
16. Job demands-resources model: toward an institutional reading

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INTRODUCTION

The job demands-resources (JD-R) model is very popular in scientific literature aiming to identify factors affecting employee work engagement and health. Scientific interest in this model is related to its evolutionary nature. Indeed, the model may be developed and modified to include many factors that could be considered as either job resources or job demands variables. The model is therefore flexible and suited for taking into consideration the contexts of organisations that are under scrutiny. The logic is also easy to apprehend: the levels of engagement or stress are directly related to the availability of resources or to the presence of demands in a specific context. Many resources and few demands will permit individuals to do their jobs in comfortable situations and be favourable for the employees' health. Conversely, many demands and few resources will lead to uncomfortable work situations that, in turn, will result in negative work outcomes such as professional disengagement, turnover intention, stress, or even burnout. The logic is therefore straightforward and easy to manipulate in the context of scientific research. Furthermore, the findings can easily be translated into practical recommendations, which are of great interest for scientists and practitioners alike. Furthermore, the JD-R model is very useful to link human resources practices with work outcomes. It is precisely why the current chapter is included in the 'linking mechanisms' book section.

To present the advantages and eventually the limitations of this model, we will rely on recent research and studies. Based on a literature review, which cannot be exhaustive, this chapter aims to achieve several objectives:

- First, defining precisely the JD-R model.
- Second, briefly presenting related theories that are close to the logic of the JD-R model.
- Third, presenting the two sides of the JD-R model – the motivational process and the health impairment process.
- Fourth, highlighting the main findings with respect to recent empirical studies with a specific focus on public sector organisations.
- Finally, suggesting conclusions and new research avenues based on the identification of some limitations concerning this model.

In the following sections we will concentrate our attention on studies using the JD-R model as a theoretical framework by presenting empirical evidence collected mostly in organisations belonging to the public sector. From an institutional perspective, public organisations are different compared to their private counterparts and possess organisational characteristics that are worth studying (Kuhlmann, 2010; Painter & Peters, 2010). For instance, their structures, legal or informal procedures, organisational climates, and cultures are clearly specific and may be considered dissimilar to those of other types of organisations (mainly in the private sector

and even in the voluntary sector). According to these considerations, we will use an institutional reading in the following sections. By institutional reading, we mean taking into account institutional, environmental and structural peculiarities specific to public organisations. Our purpose, taking into consideration the main characteristics of public organisations, will be to institutionalise the JD-R model to paraphrase a subtitle of a recent study (Borst, 2018).

DEFINITION AND EXPLANATION OF THE JD-R MODEL

The JD-R model characterises working environments based on two concepts: job demands and job resources (Bakker et al., 2014). Demands refer to the physical, social, emotional, cognitive, and organisational dimensions of work that involve a physical or psychological cost to the individual. Resources include those aspects that enable the person to achieve his or her work objectives, to reduce demands and their costs, and to stimulate personal learning and development. They can be work-related (e.g., decision-making latitude, social support, career opportunities, etc.) or individual-related (e.g., sense of self-efficacy, self-esteem, optimism, etc.).

Demands and resources trigger two distinct processes. Demands are the cornerstone of health impairment processes, being the best predictors of health problems (e.g., exhaustion, psychosomatic problems, and musculoskeletal disorders). A central assumption of the JD-R model is that high job demands erode resources of personal energy, leading over time to emotional exhaustion. Resources, by contrast, feed into motivational processes, which result in improved work enjoyment, engagement, and motivation. Job resources and demands interact with each other. On the one hand, resources mitigate the effects of work demands on exhaustion, allowing individuals to better manage the constraints they face. On the other hand, demands amplify the effects of resources on engagement and motivation: It is when workers face challenges that resources are most useful. Finally, demands, resources, and their interactions influence the company's performance in terms of, for example, sick leave and staff turnover.

