self-efficacy: the roles of job enrichment and other organizational interventions. *Journal of applied psychology*, *83*(6), 835-852. https://doi.org/10.1037/0021-9010.83.6.835

Parker, S. K., Wall, T. D., & Cordery, J. L. (2001). Future work design research and practice: Towards an elaborated model of work design. *Journal of occupational and organizational psychology*, *74*(4), 413-440. https://doi.org/10.1348/096317901167460

Parker, S. K., Williams, H. M., & Turner, N. (2006). Modeling the antecedents of proactive

behavior at work. *Journal of applied psychology*, *91*(3), 636-652.

https://doi.org/10.1037/0021-9010.91.3.636

Patzelt, H., & Shepherd, D. A. (2011). Negative emotions of an entrepreneurial career: Self-

employment and regulatory coping behaviors. *Journal of Business venturing*, *26*(2),

226-238. https://doi.org/10.1016/j.jbusvent.2009.08.002

Perrow, C. (1967). A framework for the comparative analysis of organizations. *American*

sociological review, 32(2),194-208. https://doi.org/2091811

Pierce, J. L., & Gardner, D. G. (2004). Self-esteem within the work and organizational

context: A review of the organization-based self-esteem literature. *Journal of*

management, *30*(5), 591-622. https://doi.org/10.1016/j.jm.2003.10.001

Power, K. (2020). The COVID-19 pandemic has increased the care burden of women and

families. *Sustainability: Science, Practice and Policy*, *16*(1), 67-73.

https://doi.org/10.1080/15487733.2020.1776561

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and

comparing indirect effects in multiple mediator models. *Behavior research*

methods, *40*(3), 879-891. https://doi.org/10.3758/brm.40.3.879

Pulakos, E. D., Arad, S., Donovan, M. A., & Plamondon, K. E. (2000). Adaptability in the

workplace: development of a taxonomy of adaptive performance. *Journal of applied*

psychology, *85*(4), 612-624. https://doi.org/10.1037/0021-9010.85.4.612

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. (2009). Entrepreneurial orientation and

business performance: An assessment of past research and suggestions for the

future. *Entrepreneurship theory and practice*, *33*(3), 761-787.

https://doi.org/10.1111/j.1540-6520.2009.00308.x

Rindova, V., Barry, D., & Ketchen Jr, D. J. (2009). Entrepreneuring as emancipation.

Academy of management review, *34*(3), 477-491.

https://doi.org/10.5465/amr.2009.40632647

Ritov, Y. A., & Gilula, Z. (1993). Analysis of contingency tables by correspondence models

subject to order constraints. *Journal of the American Statistical Association*, *88*(424),

1380-1387. https://doi.org/2291280

Rizzo, J. R., House, R. J., & Lirtzman, S. I. (1970). Role conflict and ambiguity in complex

organizations. *Administrative science quarterly*, 150-163. https://doi.org/2391486

Robertson, T., Wright, F. T., & Dykstra, R. L. (1988). *Order restricted statistical inference*.

New York: Wiley.

Salanova, M., Agut, S., & Peiró, J. M. (2005). Linking organizational resources and work

engagement to employee performance and customer loyalty: the mediation of service

climate. *Journal of applied Psychology*, *90*(6), 1217. https://doi.org/10.1037/0021-

9010.90.6.1217

Sarri, K., & Trihopoulou, A. (2005). Female entrepreneurs' personal characteristics and

motivation: a review of the Greek situation. *Women in Management Review*, *20*(1),

24-36. https://doi.org/10.1108/09649420510579559

Schaubroeck, J., Ganster, D. C., Sime, W. E., & Ditman, D. (1993). A field experiment testing

supervisory role clarification. *Personnel psychology*, *46*(1), 1-25.

https://doi.org/10.1111/j.1744-6570.1993.tb00865.x

Schaufeli, W. B. (2017). Applying the job demands-resources model. *Organizational Dynamics*, *2*(46), 120-132. http://dx.doi.org/10.1016/j.orgdyn.2017.04.008

Schaufeli, W. B., & Bakker, A. B. (2003). *Test manual for the Utrecht Work Engagement Scale*. Unpublished manuscript, Utrecht University, the Netherlands. http://www.schaufeli.com

Schaufeli, W. B., & Bakker, A. B. (2004). Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study. *Journal of organizational Behavior*, *25*(3), 293-315. https://doi.org/10.1002/job.248

Schaufeli, W. B., & Salanova, M. (2007). Efficacy or inefficacy, that's the question: Burnout and work engagement, and their relationships with efficacy beliefs. *Anxiety, stress, and coping*, *20*(2), 177-196. https://doi.org/10.1080/10615800701217878

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716. https://doi.org/10.1177/0013164405282471

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716. https://doi.org/10.1177/0013164405282471

Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). *MBI-general survey*. Paolo Alto, CA: Consulting Psychologist Press.

