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► **To cite this version:**

Sophie Drouin Rousseau, Alexandre Morin, Claude Fernet, Yael Blechman, Nicolas Gillet. Teachers' Profiles of Work Engagement and Burnout Over the Course of a School Year. *Applied Psychology*, 2024, 73, pp.57-92. <10.1111/apps.12465>. <hal-04007773>

**HAL Id: hal-04007773**

**<https://hal.science/hal-04007773v1>**

Submitted on 12 Mar 2026

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# Teachers' profiles of work engagement and burnout over the course of a school year

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## Funding information

*Fonds de Recherche du Québec-Société et Culture*, Grant/Award Number: 2019-SE1-252542; Social Science and Humanity Research Council of Canada, Grant/Award Numbers: 435-2018-0368, 410-2007-1106

## Abstract

This research relies on a combination of variable- and person-centered approaches to improve our understanding of the dimensionality of work engagement and burnout. Among 1004 teachers who completed a questionnaire twice over an eight-month period, our results first revealed that work engagement and burnout ratings simultaneously reflected two global overarching constructs co-existing with six specific dimensions (vigor, dedication, and absorption as well as emotional exhaustion, cynicism, and professional efficacy). We then examined the profiles taken by these global and specific dimensions, documented their stability and interrelations over time, and tested their associations with theoretically relevant predictors. Three work engagement (Vigorously Engaged, Disengaged, Engaged) and three burnout (Burned-Out, Adapted, Normative) profiles were identified. Most Disengaged teachers at Time 1 corresponded to the Burned-Out profile at Time 2, and most Burned-Out teachers at Time 1 corresponded to the Disengaged profile at Time 2. Workload perceptions increased teachers' likelihood of membership into the Disengaged profile relative to the Engaged one.

Since the first two authors Sophie Drouin Rousseau and Alexandre J.S. Morin contributed equally to the preparation of this article, their order was determined at random: both should be considered first authors.

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In contrast, most job resources perceptions (control, rewards, and values) predicted an increased likelihood of membership into the Engaged profile relative to the Disengaged one.

**KEYWORDS**

bifactor models, burnout, fairness, job demands and resources, latent transition analyses, profiles, work engagement, workload

## INTRODUCTION

Burnout, which is highly prevalent among teachers (Schaufeli et al., 2009), represents a psychological state of resource depletion encompassing feelings of emotional exhaustion (i.e. depletion of physical energy and fatigue), cynicism (i.e. excessively detached or negative responses to others), and a reduced sense of professional efficacy (i.e. feelings of low productivity and achievement) (Maslach, 2011; Schaufeli et al., 2009). In contrast, work engagement represents “a positive, fulfilling, work-related state of mind” (Schaufeli et al., 2002, p. 74) encompassing vigor (i.e. displaying high levels of energy and persistence at work), dedication (i.e. working hard with a sense of enthusiasm), and absorption (i.e. being fully engrossed with one’s work). Whereas work engagement represents a known precursor of desirable individual (e.g. higher job satisfaction; Goering et al., 2017) and organization (e.g. lower absenteeism, better performance and organizational citizenship behaviors; Neuber et al., 2022) outcomes, burnout is known to hinder individual (e.g. psychological health) and organizational (e.g. absenteeism; Swider & Zimmerman, 2010) functioning in a way interfere with the accomplishment of the school’s educational mission (Chang, 2009).

Although ample research has documented the negative implications of burnout and the benefits of work engagement (e.g. Demerouti et al., 2010; Trógolo et al., 2020), very little is known about the longitudinal dynamic of both constructs (Maricuțoiu et al., 2017). Importantly, although both constructs have often been positioned as the opposite of one another (Maslach & Leiter, 1997; Schaufeli et al., 2002), one important motivational premise of burnout is that in order to burn out, employees must first be fired up (Pines, 1993). Thus, when we turn our attention to the longitudinal dynamics underpinning both psychological states and their interrelations, this motivational premise raises many critically important questions. For instance, will highly engaged teachers necessarily become burned out at some point? Alternatively, are burned out teachers necessarily trapped in a chronic state of resource depletion with little hopes of becoming engaged once again? This issue is important for both research and theory. Indeed, if we acknowledge that work engagement and burnout operate in tandem (Trógolo et al., 2020), it becomes necessary to determine how work engagement and burnout relate to one another longitudinally. From a practical purpose, greater insight into how burnout and work engagement co-develop during a school year would also help teachers and school administrators better understand burnout and work engagement. Although the present study was designed to investigate burnout and work engagement in teachers, it could serve as a springboard to a deeper understanding of how these psychological states relate to individual and organizational outcomes in other at-risk occupational groups, such as health-care workers.

Importantly, our understanding of dynamic interrelations between burnout and work engagement is further complicated by their multidimensional nature. Both burnout (e.g. Sandrin

et al., 2022) and work engagement (e.g. Gillet et al., 2019) are known to be experienced holistically as global states (global levels of burnout or of work engagement) defined from a series of components, each retaining some specificity beyond their global components (i.e. specific levels of emotional exhaustion, cynicism, professional efficacy, vigor, dedication, and absorption). Accounting for the global-specific nature of both constructs thus entails a consideration of complex interrelations among a series of global and specific components as they unfold over time. By focusing on subpopulations characterized by distinct configurations, or profiles, on a set of variables, person-centered analyses thus seem naturally suited to study the joint effects of such complex variable combinations (Morin et al., 2018). As an added benefit, the person-centered approach tends to be better aligned with managers' natural tendency to think in terms of categories rather than complex variable relations (Hofmans et al., 2021). Thus, rather than having to decode complex patterns of interrelations and interactions between variables, person-centered results allow managers to easily identify types of employees and actionable levers of intervention to increase the likelihood of more desirable work engagement and burnout profiles. Emerging person-centered studies have already looked at how work engagement (Gillet et al., 2019; Simbula et al., 2013) and burnout (Berjot et al., 2017; Leiter & Maslach, 2016) components combine within specific profiles of employees. Unfortunately, this emerging research area has generally ignored the dual global-specific nature of work engagement and burnout, as well as how burnout profiles relate to work engagement profiles.

The present study addresses these issues by documenting the nature of teachers' work engagement and burnout profiles, as well as their longitudinal interrelations. The teaching profession is naturally suited to the present investigation given evidence suggesting that teachers tended to be highly engaged at work (Burić & Macuka, 2018), while also presenting a particularly high risk of burnout (Schaufeli et al., 2009). Moreover, teachers' work-related tasks tend to form a mainly closed cycle covering one school year, thus allowing us to assess how the nature of the profiles and their interrelations changed during a school year (an eight-month period ranging from October to June). To document the construct validity (e.g. Meyer & Morin, 2016) of these profiles, we also consider their relations with job demands (workload) and resources (control, rewards, community, fairness, and values).

## CO-EXISTING GLOBAL AND SPECIFIC WORK ENGAGEMENT AND BURNOUT COMPONENTS

Burnout (Maslach, 2011) and work engagement (Schaufeli et al., 2002) are explicitly defined as multidimensional constructs encompassing distinct interrelated facets (burnout: Emotional exhaustion, cynicism, and reduced professional efficacy; and work engagement: Vigor, dedication, and absorption) known to share differentiated covariate associations (e.g. Kuijpers et al., 2020; Taylor & Millier, 2016). Despite this acknowledgment of their multidimensional nature, it has also been proposed that employees might experience work engagement and burnout in a more holistic manner (i.e. as global entities) rather than as a collection of specific psychological manifestations (Goering et al., 2017; Moeller et al., 2018). Acknowledging the multidimensionality of these constructs while also accepting the idea that they might be experienced more globally suggest that work engagement and burnout might be better conceptualized as global entities reflecting commonalities among specific dimensions, which themselves may include specificity unexplained by these global entities. Supporting this possibility, research has supported a bifactor representation of these constructs, allowing researchers to estimate global work engagement (Gillet et al., 2019; Huyghebaert-Zouaghi et al., 2021; Huyghebaert-Zouaghi, Caesens, et al., 2022)

or burnout (Gillet et al., 2022; Sandrin et al., 2022) factors (G-factor) together with specific vigor, dedication, absorption, emotional exhaustion, cynicism, and reduced professional efficacy factors (S-factors) reflecting the unique nature of these facets beyond what they share with one another.