In its initial versions (Bakker & Demerouti, 2007), the JD-R model presented the relationships between work, health, and engagement in a deterministic way. Demands and resources mechanically influenced the levels of exhaustion and engagement, placing workers in passive or reactive roles. In more recent versions (Bakker et al., 2014; Bakker and Demerouti, 2017), however, Bakker and Demerouti supplemented their model with two feedback loops, which give workers a more active role. The first feedback loop links engagement to resources through job crafting. According to Wrzesniewski and Dutton (2001), employees are not passive recipients of work tasks. To some extent and often in ways invisible to colleagues and managers, they exert some influence on their work, even in the most restricted and routine jobs. For instance, they can decide on the form or number of activities they engage in, the way they see their jobs, and the people they interact with. Such actions affect the meaning of one's work and one's work identity.

After its integration into the JD-R model, the notion of job crafting was broadened to include every action undertaken by people to increase their available resources (e.g., searching learning opportunities, asking advice, etc.), to seek challenging and motivating demands (e.g., asking for new responsibilities), or to reduce their hindrance from job demands (so that the job becomes physically or mentally less demanding) (Van den Heuvel et al., 2015). According to

the modified version of the JD-R model (Bakker & Demerouti, 2017), employees motivated by their work are particularly likely to use job crafting, which allows them to increase their resources and thus achieve even higher levels of motivation in a virtuous circle.

The second feedback loop links exhaustion to demands, through a vicious circle of self-undermining. People experiencing strain tend to perceive or even generate ever higher demands over time. Exhaustion can weaken communication styles, lead to errors, and increase the risk of conflict, thus reinforcing pre-existing constraints. This could lead to a vicious circle leading to negative impacts on the commitment of employees, on their health and, ultimately, negatively affecting the performance of their organisation.

JD-R MODEL AND RELATED THEORIES

According to the literature, the JD-R theory is related to theoretical concepts, some of them discussed in this book. It is impossible here to be completely exhaustive in the examination of related JD-R notions; nevertheless, it suffices to mention the most important ones: social exchange theory, conservation of resources theory, job characteristics theory, and self-determination theory. All these concepts have one thing in common: they explain the mechanisms linking HR practices with effects on employees and organisations.

Thus, the JD-R theory is related to social exchange theory (Adams, 1965; Blau, 1964; Homans, 1961) because it posits that work outcomes might be impacted in two different ways:

- If employees receive the resources they need to do a good job, they will reciprocate by working harder and enhancing their work engagement and commitment. This psychological mechanism describes a positive or motivational process.
- On the contrary, if employees perceive high job demands and receive poor or insufficient job resources, they will react by developing more negative work attitudes, for instance less work engagement, more stress, or even burnout. This process describes the health impairment cycle.

In other words, some authors claim that social exchange theory could explain the employees' outcomes (Gould-Williams, 2007; Gould-Williams & Davies, 2005), whether positive or negative, which are the results of the balance employees are dealing with between job resources and job demands.

The JD-R model is also related to the conservation of resources theory (Lapointe et al., 2011), which is useful for investigating interaction effects between job demands and job resources variables. 'According to this theory, employees strive to maintain and accumulate job resources, but if these diminish, employees can replace these resources with other resources' (Borst et al., 2019b, pp. 6–7). In other words, job demands can also moderate the impact of job resources on different work outcomes. For instance, employees confronted with growing job demands might experience increased motivation because they perceive their job resources as more important. Therefore, job demands might be considered challenging rather than uniquely hindering. 'Challenge demands can trigger positive emotions and cognitions and increase work engagement and performance, whereas hindrance demands trigger negative emotions and cognitions and seem to undermine work engagement and performance (Tadić et al., 2015, p. 703).

Other authors have pointed out that satisfaction of basic psychological needs could partially explain the relationships of job demands to negative outcomes (such as exhaustion) and job resources to positive outcomes (such as vigour) (Van den Broeck et al., 2008). Basic needs satisfaction is mainly defined within self-determination theory (see Chapter 17 dedicated to this theory), which stipulates that every human being must satisfy basic psychological needs to live comfortably, flourish, and be protected from illnesses and maladaptive functioning (Deci & Ryan, 2000). Those needs are mainly as follows: competence (gaining mastery and control of the environment), autonomy (a question of choice), and relatedness (sense of belonging). All three facets may constitute important resources for people in organisations.