Schaufeli, W. B., Martinez, I. M., Pinto, A. M., Salanova, M., & Bakker, A. B. (2002a). Burnout and engagement in university students: A cross-national study. *Journal of*

cross-cultural psychology, *33*(5), 464-481.

https://doi.org/10.1177/0022022102033005003

Schaufeli, W. B., Salanova, M., González-Romá, V., & Bakker, A. B. (2002b). The

measurement of engagement and burnout: A two sample confirmatory factor analytic

approach. *Journal of Happiness Studies, 3*(1), 71-92.

https://doi.org/10.1023/A:1015630930326.

Schindehutte, M., Morris, M., & Allen, J. (2006). Beyond achievement: Entrepreneurship as

extreme experience. *Small Business Economics*, *27*(4), 349-368.

https://doi.org/10.1007/s11187-005-0643-6

Shepherd, C. D., Marchisio, G., Morrish, S. C., Deacon, J. H., & Miles, M. P. (2010).

Entrepreneurial burnout: Exploring antecedents, dimensions and outcomes. *Journal*

of Research in Marketing and Entrepreneurship. *12*(1), 71-79.

https://doi.org/10.1108/14715201011060894

Silvapulle, M. J., & Sen, P. K. (2004). *Constrained statistical inference: Order, inequality,*

and shape constraints. London: Wiley.

Steinmetz, H., Davidov, E., & Schmidt, P. (2011). Three Approaches to Estimate Latent

Interaction Effects: Intention and Perceived Behavioral Control in the Theory of

Planned Behavior. *Methodological Innovations Online*, *6*(1), 95-110.

https://doi.org/10.4256/mio.2010.0030

Stevens, J. (1992). *Applied multivariate statistics for the social sciences. (2nd ed.)*. Hillsdale,

New Jersey: Lawrence Erlbaum Associates.

Stoel, R. D., Galindo-Garre, F., Dolan, C., & Van den Wittenboer, G. (2006). On the

likelihood ratio test in structural equation modeling when parameters are subject to

boundary constraints. *Psychological Methods, 4*, 439-455.

https://doi.org/10.1037/1082-989X.11.4.439

Tabachnick, B. G., Fidell, L. S., & Ullman, J. B. (2007). *Using multivariate statistics*. Boston, MA: Pearson.

Taris, T. W., & Feij, J. A. (2004). Learning and strain among newcomers: A three-wave study on the effects of job demands and job control. *The Journal of psychology*, *138*(6), 543-563. https://doi.org/10.3200/JRLP.138.6.543-563

Taris, T. W., & Kompier, M. A. (2006). Games researchers play—Extreme-groups analysis and mediation analysis in longitudinal occupational health research. *Scandinavian journal of work, environment & health*, 463-472. https://doi.org/10.5271/sjweh.1051

Teas, R. K. (1983). Supervisory behavior, role stress, and the job satisfaction of industrial salespeople. *Journal of marketing research*, *20*(1), 84-91. https://doi.org/10.1177/002224378302000110

Tetrick, L. E., Slack, K. J., Da Silva, N., & Sinclair, R. R. (2000). A comparison of the stress-strain process for business owners and nonowners: differences in job demands, emotional exhaustion, satisfaction, and social support. *Journal of Occupational Health Psychology, 5*(4), 464-476. https://doi.org/10.1037/1076-8998.5.4.464

Thompson, J. (1967). Organizations in Action. *New York*.