Gillet et al. (2019) and Gillet, Morin, Colombat, et al. (2021) noted that, because of this disaggregation of global and specific levels of burnout and work engagement, the S-factors provide a direct representation of the degree of balance or imbalance in each specific dimension of burnout and/or work engagement. To illustrate, among all globally engaged employees, some may present a balanced level of engagement across dimensions, whereas others may present higher or lower levels of vigor, dedication, or absorption relative to the others and thus relative to their global level of work engagement across all three dimensions. For instance, some globally engaged teachers may struggle more with in terms of absorption relative to their levels of dedication and vigor, thus reflecting a negative imbalance in a specific component of work engagement. Similarly, other teachers with a globally average level of work engagement may still be highly dedicated to their work, despite lower levels of vigor and absorption, thus reflecting a positive imbalance. Alternatively, although not globally characterized by a high level of burnout, some employees may still come to question their ability to properly execute their work, thus reflecting a negative imbalance in a burnout component.

## A PERSON-CENTERED PERSPECTIVE ON WORK ENGAGEMENT AND BURNOUT

Table S1 reported in the online supplements, summarizes the results from previous person-centered research seeking to identify profiles of burnout or work engagement among diverse samples of employees. Despite some variations, which may reflect methodological differences (e.g. nature of the sample, questionnaire used to assess burnout or engagement), a high level of similarity is apparent in the results obtained across studies. However, very few of the studies described in Table S1 have relied on a proper multidimensional operationalization in which global levels of burnout and work engagement were properly disaggregated from the specificities associated with each component of both constructs. Ignoring the bifactor structure of multidimensional profile indicators tends to erroneously lead to the identification of profiles differing from one another quantitatively (i.e. higher or lower levels across all dimensions, reflecting the role of the global component), rather than qualitatively (i.e. leading to profiles characterized by a truly distinct configuration across components) (Morin et al., 2017; Morin, Boudrias, Marsh, et al., 2016). As a result, this failure to consider the global-specific nature of both constructs might explain why most previous studies have led to the identification of profiles differing in level (i.e. quantitatively) rather than shape (i.e. qualitatively). The present study addresses this limitation by estimating teachers' burnout and work engagement profiles using indicators reflecting their bifactor nature.

Although the lack of prior research relying on a proper disaggregation of global versus specific ratings makes it hard to formulate a clear set of hypotheses regarding the nature of the burnout and work engagement profiles expected in this study, those previous results still allow us to formulate some expectations. First, and in line with the quantitative differences systematically reported in the previous studies, we can expect to identify at least a *Normative*<sup>1</sup> profile, characterized by average levels of work engagement or burnout across dimensions, for both constructs. We also

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<sup>1</sup>Following a label used previously by Gillet et al. (2019) to describe work engagement profiles, and by Morin, Arens, and Marsh (2016) and Morin et al. (2017) to describe one of their profiles in research on psychological health and well-being.

expect to identify a *High Engagement* (high levels of work engagement across dimensions), a *High Burnout* (high levels of burnout across dimensions), a *Low Engagement* (low levels of work engagement across dimensions), and a *Low Burnout* (high levels of burnout across dimensions) profiles.

However, in accordance with the subset of qualitatively distinct profiles obtained in prior research in which an approach similar to ours was used to operationalize burnout (Sandrin et al., 2022) and work engagement (Gillet et al., 2019), we also expect profiles presenting differentiated configurations of work engagement or burnout across indicators. For instance, we expect a *Vigorously Engaged* profile presenting moderately high global levels of work engagement accompanied by high specific levels of vigor and absorption (Gillet et al., 2019). Moreover, we also expect a *Mentally Distanced* profile dominated by high levels of cynicism (Sandrin et al., 2022). As a result, we suggest the following:

**Hypothesis 1.** *The work engagement profiles identified in the present study will include a High Engagement profile, a Low Engagement profile, a Normative profile, and a Vigorously Engaged profile (i.e. dominated by high global levels of work engagement and high specific levels of vigor).*

**Hypothesis 2.** *The burnout profiles identified in the present study will include a High Burnout profile (i.e. high scores across dimensions, or a profile dominated by high scores on the global burnout factor and average scores on the specific factors), a Low Burnout profile (i.e. low scores across dimensions, or a profile dominated by low scores on the global burnout factor and average scores on the specific factors), a Normative profile (i.e. average scores across all components), and a Mentally Distanced profile (i.e. dominated by high specific levels of cynicism).*

## A LONGITUDINAL PERSON-CENTERED PERSPECTIVE

### Within-sample and within-person stability

Our second objective is to assess the stability of the burnout and work engagement profiles over the course of one school year (i.e. 8 months). In addition to being closely connected with the natural cycle of teachers' work, this time interval was selected in alignment with prior research (Grødal et al., 2019; Horwood et al., 2021), because it goes beyond daily fluctuations (e.g. Kim et al., 2021; Klasmeier & Rowold, 2022) while remaining short enough to capture changes that may not be apparent over longer time spans (e.g. Mäkikangas et al., 2017; Tóth-Király et al., 2021a). As noted by Meyer and Morin (2016), it is critical to ascertain the stability of person-centered solutions to support their use as guides for the development of interventions tailored at distinct types, or profiles, of employees. Indeed, the ability to devise such interventions is conditioned on evidence that the profiles themselves reflect neither ephemeral phenomena likely to randomly fluctuate over time nor highly rigid phenomena unlikely to respond to intervention.

More precisely, we consider two types of longitudinal stability, within-sample and within-person stability (e.g. Huyghebaert-Zouaghi, Morin, et al., 2022; Sandrin et al., 2020). Within-sample stability is related to the nature of the profiles themselves (i.e. number, nature, and size), which can change over time. In this regard, drastic changes in the number or nature of the profiles in the absence of any external change likely to explain them would suggest that the profiles have only limited practical utility as they apparently reflect transient phenomena. Alternatively, profile members might become more or less similar to one another over time, and some profiles might become more or less prevalent over time. These two types of changes do not

preclude the reliance on person-centered solutions as intervention guides but shows that the profiles possess some malleability. In contrast, within-person stability refers to changes in nurses' membership into specific profiles over time (Huyghebaert-Zouaghi, Morin, et al., 2022; Sandrin et al., 2020) and can be observed in the absence of within-sample changes.

Various sources of evidence can help us to better grasp the longitudinal dynamics of work engagement and burnout. For instance, estimates of rank-order stability indicate that ratings of work engagement ( $r = .61$  to  $.64$ ; Grødal et al., 2019; Heinrichs et al., 2020) and burnout ( $r = .58$  to  $.72$ ; Frögéli et al., 2019; Kinnunen et al., 2019) tend to be quite stable over periods of 1 to 3 years, although similar estimates have also been reported for a shorter period of 3 months ( $r = .78$ ; Madigan et al., 2015). Importantly, rank-order stability is not inconsistent with the idea that work engagement and burnout levels might be impacted by work conditions, which are themselves known to be quite stable over time (Lesener et al., 2019). A recent person-centered study supported the within-sample stability of work engagement profiles over a four-month interval and revealed rates of within-sample stability varying from 92.6% to 100% across profiles over the same interval (Gillet et al., 2019). Interestingly, Mäkikangas et al. (2014, 2017) supported the idea that levels of work engagement and burnout can evolve differentially from one another over time. Likewise, studies examining the longitudinal trajectories of work engagement (e.g. van den Heuvel et al., 2020) and burnout (e.g. May et al., 2020; Wang et al., 2015) have also revealed very stable trajectories. However, some of these studies have also found that work engagement tends to slightly increase as a function of age (James et al., 2011; Kim & Kang, 2017), whereas Zuo et al. (2021) noted that work engagement levels tended to slightly decrease over a period of five days. Yet, average trajectories may mask substantial inter-individual heterogeneity (de Wind et al., 2017; Mäkikangas & Kinnunen, 2016), which can only be uncovered through person-centered analyses. Turning our attention to previous longitudinal person-centered studies of burnout trajectories, accumulating evidence supports both the presence of substantial inter-individual heterogeneity in the shape of these trajectories, as well as the stability of these trajectories over a period of 1 to 2 years (Evolanti et al., 2013; Hultell et al., 2013; Mäkikangas & Kinnunen, 2016; Mäkikangas et al., 2012; Rudman & Gustavsson, 2011).