Job characteristics are probably among the main important theoretical inspirations of the JD-R model (Hackman & Oldham 1976; Lesener et al., 2019). Indeed, the JD-R model aims to identify which job characteristics are the most important in employees' motivational dynamics. This theoretical perspective starts from the point of view that job tasks represent a central, or even the most important, factor influencing motivation processes in organisations. Therefore, job design and job characteristics models of work motivation (Karasek, 1979; Wood et al., 2012) may be considered a main theoretical inspiration in regard to the JD-R model. The JD-R model has also seen recent intellectual extensions. Indeed, a new scientific literature wave appeared some years ago around the notion of new ways of working (Blok et al., 2012; Ten Brummelhuis et al., 2012). This conceptual notion tries to capture the work conditions that are adapted to the recent transformations of productive organisations and to the tertiarization of the economy. Several research authors dedicated to this relatively new research avenue utilise, explicitly or not, the JD-R model to identify organisational or individual resources or demands that are supposed to impact new ways of working. This latter research stream is strongly linked to the job characteristics model as well (for more information on future challenges, see Chapters 23–27 of this book).

THE JD-R MODEL AND PUBLIC ADMINISTRATION LITERATURE

The JD-R model is a very popular theoretical perspective in the management and organisational behaviour literature. Many empirical studies are based on it. Nevertheless, if one carefully looks at the public administration (PA) literature, one can easily note that the JD-R model is much less used. In this sense, a quick search on Web of Science Core Collection using 'JD-R' as a keyword (timespan 2000–19) returns approximately 320 references.¹ Another quick search using the keywords 'JD-R and public' brings about 26 references only. In other words, even if the JD-R model is widespread and very popular in the management and organisational behaviour literature, it is less used in PA research.

Therefore, the main results with respect to JD-R studies published in public administration journals will be presented below. It is not possible in the context of the present chapter to present an exhaustive account. The main objective is rather to present the different promising perspectives taken by the current PA literature. In this vein, six main issues or themes will be addressed in relation to JD-R research: cultural differences and diversity of institutional contexts, organisational climate, organisational changes and performance management, job characteristics, emotional labour, and public service motivation (PSM). But first, we will present some research results confirming that the JD-R model is of interest when it comes to investigating positive or negative work outcomes in public organisations. As noted above,

only a handful of empirical research studies within core PA journals have explicitly used the JD-R model, whereas scientists in other fields with respective scientific journals (e.g., the *Journal of Organizational Behavior* and the *International Journal of Stress Management*) have published many articles focused on public employees that utilise the JD-R model. We will now give a brief overview of the main findings of some seminal studies before presenting some other recently studied topics that involve consideration of the specific institutional characteristics of public administrations.

Many empirical studies published outside the traditional PA field have findings based on data collected in non-profit or public service organisations, such as police, school, caregiving or home care, or even hospital organisations. In this vein, Bakker et al. (2003) tested several job demands (workload, job content, problems with planning, physical demands, emotional demands, sexual harassment, and patient harassment) and job resources (autonomy, social support, supervisor coaching, professional development opportunities, performance feedback, and material rewards) within the Dutch home care sector. The authors demonstrated that the JD-R model is useful for studying health impairment processes (when job demands are high) as well as motivational processes (a lack of job resources may lead to negative work outcomes, such as cynicism towards the job or a sense of inefficacy) in public settings. Authors of another study tried to investigate whether job resources interacting with job demands could result in a buffering effect. Indeed, this effect was demonstrated in a study by Xanthopoulou et al. (2007), who showed that the relationship between emotional demands or patient harassment and burnout is moderated by the presence of job resources. In the same vein, such a buffering effect has been tested in another study in an institute for higher education (Bakker et al., 2005). This study's results lend support to the idea that a mix of high demands and low resources generally leads to negative work outcomes such as burnout.

In a longitudinal study among Australian frontline police officers, Hall et al. (2010) investigated the complex interplay between job demands, emotional exhaustion, and work–family conflict. The authors relied on a loss spiral to explain how employees lacking resources in one of their life domains are most vulnerable to a downward spiral of additional losses in other domains, because resources are interlinked. High levels of job demands tax resources, leading simultaneously to emotional exhaustion and work–family conflict. In turn, work–family conflict adds an additional burden on these employees, leading to more emotional exhaustion and, consequently, to further work family conflict.