Toth, I., Heinänen, S., & Puumalainen, K. (2021). Passionate and engaged? Passion for inventing and work engagement in different knowledge work contexts. *International Journal of Entrepreneurial Behavior & Research*, *27*(9), 1-25. https://doi.org/10.1108/IJEBR-09-2020-0632

Tracy, L., & Johnson, T. W. (1981). What do the role conflict and role ambiguity scales measure?. *Journal of Applied Psychology*, *66*(4), 464-469. https://doi.org/10.1037/0021-9010.66.4.464

Tracy, L., & Johnson, T. W. (1983). Measurement of role stress: Dimensionality of scale items. *Social Behavior and Personality: an international journal*, *11*(1), 1-7. https://doi.org/10.2224/sbp.1983.11.1.1

Tsonaka, R., & Moustaki, I. (2007). Parameter constraints in generalized linear latent variable models. *Computational statistics & data analysis*, *51*(9), 4164-4177. https://doi.org/10.1016/j.csda.2006.04.023

Tubre, T. C., & Collins, J. M. (2000). Jackson and Schuler (1985) revisited: A meta-analysis of the relationships between role ambiguity, role conflict, and job performance. *Journal of management*, *26*(1), 155-169. https://doi.org/10.1177/014920630002600104

United Nations. (2020). *Policy brief: The impact of COVID-19 on women*. https://www.unwomen. org/-/media/headquarters/attachments/ sections/library/publications/2020/policy- brief-the-impact-of-covid-19-on-women- en. pdf?la=en&vs=1406

Van De Schoot, R., Hoijtink, H., & Deković, M. (2010). Testing inequality constrained hypotheses in SEM models. *Structural Equation Modeling*, *17*(3), 443-463. https://doi.org/10.1080/10705511.2010.489010

Van den Broeck, A., De Cuyper, N., De Witte, H., & Vansteenkiste, M. (2010). Not all job demands are equal: Differentiating job hindrances and job challenges in the Job

Demands-Resources model. *European journal of work and organizational psychology*, *19*(6), 735-759. https://doi.org/10.1080/13594320903223839

Van Gelderen, M. W., & Jansen, P. G. W. (2006). Autonomy as a startup motive. *Journal of Small Business and Enterprise Development*, *13*(1), 23-32. https://doi.org/10.1108/14626000610645289

Van Iddekinge, C. H., Aguinis, H., Mackey, J. D., & DeOrtentiis, P. S. (2018). A meta-analysis of the interactive, additive, and relative effects of cognitive ability and motivation on performance. *Journal of Management*, *44*(1), 249-279. https://doi.org/10.1177/0149206317702220

Wall, T. D., Cordery, J. L., & Clegg, C. W. (2002). Empowerment, performance, and operational uncertainty: A theoretical integration. *Applied Psychology*, *51*(1), 146-169. https://doi.org/10.1111/1464-0597.00083

Wall, T. D., Jackson, P. R., & Davids, K. (1992). Operator work design and robotics system performance: A serendipitous field study. *Journal of applied Psychology*, *77*(3), 353-362. https://doi.org/10.1037/0021-9010.77.3.353

Wall, T. D., Jackson, P. R., & Mullarkey, S. (1995). Further evidence on some new measures of job control, cognitive demand and production responsibility. *Journal of organizational behavior*, *16*(5), 431-455. https://doi.org/10.1002/job.4030160505

Wei, X., Cang, S., & Hisrich, R. D. (2015). Entrepreneurial stressors as predictors of entrepreneurial burnout. *Psychological Reports*, *116*(1), 74-88. https://doi.org/10.2466/01.14.PR0.116k13w1

Welbourne, T. M., Johnson, D. E., & Erez, A. (1998). The role-based performance scale: Validity analysis of a theory-based measure. *Academy of management journal*, *41*(5), 540-555. https://doi.org/10.5465/256941

Westland, J.C. (2010). Lower bounds on sample size in structural equation modeling. Electronic Commerce Research and Applications, 9(6), 476-487. https://doi.org/10.1016/j.elerap.2010.07.003

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviours. *Journal of Management*, *17*(3), 601-617. https://doi.org/10.1177/014920639101700305

Wincent, J., & Örtqvist, D. (2009a). A comprehensive model of entrepreneur role stress antecedents and consequences. *Journal of Business and Psychology*, *24*(2), 225-243. https://doi.org/10.1007/s10869-009-9102-8

Wincent, J., & Örtqvist, D. (2009b). Role stress and entrepreneurship research. *International Entrepreneurship and Management Journal*, *5*(1), 1-22. https://doi.org/10.1007/s11365-006-0017-9