Although informative, it is difficult to reconcile these previous results, due in part to the highly specific nature of their samples (e.g. managers: Mäkikangas et al., 2012; nurses: Rudman & Gustavsson, 2011; entrepreneurs: Zuo et al., 2021; exposed to organizational changes: van den Heuvel et al., 2020; pre-retired older employees: de Wind et al., 2017). This specificity calls into question the generalizability of these previous results, but also makes it impossible to differentiate whether and how conclusions might be related to the nature of the samples. Moreover, other than Gillet et al. (2019), in which a shorter time interval of 4 months was considered, none of these studies relied on a proper disaggregation of global and specific levels of work engagement or burnout. Thus, although the bulk of prior evidence allows us to formulate some hypotheses regarding within-sample and within-person stability, these hypotheses remain tentative at best. Furthermore, in light of these limitations, it is also impossible to anticipate whether the nature of the dominant within-person transitions in profile membership will be upward (toward a *High Engagement/Low Burnout* profile), downward (toward a *Low Engagement/High Burnout* profile), or lateral (toward profiles presenting similar levels of work engagement and burnout but characterized by a different configuration).

**Hypothesis 3.** *The profiles will present a high level of within-sample stability over a one-year interval (i.e. the same number of profiles, with the same structure, the same within-profile dispersion, and the same size will be identified).*

**Hypothesis 4.** *Moderate (60%) to high (75% or more) levels of within-person stability in profile membership will be observed over an eight-month interval.*

**Research Question 1.** *Will the profiles observed in the present study be characterized by upward, downward, or lateral transitions over time?*

## Associations between burnout and work engagement profile membership

Our third objective is to investigate the interrelations between teachers' work engagement and burnout profiles. More precisely, we consider how membership into work engagement profiles relates to membership into burnout profiles, and vice versa, at the same time point and over time. Although this study is the first to systematically examine these associations from a person-centered perspective, several studies have previously examined the work engagement-burnout associations over time using different methodological approaches (for meta-analyses, see Cole et al., 2012; Maricuțoiu et al., 2017).

Most modern conceptualizations of work engagement and burnout position them as the opposite of one another, and even as incompatible psychological states (e.g. Maslach & Leiter, 1997; Schaufeli et al., 2002). Indeed, according to the circumplex model of employee well-being (Bakker & Oerlemans, 2012), burnout is characterized by low displeasure and activation, whereas work engagement is characterized by high pleasure and activation. As a result, scholars generally tend to agree that the experience of burnout should be accompanied by lower levels of work engagement (Cole et al., 2012; Crawford et al., 2010). Employees suffering from high levels of burnout report being exposed to more job demands (e.g. workload), making it harder for them to complete their tasks within a reasonable timeframe (Maslach & Leiter, 1997). In turn, job demands require sustained effort on the part of the employees, leading them to experience a drain on their psychological resources (Bakker & Demerouti, 2007), and lower levels of work engagement (Gillet et al., 2015).

However, many classical perspectives have suggested that high levels of work engagement might contribute to the development of burnout (Cherniss, 1980; Freudenberger, 1974). This assertion relies on the motivational premise that only highly engaged employees can present a high risk of burning out (Pines, 1993). More precisely, this view states that, as a result of their high level of investment in their work role, highly engaged employees may come to deplete of their psychological resources over time, leading them to experience a feeling of work-related strain and to withdraw from work in an attempt to protect themselves from further loss of resources (Hobfoll, 1989). Indeed, highly engaged employees tend to spend longer hours at work (Schaufeli et al., 2008), to have less time and energy for off-work activities (Häusser & Mojzisch, 2017), and thus tend to display higher levels of work-family conflict (Halbesleben et al., 2009) and a greater need for recovery (Sonnentag et al., 2008). Supporting this assertion, recent person-centered studies have shown that it was possible for employees to jointly experience burnout and work engagement (Abós et al., 2019; Moeller et al., 2018).

However, it is important to note that support from either perspective is far from unanimous. For instance, Cole et al.'s (2012) and Crawford et al.'s (2010) meta-analyses revealed negative associations between work engagement and burnout, whereas Mäkikangas et al. (2017) showed

that increases in work engagement were not associated with matching increases in burnout. Moreover, focusing on psychological distress rather than burnout, Shimazu et al. (2018) revealed a positive association between work engagement and psychological distress at high levels of work engagement, and a negative relation between these two constructs when work engagement was low. Furthermore, Junker et al. (2021) found that higher initial levels of burnout were associated with increases in work engagement 6 months later and that higher initial levels of work engagement tended to be associated with increases in levels of burnout 6 months later (Junker et al., 2021). This observation led them to suggest that associations may differ when considered cross-sectionally and longitudinally. More precisely, they noted that “engaged employees are less exhausted but face a higher risk of exhaustion over time. At the same time, exhausted employees are less engaged, but they have the potential to become more so over time” (Junker et al., 2021, p. 789). This perspective thus challenges the assumption that work engagement is solely associated with adaptive functioning, suggesting that it may also have a darker side (e.g. Christian et al., 2011; George, 2011).

In sum, additional research is clearly needed to better unpack the cross-sectional and longitudinal associations between employees’ work engagement and burnout profiles, which represents a core objective of the present study. However, given the heterogeneity of prior longitudinal evidence, it is difficult to formulate very precise hypotheses regarding the specific profile-to-profile associations likely to be the most frequent in the present study. However, the bulk of previous research evidence allows us to propose distinct generic hypotheses for cross-sectional and longitudinal associations.

**Hypothesis 5.** *Cross-sectionally, profiles characterized by high global or specific levels of burnout (High Burnout or Mentally Distanced) should be more likely to correspond to profiles characterized by low global or specific levels of work engagement (Low Engagement), and vice versa (i.e. Low Burnout should be related to High Engagement and Vigorously Engaged).*

**Hypothesis 6.** *Profiles characterized by high global or specific levels of work engagement (High Engagement or Vigorously Engaged) should be more likely to correspond to profiles characterized by high global or specific levels of burnout (High Burnout or Mentally Distanced) at a later time point, and vice versa (i.e. Low Engagement should be related to Low Burnout).*

**Hypothesis 7.** *Profiles characterized by high global or specific levels of burnout (High Burnout or Mentally Distanced) should be more likely to correspond to profiles characterized by high global or specific levels of work engagement (High Engagement or Vigorously Engaged) at a later time point, and vice versa (i.e. Low Burnout should be related to Low Engagement).*

## **PREDICTORS OF TEACHER'S MEMBERSHIP INTO THE BURNOUT AND WORK ENGAGEMENT PROFILES**

Our last objective is to document the role of one job demand (i.e. workload) and various job resources (i.e. control, fairness, community, rewards, and values) as predictors of teachers’ membership into the various burnout and work engagement profiles. Job demands require employees to expand psychological and/or physical efforts and tend to carry a toll for exposed employees (Bakker & Demerouti, 2007; Crawford et al., 2010). In this study, we focus on workload, which refers to the amount of work that is required of an employee (Spector & Jex, 1998). In contrast, job resources refer to those aspects of a job that contribute to supporting employees in achieving their goals, to reducing the costs associated with job demands,

and to fostering personal development and well-being (Bakker & Demerouti, 2007). In the present study, we focus on multiple types of job resources. First, control refers to employees' opportunities to make decisions and exercise control over their work-related tasks (Karasek & Theorell, 1990). Second, fairness refers to employees' perceptions that decisions and resource allocation at work are fair and equitable and that people are treated with consideration and respect (Greenberg & Cropanzano, 2001). Third, community refers to the global quality of social interactions at work (Leiter & Maslach, 2000). Fourth, rewards refer to recognition received from other employees and the organization (including affective, tangible, and monetary rewards; Siegrist, 1996). Finally, values refer to the perception of congruence between an employee's values, goals and expectations, and those of their organization (Maslach & Leiter, 2008).