Although the amount of research utilising the JD-R model within the core public sector (e.g., civil service) is limited so far, this model nevertheless leads to interesting and promising empirical results for explaining employee health and engagement in public organisations. More recently, authors of many new studies have tried to better include public administrations' characteristics in their JD-R approaches, reinforcing the need to anchor the model more in the institutional specificities of public organisations – this is why we proceed to an institutional reading of the JD-R model. We present now, by themes, such attempts.

Cultural and Institutional Contexts

In the management and sociological literature, many authors have underlined that employees' outcomes are dependent on cultural and/or institutional contexts (Alvesson 2002; Dingwall & Strangleman, 2007), but few dealing with the JD-R model have really taken into consideration cultural or institutional contingency factors. Rattrie et al. (2020) explored this under-studied

issue related to the relationships between burnout, work engagement, and cultural differences. In other words, they integrated culture as an important variable in the JD-R model. They started from the point of view that cultural differences have been largely ignored in studying the impacts of workplace factors on health or work engagement. Drawing on the seminal work of Hofstede defining countries with respect to different cultural dimensions (1980), they found that high job demands have specifically negative effects in countries with masculine and/or tightly knit cultural traits. On the other hand, countries exhibiting more feminine and/or loosely knit cultural traits demonstrate better resistance towards job demands and therefore less pronounced negative effects. Furthermore, they found that high power distance and collectivism moderate the influence of resources on burnout, in the sense that those cultural traits undermine the protective role of resources against burnout. This specific study indicated that the JD-R model must be adapted to national cultural differences. This conclusion suggests that cultural characteristics should be better investigated in the future.

In PA journals, several authors have already investigated whether different public institutional contexts may impact employees' job outcomes. For instance, with respect to the PSM literature (see Chapter 18 of this book), it has been demonstrated that levels and types of employees' PSM may differ not only according to the natures of the public organisations they work for but also in relation to the public policies they are in charge of (Anderfuhren-Biget et al., 2014; Van Loon et al., 2013, 2015). Based on these considerations, Borst (2018) tried to extend the JD-R model of work engagement by including specific elements of the public sector context that may impact the work engagement of public servants (PSM, autonomy, and red tape). But he also started from the point of view that the effects of those elements on work engagement might depend on various institutional contexts within the public sector. Hence, Borst included several new factors in the JD-R model (bureaucratic structures, perceived red tape, PSM, and necessary discretionary space that public employees experience). He investigated a diverse range of public sector organisations, specifically those displaying one of two opposing normative institutional logics: people-changing (mainly education and public healthcare) and people-processing organisations (mainly police, local government, and the judicial sector).

According to Borst, the differences between the two kinds of organisations reside in the amount of contact they have with users/clients and the kinds of service provided to them. Relying on data from the Dutch Ministry of the Interior and Kingdom Relations ($N = 24,334$), he found that perceived red tape was negatively associated with work engagement. Perceived autonomy had a significant positive impact on the work engagement, but this relationship was stronger in people-processing than in people-changing organisations. Two dimensions of PSM (commitment to public interest and compassion) had a significant positive effect on work engagement, but the effect was higher in people-processing organisations. Finally, Borst (2018) pointed out that work engagement mediates the relationships between PSM, red tape, and autonomy with two work outcomes: job satisfaction and job performance. The interest of his article is to stress that institutional logics related to the diversity of public organisations may be worth integrating in future research based on the JD-R model.

Organisational Climate

Another stream of research deals with organisational climate as an important factor that must be included in the JD-R model. Indeed, organisational climate (which is defined as the