Wincent, J., Örtqvist, D., & Drnovsek, M. (2008). The entrepreneur's role stressors and proclivity for a venture withdrawal. *Scandinavian Journal of Management*, *24*(3), 232-246. https://doi.org/10.1016/j.scaman.2008.04.001

World Health Organization. (2021, August 31) *Coronavirus disease (COVID-19) pandemic.* https://www.who.int

Wortman, M. S. (1987). Entrepreneurship: An integrating typology and evaluation of the empirical research in the field. *Journal of Management*, *13*(2), 259-279. https://doi.org/10.1177/014920638701300205

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2007). The role of

    personal resources in the job demands-resources model. *International journal of*

    stress management, *14*(2), 121-141. https://doi.org/10.1037/1072-5245.14.2.121

Xie, J. L., & Johns, G. (1995). Job scope and stress: Can job scope be too high?. *Academy of*

    Management Journal, *38*(5), 1288-1309. https://doi.org/10.2307/256858

Yang, N. (2012). Small businesses and international entrepreneurship in the economic hard

    time: A global strategic perspective. *International Journal of*

    Entrepreneurship, *16*(2), 113-131.

Yavas, U., Karatepe, O. M., & Babakus, E. (2013). Correlates of nonwork and work

    satisfaction among hotel employees: Implications for managers. *Journal of*

    Hospitality Marketing & Management, *22*(4), 375-406.

    https://doi.org/10.1080/19368623.2012.667596

Yuan, K. H., & Bentler, P. M. (2007). 3. Multilevel Covariance Structure Analysis by Fitting

    Multiple Single-Level Models. *Sociological methodology*, *37*(1), 53-82.

    https://doi.org/10.1111/j.1467-9531.2007.00182.x

Yukongdi, V., & Lopa, N. Z. (2017). Entrepreneurial intention: a study of individual,

    situational and gender differences. *Journal of Small Business and Enterprise*

    Development, *24(*2), 333-352. https://doi.org/10.1108/JSBED-10-2016-0168

Zacharakis, A. L., Meyer, G. D., & DeCastro, J. (1999). Differing perceptions of new venture

    failure: a matched exploratory study of venture capitalists and entrepreneurs. *Journal*

    of Small Business Management, *37*(3), 1-14.

Zacher, H. (2016). Within-person relationships between daily individual and job

    characteristics and daily manifestations of career adaptability. *Journal of Vocational*

    Behavior, *92*, 105-115. https://doi.org/10.1016/j.jvb.2015.11.013

Zapf, D., Dormann, C., & Frese, M. (1996). Longitudinal studies in organizational stress

    research: a review of the literature with reference to methodological issues. *Journal of*

    occupational health psychology, *1*(2), 145-169. https://doi.org/10.1037/1076-

    8998.1.2.145

Zecca, G., Györkös, C., Becker, J., Massoudi, K., de Bruin, G. P., & Rossier, J. (2015).

    Validation of the French Utrecht Work Engagement Scale and its relationship with

    personality traits and impulsivity. *Revue Européenne de Psychologie*

    Appliquée/European Review of Applied Psychology, *65*(1), 19-28.

    https://doi.org/10.1016/j.erap.2014.10.003

Zuo, L., Lowman, G. H., Bachrach, D. G., Hou, N., & Xiao, W. (2021). Less engaged over

    time? The effect of self-efficacy on work engagement trajectory. *Journal of*

    Theoretical Social Psychology, *5*(3), 249-261. https://doi.org/10.1002/jts5.90

Appendices

Consent (Study 1, 2 &3)

But général du projet
Ce projet de recherche permettra de mieux comprendre la réalité organisationnelle des employés et des entrepreneurs en plus de mieux comprendre les facteurs contextuels et personnels contribuant à leur bien-être.

Procédures
Vous aurez à vous prononcer sur différents aspects de votre expérience au travail et nous vous prions d'être le plus honnête possible. La participation consiste à remplir un questionnaire en ligne d'environ 10 à 15 minutes.

Confidentialité
Il est entendu que les renseignements recueillis sont confidentiels et que seuls les membres de l'équipe de recherche auront accès aux résultats bruts des questionnaires.

Responsabilité
En acceptant de participer à ce projet, vous ne renoncez à aucun de vos droits ni ne libérez les chercheurs, le commanditaire ou les institutions impliquées de leurs obligations légales et professionnelles.