The role of these specific job demands and resources in relation to the prediction of work engagement and burnout has been clearly established in prior research (Bakker & Demerouti, 2017; Gillet et al., 2018; Gillet, Huyghebaert-Zouaghi, et al., 2020; Huyghebaert, Gillet, Beltou, et al., 2018; Maslach & Leiter, 2008). More generally, accumulating evidence reveals that job demands and resources play a considerable role in the prediction of work engagement (e.g. Halbesleben, 2010) and burnout (e.g. Alarcon, 2011; Watts & Robertson, 2011). This is consistent with reasonings and empirical evidence from the job demands-resources (JD-R) model (Bakker & Demerouti, 2007), which has shown that job demands drain employees' energy and lead to strain outcomes (e.g. burnout and ill-being), whereas job resources promote employees' motivation and adaptive outcomes (e.g. work engagement and commitment). Inspired by the JD-R model, some studies suggest that, in contrast to job demands, job resources tend to foster adaptive functioning and well-being at work through need satisfaction (e.g. Fernet et al., 2013; Gillet et al., 2012; Huyghebaert, Gillet, Fernet, et al., 2018; Trépanier et al., 2015). For instance, overworked employees might be inclined to increase their efforts in the evenings and on weekends to catch up, which would prevent them from recovering from work-related effort (Gillet, Huyghebaert-Zouaghi, et al., 2020). They are thus more likely to report higher levels of job anxiety and strain, subsequently leading to lower levels of work engagement and higher levels of burnout (Gillet, Morin, Mokoukolo, et al., 2021). Likewise, individuals who struggle in a work environment that provides insufficient resources might believe that, despite their best efforts, their needs will never be adequately met, thus leading to negative outcomes such as low work engagement and high burnout (Bakker & Demerouti, 2007). Besides being consistent with self-determination theory and research (Deci et al., 2017), this reasoning aligns with several other theoretical perspectives assuming that adaptive functioning and well-being depend on the possibility and capability to actively engage with one's work environment (Hobfoll, 1989; Karasek & Theorell, 1990). We thus propose the following:

**Hypothesis 8.** *Perceptions of high workload will increase the likelihood of membership in profiles characterized by lower global or specific levels of work engagement (i.e. Low Engagement) and higher global or specific levels of burnout (i.e. High Burnout or Mentally Distanced).*

**Hypothesis 9.** *Positive perceptions of job resources (fairness, control, community, rewards, and values) will increase the likelihood of membership in profiles characterized by higher global or specific levels of work engagement (i.e. High Engagement or Vigorously Engaged) and lower global or specific levels of burnout (i.e. Low Burnout).*

## METHOD

### Procedure and participants

Data were collected at two time points, over an eight-month period (October 2008 and June 2009), among a sample of teachers working in the Canadian province of Quebec. The sample was built from a list of 3000 teachers randomly selected by the Quebec Ministry of Education. Potential participants were contacted via email explaining the purposes of the study and inviting them to complete an online questionnaire twice, 8 months apart. It was emphasized that responses would remain anonymous, that participation was voluntary, and that participants were free to stop their participation at any time.

The sample consisted of 1004 teachers working in primary schools (59.8%), secondary schools (35.5%), or other educational institutions (4.7%) who completed the Time 1 (T1) measures. Participants were mostly women (86.3%), with a mean age of 27.83 years ( $SD = 4.20$ ) and 3.30 ( $SD = 1.67$ ) years of experience in teaching. Of those participants, 708 teachers (86.7% women;  $M_{age} = 27.87$ ,  $SD = 4.33$ ;  $M_{experience} = 3.89$ ,  $SD = 1.66$ ; 59.9% primary schools, 35.0% secondary schools, 5.8% other types of institutions) also completed the Time 2 (T2) measures. A MANOVA was conducted to investigate potential differences between participants who responded at both time points versus those who responded at T1 only in relation to all variables considered in our analyses as well as demographics (age, sex, teaching level, and experience). No statistically significant differences were found between these two groups of participants.

### Measures

All measures were administered in French and have been previously validated in this language.

**Burnout** was measured using the Maslach Burnout Inventory–General Survey (MBI-GS; Schaufeli et al., 1996; French version: Bocéréan et al., 2019). This instrument includes three subscales assessing emotional exhaustion (six items; e.g. “I feel used up at the end of a work day”;  $\alpha = .921_{T1}$ ,  $\alpha = .926_{T2}$ ), cynicism (five items; e.g. “I doubt the significance of my work”;  $\alpha = .815_{T1}$ ,  $\alpha = .775_{T2}$ ), and professional efficacy (six items, e.g. “I can effectively solve the problems that arise in my work”;  $\alpha = .855_{T1}$ ,  $\alpha = .861_{T2}$ ; low scores on this last component are considered to be indicative of burnout). Items were rated on a seven-point scale ranging from 0 (*never*) to 6 (*every day*).

**Work engagement** was measured using the Utrecht Work Engagement Scale – Short Version (UWES-9; Schaufeli et al., 2006; French version: Zecca et al., 2015). This instrument includes three subscales assessing vigor (three items; e.g. “At my work, I feel bursting with energy”;  $\alpha = .88_{T1}$ ,  $\alpha = .857_{T2}$ ), dedication (three items; e.g. “I am enthusiastic about my work”;  $\alpha = .855_{T1}$ ,  $\alpha = .849_{T2}$ ), and absorption (three items; e.g. “I am immersed in my work”;  $\alpha = .587_{T1}$ ,  $\alpha = .592_{T2}$ ). Items were rated on a seven-point scale ranging from 0 (*never*) to 6 (*every day*).

**Job demands and resources** were measured using the Areas of Worklife Scale (AWS; Leiter & Maslach, 2000; French version: Leiter et al., 2009). This instrument includes six subscales assessing workload (six items; e.g. “I do not have time to do the work that must be done”;  $\alpha = .819_{T1}$ ,  $\alpha = .830_{T2}$ ), control (three items; e.g. “I have control over how I do my work”;  $\alpha = .570_{T1}$ ,  $\alpha = .629_{T2}$ ), reward (four items; e.g. “I receive recognition from others for my work”;  $\alpha = .887_{T1}$ ,  $\alpha = .890_{T2}$ ), community (five items; e.g. “I am a member of a supportive work group”;  $\alpha = .812_{T1}$ ,  $\alpha = .790_{T2}$ ), fairness (six items; e.g. “Resources are allocated fairly here”;  $\alpha = .775_{T1}$ ,  $\alpha = .768_{T2}$ ), and values (five items; e.g. “My values and the school’s values are alike”;  $\alpha = .790_{T1}$ ,  $\alpha = .797_{T2}$ ). Items were rated on a five-point scale ranging from 1 (*totally disagree*) to 5 (*totally agree*).

As **demographic characteristics** have been linked to teachers' burnout and work engagement, a number of demographic variables (sex, teaching level, and experience) potentially related to burnout and engagement were considered. For instance, some studies suggest that women and primary school teachers tend to report higher levels of burnout, not only at the beginning of the school year but also over time (e.g. Fernet et al., 2012). Likewise, teaching experience has been previously shown to account for significant variance in burnout and work engagement (e.g. Antoniou et al., 2022; Fernet et al., 2010; Hakanen et al., 2006).

## ANALYSES

### Preliminary analyses

Preliminary analyses were realized to verify the psychometric properties (i.e. composite reliability, factor structure, and correlations) and longitudinal measurement invariance (Millsap, 2011) of the various measures used in this study. The results from these analyses are reported in Tables S2–S11 of the online supplements. To account for the construct-relevant multidimensionality (involving the assessment of conceptually-related subscales encompassing a global and specific components) of the burnout and work engagement measures (Morin, Arens, & Marsh, 2016; Morin, Arens, Tran, & Caci, 2016; Morin, Myers, & Lee, 2020), we retained a bifactor exploratory structural equation modeling (bifactor-ESEM) operationalization of burnout and work engagement, matching recommendations from previous psychometric investigations of these constructs (burnout: e.g. Bianchi, 2020; Doherty et al., 2021; Schonfeld et al., 2019; Tóth-Király et al., 2021b; Verkuilen et al., 2021; work engagement: e.g. Gillet et al., 2019; Gillet, Morin, et al., 2020; Houle et al., 2022). For job demands and resources, we had no reason to account for the presence of a global construct (similar to their global levels of burnout or of work engagement) underlying participants' ratings of job demands and resources, and the results from our preliminary analyses failed to support the need to rely on an ESEM operationalization of these measures. We thus relied on a more parsimonious confirmatory factor analytic (CFA) operationalization of job demands and resources.