shared meaning organisational members attach to events, policies, practices, procedures, and structures) has been recently rediscovered in strategic human resources (HR) management literature and, more specifically, in scientific literature discussing antecedents and outcomes of high-performance work practices (Ashkanasy et al., 2016). For instance, Spector (2016) developed a model of high-performance work systems' negative effects, underlining the importance of organisational climate in the process leading to negative work outcomes. Organisational climate, which is sometimes difficult to differentiate from the notion of organisational culture, is increasingly being investigated in the management and organisational behaviour literature (Clarke, 2006; Destler, 2017; Gould-Williams, 2007). Pecino et al. (2019) used the JD-R model to investigate the relationships between organisational climate, role stress, and employee health (burnout and job satisfaction) in public organisations. In this research, the authors tried to capture how employees' shared perceptions were connected to their work environments. Based on data of Finnish public servants ($N = 442$), they found that positive organisational climate correlated negatively with role stress and burnout and positively with job satisfaction. Role stress in the study was associated positively with burnout and negatively with job satisfaction. Thus, organisational climate may greatly impact work outcomes and is worth taking into consideration in studies using the JD-R model.

In the same vein, Conway et al. (2016) tested whether experiences of employee voice (i.e., employees' perceptions that they are allowed to express their feelings and opinions with respect to their organisations' functioning) might moderate the positive relationship between performance management and employee engagement. In short, their research focused on two HR practices – performance management and employee voice – and considered them in regard to two elements of employee health: exhaustion and engagement. Based on a survey of Irish public servants ($N = 2,348$), they found that experiences of employee voice were related negatively to emotional exhaustion and positively to employee engagement. The authors also found support for the moderating effect of employee voice on the relationship between performance management and emotional exhaustion/employee engagement; namely, they concluded that the relationships between performance management and emotional exhaustion or engagement were stronger when employee voice was low. This study demonstrates that employee voice can shape a positive organisational climate, which, in turn, may lead to buffering effects and positive work outcomes.

Organisational Changes and Performance Management

Another interesting avenue with respect to the JD-R model applied to the study of public organisations is related to employees' perception of reforms or changes. For instance, Nguyen et al. (2018) investigated whether organisational changes, which have been frequent in the public sector during the last 20–30 years, may impact workload and job control and therefore contribute to creating cynicism about organisational change (CAOC). They collected their data from 220 public sector nurses in Australia, and their conclusions are straightforward. In regard to empirical results, they identified a critical path: organisational changes are associated with high workload and an increase in administrative stressors that leads to an increase in nurses' CAOC. They also found that job control is clearly needed so as to help nurses dealing with the increase in workload and coping with reduction in CAOC. Moreover, CAOC is a psychological mechanism that has been found to be directly and negatively related to nurses' engagement, which in turn was found to be negatively related to job satisfaction. Similarly, in

another study developed in the healthcare context in Switzerland, Giauque (2016) showed the importance of attitudes towards organisational changes. The investigated population was composed of middle managers working in Swiss public hospitals ($N = 720$). The findings showed that perceived social support (work relationships with and support from colleagues), autonomy in performing tasks, and flexibility in the organisation of working time are negatively related to stress perception (SP), whereas the degree of conflict positively impacted SP. However, more importantly, this article underlined the fact that positive attitudes towards change are negatively related to SP, and they mediate the relationships between perceived social support and other job characteristics and SP. Therefore, perceptions about organisational changes may be considered a critical variable when it comes to testing the impact of job demands and job resources on work outcomes (in this case, SP).

Organisation-Related, Work-Related, and Personal Characteristics

When it comes to identifying job resources or job demands variables that greatly influence positive or negative work outcomes, an important question may arise. Are organisation-related characteristics more prone than work-related characteristics or even personal characteristics to explain work outcomes? Of course, this question is of great practical interest as well. In their recent study, Borst et al. (2019a) tried to identify the main factors that influence public servants' work engagement, as well as the effects of work engagement on organisational commitment and turnover intention. They relied upon the JD-R model of work engagement into which they integrated three classes of job characteristics or resources: organisation-related characteristics (e.g., supervisory support, developmental opportunities, performance measurement), work-related characteristics (e.g., teamwork with colleagues, content of the job, autonomy), and personal characteristics (e.g., PSM, professional expertise, proactivity). Based on data from the Dutch Ministry of the Interior and Kingdom Relations ($N = 9,503$), they found that work-related characteristics have a strong positive effect on work engagement, whereas organisation-related characteristics have a small positive effect. Furthermore, the effects of work-related resources on work engagement are stronger in situations of high red tape than low red tape. In this specific case, red tape could play a challenging role rather than a detrimental one. Otherwise, personal characteristics (more specifically, proactivity, professional expertise, and PSM) also have a positive effect on work engagement. The authors concluded that HRM specialists in public organisations can positively affect work engagement by contributing to increased work-related resources (e.g., autonomy, cooperation with colleagues) and by recruiting employees with a proactive personality and with high levels of PSM.