Des questions sur le projet ?
Pour des questions sur le projet, vous pouvez contacter Felix A. Proulx, doctorant en psychologie du travail, au numéro (000) 000-0000 ou par courriel via @umontreal.ca. Le Comité d'éthique de la recherche en arts et en sciences (CÉRAS) de l'Université de Montréal a approuvé le projet de recherche.

Consentement
Déclaration du participant:
- Je comprends que je dois répondre le plus honnêtement possible sans quoi ma participation ne sera pas valide.
- Je m'engage à participer à la complétion du questionnaire.
- Je peux poser des questions à l'équipe de recherche et exiger des réponses satisfaisantes.
- Je comprends qu'en participant à ce projet de recherche, je ne renonce à aucun de mes droits ni ne dégage les chercheurs de leurs responsabilités.
- J'ai pris connaissance du présent formulaire d'information et de consentement et j'accepte de participer au projet de recherche.

(Note : Le masculin est utilisé pour alléger le texte, et ce, sans préjudice pour la forme féminine.)

Remerciements

Votre collaboration est importante à la réalisation de notre projet et l'équipe de recherche tient à vous en remercier. Si vous souhaitez obtenir un résumé écrit des principaux résultats de cette recherche, veuillez en avertir notre équipe en nous écrivant au fa.proulx@umontreal.ca.

1. J'accepte
2. Je refuse

J'accepte l'utilisation de mes données pour des projets de recherche portant sur d'autres aspects que ceux étudiés dans le projet actuel. Je comprends que mes données demeureront confidentielles et qu'aucun élément ne permettra de m'identifier dans une publication (affiches, thèses, articles, etc.).

1. Oui, j'accepte que mes données soient utilisées pour des projets de recherche ultérieurs.
2. Non, je n'accepte pas que mes données soient utilisées pour des projets de recherche ultérieurs.

Sociodemographic (Study 1, 2 &3)

Veuillez indiquer votre genre.
1. Homme
2. Femme
3. Autres

Veuillez indiquer votre âge.

À quel âge avez-vous appris le français? S'il s'agit de votre langue maternelle, veuillez écrire "0".

Êtes-vous entrepreneur à votre compte ou employé salarié ?
1. Entrepreneur
2. Employé
3. Autre

Veuillez indiquer votre statut d'emploi.
1. Temps plein
2. Temps partiel
3. Actuellement sans emploi

Combien d'heures en moyenne par semaine avez-vous travaillées lors du dernier mois ?

Dans quel domaine travaillez-vous.

If Êtes-vous entrepreneur à votre compte ou employé salarié ? = Employé
Depuis combien de mois occupez-vous cet emploi?

If Êtes-vous entrepreneur à votre compte ou employé salarié ? = Entrepreneur
Depuis combien de mois avez-vous démarré votre entreprise?

Questionnaire - Study 1

Job demands (role overload):

Les énoncés suivants se réfèrent à votre travail. Veuillez lire attentivement et indiquez dans quelle mesure vous êtes d'accord avec chacun des énoncés suivants:

Totalement en désaccord	En désaccord	Partiellement en désaccord	Neutre	Partiellement d'accord	D'accord	Totalement d'accord
1	2	3	4	5	6	7

1.	Je ne semble jamais avoir assez de temps pour tout faire.	RO1
2.	La quantité de travail qu'on me demande de faire est juste.	RO2r
3.	J'ai trop de travail à faire pour tout bien faire.	RO3

Cammann, C., Fichman, M., Jenkins, G. D., & Klesh, J. (1983). Michigan organizational assessment questionnaire In: Seashore SE, Lawler EE, Mirvis PH, Cammann C, editors. Assessing organizational change: a guide to methods, measures, and practices.

*Translated using the back translation method (Vallerand & Halliwell, 1983).