Our preliminary analyses also supported the complete invariance of all constructs over time (with the sole exception of the uniqueness from one item from the cynicism subscale which was found to differ slightly over time). Factor scores were saved from the most longitudinally invariant measurement models in standardized units of measurement (with a mean of 0 and a standard deviation of 1) and used in the main analyses. Factor scores provide a partial correction for measurement errors (Skrondal & Laake, 2001) and preserve the underlying structure of the measurement models (e.g. bifactor, ESEM, invariance; Morin, Boudrias, Marsh, et al., 2016; Morin, Meyer, Creusier, & Biétry, 2016; Morin et al., 2017). Overall, our preliminary analyses revealed well-defined burnout ( $\omega = .928$  at T1 and  $.922$  at T2 due to the non-invariant uniqueness) and work engagement ( $\omega = .927$ ) G-factors, workload ( $\omega = .826$ ), control ( $\omega = .612$ ), reward ( $\omega = .878$ ), community ( $\omega = .826$ ), fairness ( $\omega = .768$ ), and values ( $\omega = .803$ ) factors, as well-defined emotional exhaustion ( $\omega = .856$ ) and professional efficacy ( $\omega = .811$ ) S-factors. In contrast, the remaining S-factors appeared to be weakly defined: Vigor ( $\omega = .439$ ), dedication ( $\omega = .409$ ), absorption ( $\omega = .189$ ), and cynicism ( $\omega = .245$  at T1 and  $.203$  at T2 due to the non-invariant uniqueness).

It is important to note that the weak S-factors are to be expected in bifactor solutions because these models rely on two factors to explain the item-level covariance (Morin, Myers, et al., 2020). When this happens, this simply indicates that the items associated with these S-factors primarily

serve to define the G-factor, retaining little specificity on their own (Morin, Myers, et al., 2020). Furthermore, weak S-factor scores are unlikely to introduce any bias in the estimation of latent profile analyses because these S-factors would simply result in the estimation of profiles in which the levels observed on these S-factors are close to the average and show little variation across profiles. Furthermore, it is also possible for weak S-factors to retain specificity limited to one or two profiles of participants, in which case they may emerge as a defining characteristic of these specific profiles (i.e. since this specificity is limited to a subset of participants, it may not be visible in models estimated on the total sample). A more extensive discussion of this issue is provided in the online supplements. Correlations among all variables included in this study are reported in Table S11.

## Latent profile analyses

All analyses relied on the maximum likelihood robust (MLR) estimator implemented in Mplus 8.6 (Muthén & Muthén, 2021), and on full information maximum likelihood procedures to handle missing data (Enders, 2010). The main source of missingness was attrition (from 1004 participants at T1 to 663 at T2). For participants who completed each time of measurement, there were relatively few missing responses at the item level (T1: .0% to 4.9%,  $M = 2.35\%$ ; T2: .0% to 4.8%,  $M = 2.38\%$ ). Solutions including one to eight profiles, defined using the work engagement (global engagement and specific vigor, dedication, and absorption) or burnout (global burnout, and specific emotional exhaustion, cynicism, and professional efficacy) dimensions, were first estimated at both time points. These solutions were estimated while allowing the mean and variance of the profile indicators to be freely estimated across profiles (Morin, McLarnon, & Litalien, 2020; Peugh & Fan, 2013), and relying on 3000 random sets of start values, 100 iterations, and 100 final optimizations (e.g. Meyer & Morin, 2016).

The optimal number of profiles present in the data at both time points was determined by examining the statistical adequacy, theoretical conformity, and heuristic value of each solution, and was also guided by the following statistical indicators (Marsh et al., 2009; Morin, McLarnon, & Litalien, 2020; Muthén, 2003): Aikake information criterion (AIC), Bayesian information criterion (BIC), consistent AIC (CAIC), and sample-adjusted BIC (SABIC). A lower value on these indicators indicates a better level of fit to the data. We also examined the adjusted Lo et al.'s (2001) likelihood ratio test (aLMR) and the bootstrap likelihood ratio test (BLRT). For these two indicators, statistical significance ( $p < .05$ ) supports a model relative to a model including one less profile. Statistical simulation studies generally support the efficacy of the CAIC, BIC, ABIC, and BLRT in model selection, but not that of the aLMR and AIC (Diallo et al., 2016, 2017; Nylund et al., 2007; Peugh & Fan, 2013; Tein et al., 2013). Thus, although we report the latter indicators for purposes of full disclosure, we only rely on the former to guide model selection. However, because these indicators are all greatly influenced by sample size, they often fail to converge on a clear solution (e.g. Marsh et al., 2009). It is thus suggested to graphically display them via an elbow plot (Morin et al., 2011; Petras & Masyn, 2010) in which the presence of a flattening in the decrease in the value of the information criteria can be used to suggest an optimal solution. We also report the entropy, an indicator of classification accuracy ranging from 0 (low) to 1 (high), although this indicator should not be used in profile selection (e.g. Lubke & Muthén, 2007).

## Longitudinal tests of profile similarity

Once the optimal number of profiles has been selected for work engagement and burnout at both time points, longitudinal tests of profile similarity were conducted to test the equivalence of these solutions over time. These tests were conducted following the sequence recommended by Morin, Meyer, Creusier, and Biétry (2016) and adapted to longitudinal analyses by Morin and Litalien (2017). For these more complex analyses, we relied on 10,000 random sets of start values, 1000 iterations, and 500 final optimizations. Starting from a model of configural similarity (same number of profiles), equality constraints were progressively incorporated on the within-profile means of the profile indicators (structural similarity), their within-profile variance (dispersion similarity), and the size of the profiles (distributional similarity). At each step, similarity is supported when two or more of the CAIC, BIC, and ABIC is lower for the more constrained model relative to the previous one in the sequence.

## Latent transition analyses

The results from the most similar solutions were then converted using the manual three-step approach (Asparouhov & Muthén, 2014) to retain the properties of the most similar solutions in the estimation of latent transition and predictive analyses (i.e. to ensure that the nature and size of the profiles remained unchanged in the subsequent analyses; Morin & Litalien, 2017). Using these stable solutions, we then proceeded to the estimation of a series of latent transition analyses (LTA) seeking to verify the within-person stability of participants' membership in the burnout and work engagement profiles over time (longitudinal same-variables LTA). A similar approach was also used to assess the associations between burnout profiles estimated at T1 and participants' likelihood of membership into the work engagement profiles estimated at T2, as well as the associations between the work engagement profiles estimated at T1 and participants' likelihood of membership into the T2 burnout profiles (longitudinal across-variables LTA). For comparison purposes, we also estimated the cross-sectional associations between the work engagement and burnout profiles at the same time point (cross-sectional across-variables LTA).

## Predictors of profile membership

Controls (sex: 0 = female, 1 = male; occupational tenure in years; school type: Dummy coded to reflect primary, secondary, or other) and predictors (job demands: Workload; job resources: Control, rewards, community, fairness, and values) were directly included (via a multinomial logistic regression function) to the final LTA solutions. For the demographic predictors, we contrasted a null effects model (all effects constrained to be zero) with a model in which these variables were allowed to influence profile membership, and with a final model in which these variables were allowed to predict profile membership, and specific profile transitions over time (by allowing the predictions of T2 profile membership to vary across T1 profile membership). In addition, for the models used to assess within-person stability in profile membership (i.e. the transitions between membership into the work engagement profiles at T1 and T2, as well as between the burnout profiles at T1 and T2), a last model of predictive similarity (i.e. in which the role of the predictors was expected to be the same over time; Morin, Meyer, Creusier, & Biétry, 2016) was also estimated. The same models were then estimated to

assess the role of the theoretical predictors. In all models, predictors were allowed to predict the profiles estimated at the same time point, which means that the T2 predictions can be considered to be controlled for the baseline levels of the predictors for the longitudinal analyses. However, for the longitudinal models, one additional specification was tested in which T1 predictors were also allowed to predict the likelihood of profile membership at T2 (consistent with the presence of an effect on changes in profile membership and in which the T2 predictions then come to implicitly reflect the effects of changes in the values of the predictors over time).