Emotional Labour

Working in public organisations usually implies having direct contacts with users or clients. Numerous jobs in the public sector may be described as street-level jobs (Kim et al., 2015; Nisar & Masood, 2020). One specificity of such jobs is the constant and repetitive relationships that public employees have with users. Therefore, they have to deploy personal strategies and resources to cope with a great diversity of situations. Sometimes, or even very often, they are embedded in difficult emotional situations. Thus, emotional labour is part of public employees' work at the frontline (Hsieh, 2012; Rayner & Espinoza, 2015). Starting from this idea, another research study drawing on the JD-R model investigated the relationship between

emotional labour and burnout among a population of public workers ($N = 1,517$): ‘Emotional labor is the process of managing feelings and expressions to fulfill the emotional requirements of a job’ (Kim & Wang, 2018, p. 3). In their research, they built a research model showing that emotional labour is directly and positively related to burnout. They also introduced moderating variables corresponding either to job demands (e.g., role ambiguity, workload, customer contact), or job resources (e.g., self-efficacy, job autonomy, social support). They demonstrated that emotional labour is positively associated with burnout. Role ambiguity, workload, and customer contact have a positive relationship with burnout as well, whereas self-efficacy and social support are variables found to be negatively related to burnout. Moreover, the job demands and job resources variables introduced in the model moderated the relationships between emotional labour and burnout in different ways.

Public Service Motivation

PSM is now a well-studied concept that has taken root in the PA research tradition (Perry & Wise, 1990; Vandenabeele, 2008) (see Chapter 18 in this book). Currently, many studies exist where researchers have attempted to better define this PSM concept, refine the measurement scales available, and identify antecedents, correlates, and outcomes of this specific motivation rooted in the public service values (Ritz et al., 2016). Nevertheless, few researchers had introduced this concept in the JD-R model until very recently. Indeed, PSM could be considered a personal resource, which has proven to be useful when it comes to addressing different work outcomes such as job satisfaction, organisational commitment, individual or organisational performance, and so on. In this regard, Noesgaard and Hansen (2018) investigated work engagement among Danish home caregivers. A qualitative approach has been used so as to gain access to the individuals’ subjective perceptions of different job characteristics that are deemed to be related to their work engagement (21 interviews in total). According to their interviews’ analyses, three main themes have been identified in relationship with home caregivers’ work engagement: optimisation requirements (e.g., health-promoting processes, time constraint, tensions); helping others (e.g., involvement, making a difference, appreciation); and emotional labour. Furthermore, this study highlights the duality of job characteristics with respect to the three themes above. Job characteristics associated with optimisation, helping others, and emotional work can be perceived either as job demands (consequently, they negatively influence the experienced engagement) or as job resources, in which case they positively influence the experienced engagement. In this study, the authors emphasised that individuals may perceive similar job characteristics differently and that these different perceptions can shape different experiences of work engagement. As another interesting result of their research, the authors also stressed that individuals high on PSM are more capable of dealing with organisational stressors.

In another recent study, the researchers shed light on the positive effects of PSM on work engagement. Cooke et al. (2019), for instance, tested whether work engagement is related to PSM, procurement red tape, HR red tape, and perceived job influence (population: non-executive employees with supervisory responsibilities in a large public sector organisation located in the southeastern United States). They tested two models in which PSM is first considered an antecedent like the other variables and, secondly, as a moderator between job demands (procurement and HR red tape) and work engagement. According to their statistical analyses, PSM was directly and positively related to work engagement. Perceived procure-