Job resources (autonomy):

Les énoncés suivants se réfèrent à votre travail. Veuillez lire attentivement et indiquez dans quelle mesure vous êtes d'accord avec chacun des énoncés suivants:

Totalement en désaccord	En désaccord	Partiellement en désaccord	Neutre	Partiellement d'accord	D'accord	Totalement d'accord
1	2	3	4	5	6	7

1.	Ce travail me permet de m'organiser comme je le souhaite.	PA1
2.	Ce travail me permet de décider dans quel ordre les tâches doivent être réalisées.	PA2
3.	Ce travail me permet de planifier ce que j'ai à faire.	PA3
4.	Ce travail me donne l'occasion de faire preuve d'initiative personnelle dans la réalisation des tâches professionnelles.	DA1
5.	Ce travail me permet de prendre de nombreuses décisions par moi-même.	DA2
6.	Ce travail me donne une grande autonomie dans la prise de décisions.	DA3

7.	Ce travail me permet de prendre des décisions sur les méthodes à utiliser pour réaliser mes tâches professionnelles.	MA1
8.	Ce travail m'offre d'importantes possibilités d'indépendance et de liberté dans la réalisation de mes tâches professionnelles.	MA2
9.	Ce travail me permet de décider par moi-même de la manière selon laquelle je vais réaliser mes tâches professionnelles.	MA3

Morgeson, F. P., & Humphrey, S. E. (2006). The Work Design Questionnaire (WDQ): developing and validating a comprehensive measure for assessing job design and the nature of work. *Journal of applied psychology*, *91*(6), 1321-1339.

*Traduction: Bigot, L., Fouquereau, E., Lafrenière, M. A. K., Gimenes, G., Becker, C., & Gillet, N. (2014). Analyse préliminaire des qualités psychométriques d'une version française du Work Design Questionnaire. *Psychologie du Travail et des Organisations*, *20*(2), 203-232.

Burnout/Engagement (OLBI):

Les énoncés suivants se réfèrent à vos sentiments et attitudes pendant le travail. Veuillez indiquer dans quelle mesure vous êtes d'accord avec chacun des énoncés suivants en sélectionnant le chiffre qui correspond à l'énoncé :

Très d'accord	D'accord	Désaccord	Pas du tout d'accord
1	2	3	4

1.	Je trouve toujours des aspects nouveaux et intéressants dans mon travail.	D1
2.	Il y a des jours où je me sens fatigué avant d'arriver au travail.	E1r
3.	Il arrive de plus en plus souvent que je parle de mon travail de manière négative.	D2r
4.	Après le travail, j'ai tendance à avoir besoin de plus de temps que par le passé pour me détendre et me sentir mieux.	E2r
5.	Je peux très bien tolérer la pression de mon travail.	E3
6.	Dernièrement, j'ai tendance à moins penser au travail et à faire mon travail presque mécaniquement.	D3r
7.	Je trouve que mon travail est un défi positif.	D4
8.	Au cours de mon travail, je me sens souvent émotionnellement vidée.	E4r
9.	Au fil du temps, il est possible de se déconnecter de ce type de travail.	D5r
10.	Après avoir travaillé, j'ai assez d'énergie pour mes loisirs.	E5
11.	Parfois, mes tâches au travail me rendent malade.	D6r
12.	Après mon travail, je me sent généralement épuisé et fatigué.	E6r
13.	C'est le seul type de travail que je peux m'imaginer faire.	D7
14.	Habituellement, j'arrive à gérer la quantité de travail à faire correctement.	E7
15.	Je me sens de plus en plus engagé dans mon travail.	D8
16.	Quand je travaille, je me sens habituellement énergisé.	E8

Demerouti, E., Bakker, A.B., Vardakou, I., & Kantas, A. (2003). The convergent validity of two burnout instruments: A multitrait-multimethod analysis. *European Journal of Psychological Assessment, 19*, 12-23.

*Traduction: Translated using the back translation method (Vallerand & Halliwell, 1983).

Performance (IRB):

Veuillez indiquer votre degré d'accord ou de désaccord avec chacun des énoncés suivants:

Pas du tout en accord	Très peu en accord	Un peu en accord	Moyennement en accord	Assez en accord	Fortement en accord	Très fortement en accord
1	2	3	4	5	6	7

10	Je complète adéquatement les tâches **que je dois effectuer.**	PERF_1
11	Je rencontre les exigences de performance **requises pour mon rôle.**	PERF_2
12	Je remplis les responsabilités **nécessaire au bon fonctionnement de mon entreprise.**	PERF_3
13	J'accomplis les tâches que l'on attend de moi.	PERF_4
14	Ma performance est au-delà **des attentes externes (clients, fournisseurs, employées, etc.)**.	PERF_5

Williams, L. J., & Anderson, S. E. (1991). Job satisfaction and organizational commitment as predictors of organizational citizenship and in-role behaviors. *Journal of management*, *17*(3), 601-617.