## RESULTS

### Work engagement profiles

The results of the LPA solutions estimated at T1 and T2 for work engagement are reported in the top two sections of Table S12, and graphically represented in the top left (T1) and right (T2) panels of Figure S1. The lowest CAIC was observed for the four- and five-profile solutions at T1 and for the three-profile solution at T2. The lowest BIC was associated with seven profiles at T1 and four at T2. The ABIC failed to converge on a specific solution at both time points. The BLRT supported the three-profile solution at T2 but failed to converge on a specific solution at T1. The elbow plots associated with these solutions suggested a four-profile solution at T1 and a two-profile solution at T2. For this reason, solutions including two to five profiles were more systematically inspected. This examination revealed that solutions including the same number of profiles were very similar over time, providing early evidence of configural similarity. Furthermore, this examination revealed that additional profiles resulted in a meaningful contribution up to the three-profile solution, whereas adding more profiles only resulted in the arbitrary division of existing profiles into smaller profiles with a similar shape. The three-profile solution was thus retained at both time points for tests of longitudinal profile similarity. The results from these tests are reported in the top section of Table 1 and support the complete similarity of this solution over time (as at least two out of the CAIC, BIC, and ABIC kept on decreasing at each step in the sequence), in accordance with Hypothesis 3. The resulting model of distributional similarity was retained for interpretation and is illustrated in Figure 1 (parameter estimates reported in Table S13).

Profile 1 (*Vigorously Engaged*) corresponded to a relatively small proportion of the sample (2.26%) characterized by high global levels of work engagement (i.e. as the profile indicators are in standardized units, this level is .5 SD above the sample mean) accompanied by similarly high specific levels of vigor, moderately high specific levels of absorption, and average specific levels of dedication. Profile 2 (*Disengaged*) corresponded to 39.71% of the sample characterized by low global levels of work engagement accompanied by average levels on all specific factors. Finally, Profile 3 (*Engaged*) corresponded to the majority of the sample (58.03%) presenting high global levels of work engagement accompanied by average levels on all specific factors. This pattern of results is consistent with the relatively low levels of specificity associated with the S-factors, revealing that levels on these S-factors remain close to the sample average for most of the sample while displaying a level higher (at least for the vigor and absorption S-factors) than what could be expected from participants' global levels of work engagement in Profile 1. These results thus partially support Hypothesis 1. A key test of the true meaningfulness of this distinctive, albeit small, profile would come from the demonstration of our ability to differentially (or not) predict membership into this profile relative to the other ones.

**TABLE 1** Results from the longitudinal latent profile analyses and latent transition analyses with predictors.

Description	LL	#fp	Scaling	AIC	CAIC	BIC	ABIC
<i>Longitudinal tests of profile similarity: Work engagement</i>							
Configural similarity	-7551.767	56	1.114	15215.534	15546.312	15490.312	15312.453
Structural similarity	-7549.999	44	1.201	15187.998	15447.895	15403.895	15264.148
Dispersion similarity	-7583.617	32	1.443	15231.233	15440.249	15388.249	15286.616
Distributional similarity	-7584.155	28	1.532	15224.309	15389.698	15361.698	15272.769
<i>Longitudinal tests of profile similarity: Burnout</i>							
Configural similarity	-8535.401	52	1.392	17174.801	17482.212	17430.212	17265.057
Structural similarity	-8579.708	40	1.293	17239.416	17475.886	17435.886	17308.844
Partial structural similarity	-8575.488	41	1.274	17232.977	17475.359	17434.359	17304.140
Dispersion similarity	-8649.242	29	1.457	17356.483	17527.924	17498.924	17406.818
Partial dispersion similarity	-8595.967	32	1.428	17255.934	17445.110	17413.110	17311.476
Distributional similarity	-8599.339	30	1.469	17258.677	17436.030	17406.030	17310.748
<i>LTA with predictors: Work engagement T1—Burnout T1</i>							
Null effects model	-8398.419	35	1.081	16866.838	17074.881	17039.881	16928.717
Free effects on profile membership and transitions	-8146.091	59	1.035	16410.182	16760.884	16701.884	16514.492
Free effects on profile membership	-8121.818	95	.684	16433.635	16998.324	16903.324	16601.592
<i>LTA with predictors: Work engagement T2—Burnout T2</i>							
Null effects model	-7238.979	35	1.174	14547.958	14756.001	14721.001	14609.836
Free effects on profile membership	-7034.028	59	1.179	14186.057	14536.758	14477.758	14290.367
Free effects on profile membership and transitions	-7018.591	95	.757	14227.183	14791.871	14696.871	14395.139
<i>LTA with predictors: Work engagement T1—Work engagement T2</i>							
Null effects model	-10883.847	98	1.323	21963.694	22546.214	22448.214	22136.954
Free effects on profile membership	-10765.049	122	1.280	21774.097	22499.276	22377.276	21989.789
Free effects on profile membership and transitions	-10753.298	158	1.079	21822.597	22761.763	22603.763	22101.935
Free effects on profile membership and longitudinal predictions	-10738.152	134	1.125	21744.304	22540.812	22406.812	21981.211
Predictive similarity (equality over time)	-10771.794	110	1.286	21763.588	22417.437	22307.437	21958.063

(Continues)

TABLE 1 (Continued)

Description	LL	#fp	Scaling	AIC	CAIC	BIC	ABIC
<i>LTA with predictors: Burnout T1—Burnout T2</i>							
Null effects model	−11203.906	98	1.341	22603.811	23186.332	23088.332	22777.071
Free effects on profile membership	−10930.563	122	1.306	22105.125	22830.304	22708.304	22320.816
Free effects on profile membership and transitions	−10897.260	158	1.074	22110.520	23049.685	22891.685	22389.857
Free effects on profile membership and longitudinal predictions	−10872.220	134	1.040	22012.440	22808.948	22674.948	22249.347
Predictive similarity (equality over time)	−10947.441	110	1.326	22114.882	22768.732	22658.732	22309.358
<i>LTA with predictors: Work engagement T1—Burnout T2</i>							
Null effects model	−11166.594	98	1.333	22529.187	23111.708	23013.708	22702.447
Free effects on profile membership	−10940.401	122	1.268	22124.802	22849.981	22727.981	22340.494
Free effects on profile membership and transitions	−10924.929	158	1.001	22165.859	23105.025	22947.025	22445.197
Free effects on profile membership and longitudinal predictions	−10934.616	134	1.330	22137.232	22933.740	22799.740	22374.139
<i>LTA with predictors: Burnout T1 - work engagement T2</i>							
Null effects model	−11147.971	98	1.340	22491.942	23074.463	22976.463	22665.202
Free effects on profile membership	−10886.932	122	1.284	22017.863	22743.042	22621.042	22233.554
Free effects on profile membership and transitions	−10875.993	158	1.037	22067.985	23007.151	22849.151	22347.323
Free effects on profile membership and longitudinal predictions	−10879.852	134	1.266	22027.705	22824.212	22690.212	22264.611

Note: LTA = latent transition analysis; LL = loglikelihood; #fp = free parameters; Scaling = scaling correction factor; AIC = Akaike information criterion; CAIC = consistent AIC; BIC = Bayesian information criterion; ABIC = sample size adjusted BIC.

## Burnout profiles

The results of the LPA solutions estimated at T1 and T2 for burnout are reported in the bottom two sections of Table S12 in the online supplements, and graphically represented in the bottom left (T1) and right (T2) panels of Figure S1 in the same supplements. The lowest CAIC and BIC were associated with the five-profile solution at T1 and with the seven-profile solution at T2. The ABIC and BLRT supported the seven-profile solution at T1 and failed to converge on a specific solution at T2. The elbow plots suggested the presence of two to four profiles at both time points. For this reason, solutions including two to five profiles were more systematically inspected. This

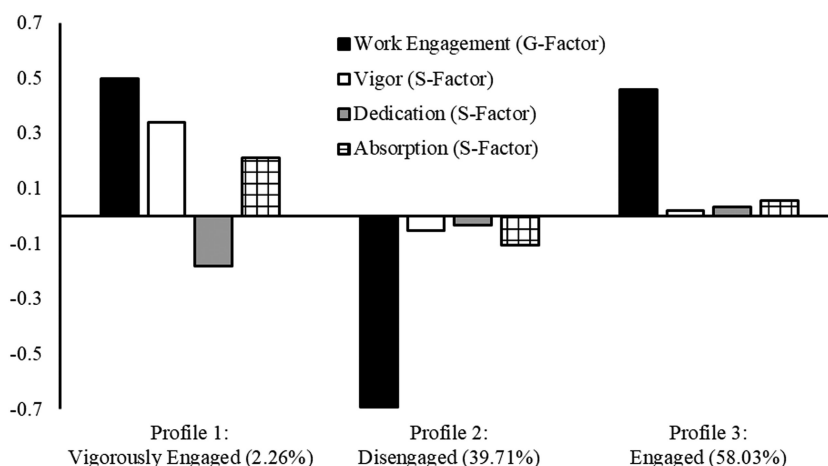


FIGURE 1 Final 3-profile solution for work engagement (distributional similarity). *Note:* The profile indicators are factor scores estimated in standardized units ( $M=0$ ;  $SD=1$ ).

examination first revealed that the solutions including the same number of profiles were highly similar across time points, providing early evidence of configural similarity. This examination also showed that adding profiles resulted in a meaningful contribution to the three-profile solution, whereas adding more profiles only resulted in the arbitrary division of existing profiles into smaller profiles with a similar shape. The three-profile solution was thus retained for tests of profile similarity.