ment red tape and work engagement were negatively associated, whereas HR red tape was not directly related to work engagement. Finally, as expected, job influence was positively related to work engagement as well. Furthermore, PSM moderated the relationship between procurement red tape and work engagement such that the association between procurement red tape with work engagement became positive after having introduced PSM as a moderator. This demonstrates the potential buffering effect of PSM on hindrances. Some previous researchers have pointed out that PSM could also generate negative work outcomes such as SP (Giauque et al., 2013), presenteeism and absenteeism (Jensen et al., 2019), or even resignation (Giauque et al., 2012). Other researchers have demonstrated that the relationship between PSM and employee health depends on the societal impact potential through the job and organisational type (Van Loon et al., 2015). Future research is needed to clearly identify under which conditions PSM may be considered as job resources or as job demands. Thus far, inconclusive findings lead to some caution in interpretations when it comes to the role of PSM as personal resources.

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

Although the JD-R model has not been widely used in PA research, its applicability seems to be confirmed by current and recent studies. As we already noted, the JD-R model is worth considering as an important linking mechanism between HR practices and several work outcomes. One of the main objectives of this chapter was to apply an institutional reading of this JD-R model by adapting it to the organisational and institutional characteristics of public sector organisations. Indeed, in PA studies, job demands and job resources variables introduced in the JD-R model are closely related to the contextual, cultural, and institutional characteristics of the public sector organisations. This is why very specific variables have been investigated in the context of the PA literature: cultural and institutional differences (e.g., according to types of organisations or types of public services delivered); organisational climate; organisational changes, public management reforms, and performance management; job characteristics (such as red tape and emotional labour); and, finally, the values and the specificity of PSM. Thus, with respect to the non-exhaustive synthesis of recent studies utilising the JD-R model in the public sector context, we can stress that the PA literature has opened new and promising research avenues.

Nevertheless, further research is needed: first, to confirm recent findings by accumulating empirical data from various public organisations and various national contexts; second, to identify differences with respect to findings in PA literature compared to findings in general management literature; and third, to explore new research avenues that must be considered so as to overcome some limitations in regard to the JD-R model. One such limitation is related to the relative inability of this model to clearly explain how various kinds of job demands and job resources interact with each other and lead to various work outcomes. This specific point must be tackled by conducting, for instance, more qualitative research and by further exploring the theoretical foundations of the empirical findings. A second limitation concerns the limited attention of the JD-R literature for contextual differences. By evoking this specific limitation, we would like to draw attention to the fact that national, sectoral, and internal differences (e.g., comparing different public organisations whose activities are linked to different public policies in the same country or in different countries) are worth studying in future research.

According to this last point, it could be useful to thoroughly address the contemporaneous debate with respect to PSM, which has been found to be a job resource and sometimes a job demand in the literature.

Finally, although the JD-R model assigns, in its recent versions, a more active role to the individual, it conveys a relatively disembodied depiction of work. This is due to the degree of abstraction of the concepts used and to the simplified nature of their causal relationships. These characteristics, which certainly make the model both flexible and statistically testable, limit the degree of precision and realism with which the work experience can be modelled. For example, we can assume the existence of further feedback loops. Thus, symptoms of exhaustion can retroactively affect, among other things, personal resources. Similarly, the degree of motivation may in turn influence the job demands, as in the case of a person seeking to adapt the nature of his or her tasks. Moreover, job crafting is only one of the various concepts used to take into account employees' informal initiatives. Wrzesniewski and Dutton (2001) focused mainly on the psychological foundations of job crafting, whereas other similar concepts (e.g., role innovation, role making, personal initiative, organisational citizenship behaviour, task revision, or activity self-regulation) focus on problem-solving, correction of faulty procedures or flawed task descriptions, adaptation to contingencies, or supporting behaviours within an organisation. The current research on street-level bureaucracy is based on a very similar observation. Front-line civil servants use their leeway and develop strategies to deal with the constraints and dilemmas of their activity (Lipsky, 1980). The JD-R model is flexible enough for these different facets to be integrated. To better highlight the richness of the individual and the collective self-regulation strategies that workers implement, future research could use a mixed methodology, combining the quantitative approach of the JD-R model with qualitative investigations of an ethnographic nature, for example. In this way, it would not only be possible to establish causal links between resources, demands, commitment, and exhaustion but also better explain the how and why of these relationships.

NOTE

1. Search performed on 27 November 2019.

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