*Translated using the back translation method (Vallerand & Halliwell, 1983). Adaptation for entrepreneurs are in bold.

Intention to quit (TIS):

Veuillez lire chaque question et indiquer votre réponse en utilisant l'échelle fournie. Pour les entrepreneurs, imaginez que ces questions s'appliquent à votre rôle de propriétaire d'entreprise.

1	2	3	4	5	6	7

1.	Combien de fois avez-vous envisagé de quitter votre **rôle de propriétaire d'entreprise ?**	TIS1	Jamais/Toujours
2.	**Votre rôle de propriétaire d'entreprise** répond-il à vos besoins personnels ?	TIS2	Très satisfaisant/Totalement insatisfaisant
3.	Au travail, êtes-vous frustré(e) de ne pas avoir la possibilité d'atteindre vos objectifs ?	TIS3	Jamais/Toujours

4.	Rêvez-vous **d'un autre occupation qu'entrepreneur** qui conviendra mieux à vos besoins personnels?	TIS4	Jamais/Toujours
5.	Êtes-vous susceptible d'accepter un autre **rôle** offrant le même niveau de rémunération ?	TIS5	Hautement improbable/Hautement probable
6.	**En période de repos**, avez-vous hâte de retourner **travailler**?	TIS6	Jamais/Toujours

Bothma, C.F.C., & Roodt, G. (2013). The validation of the turnover intention scale. *SA Journal of Human Resource Management/SA Tydskrif vir Menslikehulpbronbestuur*, *11*(1), Art. #507, 12 pages. http://dx.doi.org/10.4102/ sajhrm.v11i1.507

*Translated using the back translation method (Vallerand & Halliwell, 1983). Adaptation for entrepreneurs are in bold.

Questionnaire - Study 2 & 3

Job demands (role ambiguity and role conflict):

Les énoncés suivants se réfèrent à votre travail. Veuillez lire attentivement et indiquez dans quelle mesure vous êtes d'accord avec chacun des énoncés suivants:

Totalement en désaccord	En désaccord	Partiellement en désaccord	Neutre	Partiellement d'accord	D'accord	Totalement d'accord
1	2	3	4	5	6	7

15.	Je ne suis pas certain de ce que l'on attend de moi au travail.	RA1
16.	Les exigences de mon travail ne sont pas toujours claires.	RA2
17.	Il arrive souvent que je ne sache pas ce que l'on attend de moi au travail.	RA3
18.	Je connais avec certitude tout ce que l'on attend de moi au travail.	RA4 r
19.	Mes tâches au travail sont clairement définies.	RA5 r
20.	Je sais ce que je dois faire pour chaque aspect de mon travail.	RA6 r
21.	Au travail, j'ai souvent l'impression que différentes personnes me demandent des choses contradictoires.	RC1
22.	Je dois gérer des demandes contradictoires au travail.	RC2
23.	On me demandent souvent de faire deux choses différentes qui ne peuvent être toutes deux réalisées.	RC3
24.	Mes tâches au travail entrent rarement en conflit les unes avec les autres.	RC4 r

| 25. | Les choses qu'on me demande de faire au travail n'entrent pas en conflit les unes avec les autres. | RC5 r |
| 26. | Au travail, je me retrouve rarement dans une situation où une tâche entre en conflit avec une autre. | RC6 r |

Bowling, N. A., Khazon, S., Alarcon, G. M., Blackmore, C. E., Bragg, C. B., Hoepf, M. R., ... & Li, H. (2017). Building better measures of role ambiguity and role conflict: The validation of new role stressor scales. *Work & Stress*, *31*(1), 1-23.

*Traduction: Trépanier & Pitsikoulis (manuscript in preparation).

Ressources (adaptivity and proactivity) :

En réfléchissant à la façon dont vous avez effectué votre travail au cours des 3 derniers mois, dans quelle mesure avez-vous:

Aucunement						Énormément
1	2	3	4	5	6	7

1.	Démontré une adaptation lors de changements dans votre travail.	Adap1
2.	Ajusté vos tâches aux nouveaux équipements, processus ou procédures.	Adap2
3.	Accepté les changements dans la façon dont vous devez accomplir vos tâches.	Adap3
4.	Initié de meilleures façons de faire vos tâches.	Proa1
5.	Réfléchis à des idées pour améliorer la manière dont vos tâches sont effectuées.	Proa2
6.	Apporté des modifications à la façon dont vos tâches sont effectuées.	Proa3

Griffin, M. A., Neal, A., & Parker, S. K. (2007). A new model of work role performance: Positive behavior in uncertain and interdependent contexts. *The Academy of Management Journal*, *50*(2), 327-347.