The results from the longitudinal tests of profile similarity are reported in the second section of Table 1. These results failed to support the structural and dispersion similarity of this solution over time. However, the parameter estimates from the configural model indicated that the lack of structural similarity was limited to the professional efficacy S-factor, which was slightly lower in Profile 3 at T1 than at T2. Likewise, the lack of dispersion similarity seemed limited to the three S-factors, which had slightly higher levels of within-profile variability in Profile 3 at T1 than at T2, which is consistent with the lower sample available for our analyses at T2 relative to T1. Relaxing equality constraints on these indicators in Profile 3 resulted in models of partial structural and dispersion similarity which were supported by the data. Likewise, the last model of distributional similarity was also supported by the data, thus providing partial support to Hypothesis 3. The final model of distributional similarity (with partial structural and dispersion similarity) was retained for interpretation and is graphically illustrated in Figure 2 (detailed parameter estimates are reported in Table S14).

Profile 1 (*Burned-Out*) corresponded to 49.74% of the sample and presented high global levels of burnout, accompanied by close to average specific levels of emotional exhaustion, cynicism, and professional efficacy. Profile 2 (*Adapted*) corresponded to 8.27% of the sample and presented very low global levels of burnout, low specific levels of emotional exhaustion, average specific levels of cynicism, and high specific levels of professional efficacy. Profile 3 (*Normative*) corresponded to 42.26% of the sample and presented low global levels of burnout, accompanied by close to average specific levels of emotional exhaustion, cynicism, and professional efficacy. Despite the slightly lower specific level of professional efficacy observed in this profile at T2, the shape of the profiles was highly consistent over time. These results partially support Hypothesis 2.

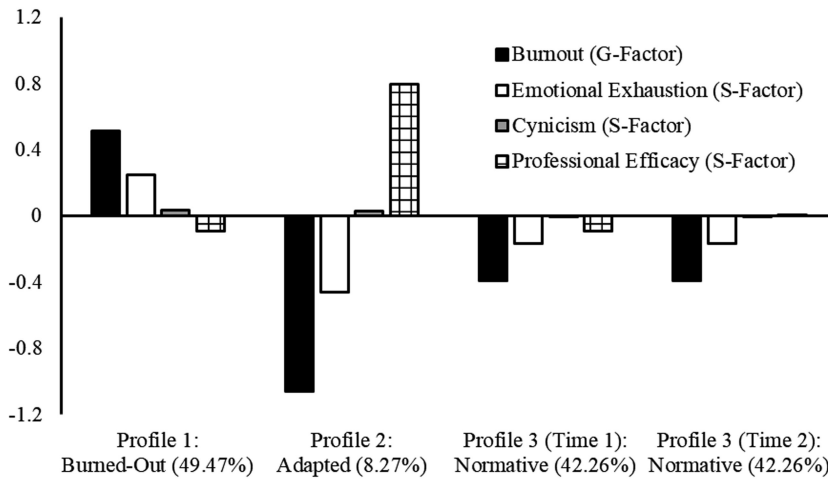


FIGURE 2 Final 3-profile solution for burnout (partial structural similarity, partial dispersion similarity, and distributional similarity). Note: The profile indicators are factor scores estimated in standardized units ( $M=0$ ;  $SD=1$ ).

## Latent transition analyses (LTA)

The transition probabilities associated with the various LTA are reported in Table 2 and partially support Hypothesis 5. Starting first with the cross-sectional solutions (reported in the top two sections of Table 2), the results showed that the majority of employees corresponding to the *Vigorously Engaged* profile at one specific point in time corresponded to the *Normative* burnout profile at the same time point (89.4% at T1 and 77.5% at T2), although a small proportion of them also corresponded to the *Burned-Out* profile at the matching time point (10.2% at T1 and 22.5% at T2). In contrast, almost all *Disengaged* employees corresponded to the *Burned-Out* profile at the matching time point (94.0% at T1 and 97.7% at T2). Finally, although a majority of *Engaged* employees corresponded to the *Normative* burnout profile at the matching time point (69.3% at T1 and 64.7% at T2), some of them also corresponded to the *Burned-Out* (12.4% at T1 and 24.4% at T2) and to the *Adapted* (18.3% at T1 and 10.8% at T2) profiles at the same time point.

Over time, the longitudinal analyses revealed a similar pattern of associations (see the middle two sections of Table 2). Looking first at the T1 work engagement profiles, most *Vigorously Engaged* employees at T1 corresponded to the *Normative* burnout profile at T2, although a small number of them corresponded to the *Burned-Out* profile at T2 (9.8%). Although most *Disengaged* employees at T1 corresponded to the *Burned-Out* profile at T2 (79.8%), thus matching the cross-sectional results, it was encouraging to note that roughly a fifth of them corresponded to the *Normative* profile at T2. Lastly, roughly half (56.6%) of the *Engaged* employees at T1 corresponded to the *Normative* burnout profile at T2, whereas a significant proportion of them also corresponded to the *Burned-Out* (31.0%) and *Adapted* (12.4%) profiles at T2. Taken together, these results partially support Hypothesis 6. Turning our attention to the opposite pattern of transitions, the results suggested very similar patterns of longitudinal associations. Thus, most *Burned-Out* employees at T1 corresponded to the *Disengaged* profile at T2 (70.2%), although a third of them also corresponded to the *Engaged* profile at T2 (29.8%). Almost all *Adapted* employees at T1 corresponded to the *Engaged* profile at T2 (98.9%). Finally, most employees corresponding to the *Normative* burnout profile at T1 corresponded to the *Engaged* profile at T2 (88.5%). These results provide partial support to Hypothesis 7.

**TABLE 2** Transitions probabilities from the cross-sectional across-variables and longitudinal within-variables and across-variable latent transition analyses.

		<b>Transition toward (burnout time 1)</b>		
<b>Initial profile (work engagement time 1)</b>		<b>Profile 1 (Burned-Out)</b>	<b>Profile 2 (Adapted)</b>	<b>Profile 3 (Normative)</b>
Profile 1 (Vigorously Engaged)		.102	.004	.894
Profile 2 (Disengaged)		.940	.000	.060
Profile 3 (Engaged)		.124	.183	.693
		<b>Transition toward (burnout time 2)</b>		
<b>Initial profile (work engagement time 2)</b>		<b>Profile 1 (Burned-Out)</b>	<b>Profile 2 (Adapted)</b>	<b>Profile 3 (Normative)</b>
Profile 1 (Vigorously Engaged)		.225	.000	.775
Profile 2 (Disengaged)		.977	.000	.023
Profile 3 (Engaged)		.244	.108	.647
		<b>Transition toward (burnout time 2)</b>		
<b>Initial profile (work engagement time 1)</b>		<b>Profile 1 (Burned-Out)</b>	<b>Profile 2 (Adapted)</b>	<b>Profile 3 (Normative)</b>
Profile 1 (Vigorously Engaged)		.098	.000	.902
Profile 2 (Disengaged)		.798	.000	.202
Profile 3 (Engaged)		.310	.124	.566
		<b>Transition toward (work engagement time 2)</b>		
<b>Initial profile (burnout time 1)</b>		<b>Profile 1 (Vigorously Engaged)</b>	<b>Profile 2 (Disengaged)</b>	<b>Profile 3 (Engaged)</b>
Profile 1 (Burned-Out)		.000	.702	.298
Profile 2 (Adapted)		.003	.008	.989
Profile 3 (Normative)		.042	.073	.885
		<b>Transition toward (work engagement time 2)</b>		
<b>Initial profile (work engagement time 1)</b>		<b>Profile 1 (Vigorously Engaged)</b>	<b>Profile 2 (Disengaged)</b>	<b>Profile 3 (Engaged)</b>
Profile 1 (Vigorously Engaged)		.117	.000	.883
Profile 2 (Disengaged)		.000	.897	.103
Profile 3 (Engaged)		.027	.000	.973
		<b>Transition toward (burnout time 2)</b>		
<b>Initial profile (burnout time 1)</b>		<b>Profile 1 (Burned-Out)</b>	<b>Profile 2 (Adapted)</b>	<b>Profile 3 (Normative)</b>
Profile 1 (Burned-Out)		.951	.000	.049
Profile 2 (Adapted)		.078	.675	.246
Profile 3 (Normative)		.124	.004	.872