*The scale was fully adapted and translated in French to reflect adaptivity and proactivity as a job resources.

Burnout (MBI-GS):

Les énoncés suivants se réfèrent à vos sentiments et attitudes au travail. Veuillez lire attentivement et indiquez à quelle fréquence celles-ci surviennent:

Jamais	Quelques fois par année ou moins	Une fois par mois ou moins	Quelques fois par mois	Une fois par semaine	Quelques fois par semaine	Tous les jours
1	2	3	4	5	6	7

| 17. | Je me sens émotionnellement vidé(e) par mon travail. | BE1 |

18.	Je me sens épuisé(e) à la fin de ma journée de travail.	BE2
19.	Je me sens fatigué(e) quand je me lève le matin et que j'ai à faire face à une autre journée de travail.	BE3
20.	Travailler toute la journée est vraiment un effort pour moi.	BE4
21.	Je peux solutionner efficacement les problèmes qui surviennent dans mon travail.	BP1 r
22.	Je me sens vidé(e) par mon travail.	BE5
23.	Je sens que j'apporte une contribution importante à mon entreprise.	BP2 r
24.	Je suis maintenant moins intéressé(e) à mon travail que je l'étais quand j'ai commencé.	BC1
25.	Je suis maintenant moins enthousiaste à mon travail que je l'étais quand j'ai commencé.	BC2
26.	Selon moi, je suis bon(ne) dans mon travail.	BP3 r
27.	Je me sens vivifié(e) quand j'ai accompli quelque chose à mon travail.	BP4 r
28.	J'ai accompli plusieurs choses qui en valent la peine à mon travail.	BP5 r
29.	Je veux seulement faire mon travail et ne pas être dérangé(e).	BC3
30.	Je ne sais pas si mon travail contribue à quelque chose.	BC4
31.	Je doute du sens de mon travail.	BC5
32.	À mon travail, j'ai confiance d'être productif(ve).	BP6 r

Maslach, C., & Jackson, S. E. (1986). *MBI: Maslach Burnout Inventory. Manual Research Edition.* Paolo Alto, CA: Consulting Psychologist Press.

*Traduction: Papineau, M., Morin, A., Legault, L., Demers, C., Chevrier, N., & Côté, A. (2005). MBI-GS, version française. Groupe de recherche sur l'épuisement professionnel (GREP).

Engagement (UWES):

Les énoncés suivants se réfèrent à vos sentiments et attitudes au travail. Veuillez lire attentivement et indiquez à quelle fréquence celles-ci surviennent:

Jamais	Quelques fois par année ou moins	Une fois par mois ou moins	Quelques fois par mois	Une fois par semaine	Quelques fois par semaine	Tous les jours
1	2	3	4	5	6	7

1.	Je déborde d'énergie pour mon travail.	EV1
2.	Je me sens fort(e) et vigoureux(se) pour faire ce travail.	EV2

3.	Je suis passionné(e) par mon travail.	ED1
4.	Faire ce travail est stimulant.	ED2
5.	Lorsque je me lève le matin, j'ai envie d'aller travailler.	EV3
6.	Je suis content(e) lorsque je suis captivé(e) par mon travail.	EA1
7.	Je suis fier(e) du travail que je fais.	ED3
8.	Je suis complètement absorbé(e) par mon travail.	EA2
9.	Je suis littéralement plongé(e) dans mon travail.	EA3

Schaufeli, W. B., Bakker, A. B., & Salanova, M. (2006). The measurement of work engagement with a short questionnaire: A cross-national study. *Educational and psychological measurement*, *66*(4), 701-716.

*Traduction: Zecca, G., Györkös, C., Becker, J., Massoudi, K., de Bruin, G. P., & Rossier, J. (2015). Validation of the French Utrecht Work Engagement Scale and its relationship with personality traits and impulsivity. *Revue Européenne de Psychologie Appliquée/European Review of Applied Psychology*, *65*(1), 19-28.