In terms of within-person stability (see the last two sections of Table 2), it is interesting to note that, for work engagement, membership into the *Disengaged* (89.7%; although 10.3% of them also transitioned toward an *Engaged* profile over time) and *Engaged* (97.3%) profiles was highly stable over time, whereas membership into the *Vigorously Engaged* profile was harder to maintain over time (11.7%), involving frequent transitions toward the *Engaged* profile at T2 (88.3%). For the burnout profiles, membership into the *Burned-Out* (95.1%) and *Normative* (87.2%; although 12.4% of them also transitioned toward a *Burned-Out* profile over time) profiles was highly stable over time. Although membership into the *Adapted* profile was also very stable over time (67.5%), this profile also involved frequent transitions toward the *Normative* profile over time (24.6%), and rarer transitions toward the *Burned-Out* profile (7.8%). These results support Hypothesis 4 for burnout, but only partially support this Hypothesis for work engagement. In relation to Research Question 1, our results revealed a combination of upward (toward “better” profiles) and lateral transitions for work engagement, and a majority of downward transitions for burnout (toward “worst” profiles).

## Demographic predictors

The results from the first set of analyses designed to verify the predictive role of demographic predictors in relation to employees' likelihood of membership into the various profiles, to verify the relevance of incorporating these variables as controls in further analyses, are reported in Table S15. Across all types of analyses, these results consistently support the null effects model (systematically associated with the lowest values on the CAIC, BIC, and ABIC). These results indicate a lack of effects of these variables on employees' likelihood of membership into the work engagement or burnout profiles, as well as their likelihood of experiencing specific profile transitions.

## Job demands and resources

The results from the predictive analyses designed to verify the role of our theoretical predictors are reported in the middle and bottom sections of Table 1. These results are consistent with an effect of the predictors on employees' likelihood of membership that generalizes over time (i.e. predictive similarity), but not with the presence of an effect of the predictors on specific profile transitions, or of longitudinal effects of T1 predictors on the likelihood of profile membership at T2. Indeed, the results systematically support the results from the model including free effects of the predictors on profile membership (without added longitudinal paths or effects on specific transitions), and the model of predictive similarity for analyses of within-person stability (these models systematically resulted in the lowest values on two out of the CAIC, BIC, and ABIC).

The results from these predictions are reported in Table 3,<sup>2</sup> and first indicate that workload perceptions increased employees' likelihood of membership into the *Disengaged* profile relative to the *Engaged* one, as well as into the *Engaged* profile relative to the *Vigorously Engaged* one. Workload perceptions also increased employees' likelihood of membership into the *Burned-Out*

<sup>2</sup>The results were virtually identical across the different types of LTA estimated. We report the results from the models of predictive similarity given their greater parsimony (i.e. in these models, the two time points are used to estimate a single set of predictive paths set to be equivalent over time).

**TABLE 3** Results from the predictive analyses (predictive similarity over time).

	Work engagement profiles				Burnout profiles							
	Vigorously Engaged vs. Engaged		Disengaged vs. Engaged		Vigorously Engaged vs. Engaged		Burned-Out vs. Normative		Adapted vs. Normative		Burned-Out vs. Adapted	
	Coef. (SE)	OR	Coef. (SE)	OR	Coef. (SE)	OR	Coef. (SE)	OR	Coef. (SE)	OR	Coef. (SE)	OR
Workload	-.122 (.197)	.885	.359 (.116)**	1.432	-.481 (.209)*	.618	1.183 (.148)**	3.263	-.927 (.200)*	.396	2.110 (.241)**	8.249
Control	-.347 (.335)	.707	-.539 (.202)**	.584	.192 (.360)	1.211	.072 (.215)	1.075	.486 (.343)	1.625	-.414 (.393)	.661
Rewards	-.143 (.236)	.867	-.511 (.130)**	.600	.368 (.242)	1.445	-.611 (.152)**	.543	1.145 (.313)**	3.144	-.1756 (.339)**	.173
Community	.391 (.185)*	1.478	.161 (.109)	1.175	.230 (.215)	1.258	.176 (.122)	1.192	-.310 (.217)	.734	.486 (.258)	1.625
Fairness	.225 (.277)	1.253	.509 (.159)**	1.663	-.284 (.299)	.753	.069 (.163)	1.071	-.389 (.264)	.678	.457 (.296)	1.580
Values	-.360 (.281)	.698	-.892 (.158)**	.410	.533 (.264)	1.703	-.658 (.170)**	.518	1.133 (.344)**	3.104	-.1791 (.381)**	.167

*Note.* SE = Standard error of the coefficient; OR = Odds ratio; the Coef. (coefficients) and OR refer to the effects of the predictors on the likelihood of membership into the first listed profile relative to the second one; predictors are factor scores estimated in standardized units ( $M = 0$ ;  $SD = 1$ ).

\* $p < .05$ .

\*\* $p < .01$ .

profile relative to the *Normative* and *Adapted* ones, as well as into the *Normative* profile relative to the *Adapted* one. These results thus support Hypothesis 8.

Employees' perceptions of rewards and values both predicted an increased likelihood of membership into the *Engaged* profile relative to the *Disengaged* one, into the *Normative* and *Adapted* profiles relative to the *Burned-Out* one, and into the *Adapted* profile relative to the *Normative* one. Employees' perceptions of control predicted an increased likelihood of membership into the *Engaged* profile relative to the *Disengaged* one. In contrast, their perceptions of fairness predicted the opposite association, increasing their likelihood of membership into the *Disengaged* profile relative to the *Engaged* one. Lastly, employees' perceptions of community predicted an increased likelihood of membership into the *Vigorously Engaged* profile relative to the *Engaged* one. Taken together, these results partially support Hypothesis 9. In a final set of exploratory analyses, we also tested for possible interactions between job demands (i.e. workload perceptions) and resources (i.e. control, rewards, community, fairness, and values) and found no evidence supporting the presence of any form of interactions between these variables.

## DISCUSSION

In the present study, we adopted a combined variable- and person-centered approach to investigate the value of jointly considering global and specific dimensions of work engagement (Gillet et al., 2019; Huyghebaert-Zouaghi et al., 2021; Huyghebaert-Zouaghi, Caesens, et al., 2022) and burnout (Gillet et al., 2022; Sandrin et al., 2022). In doing so, we were able to achieve an improved representation of the measurement structure of both constructs, as well as of the nature of the work engagement and burnout profiles commonly observed among our sample of teachers. Through the adoption of a longitudinal design, we were also able to test the within-person and within-sample stability of these profiles (Huyghebaert-Zouaghi, Morin, et al., 2022; Sandrin et al., 2020). This approach also allowed us to consider how membership into work engagement profiles was related to membership into burnout profiles, and vice versa, both within each time point and over time across an eight-month period. Finally, the criterion-related validity of both sets of profiles was investigated by examining their associations with theoretically relevant predictors including job demands (workload) and resources (control, rewards, community, fairness, and values).

### Work engagement and burnout as multidimensional constructs

Research has recently documented the need to account for the dual nature of work engagement (Gillet et al., 2019; Huyghebaert-Zouaghi et al., 2021; Huyghebaert-Zouaghi, Caesens, et al., 2022) and burnout (Gillet et al., 2022; Sandrin et al., 2022) as global entities (the work engagement and burnout G-factors) measured from distinct dimensions retaining some degree of specificity of their own (the S-factors). In this regard, our results confirmed our expectations and replicated previous conclusions supporting the superiority of a bifactor representation of work engagement and burnout. These two solutions revealed co-existing G-factors representing teachers' global levels of work engagement and burnout, as well as S-factors reflecting their specific levels of vigor, dedication, absorption, emotional exhaustion, cynicism, and professional efficacy left unexplained by these global levels. In both solutions, the S-factors were more weakly defined than the G-factor, although they still retained some degree of specificity consistent with the idea that

all of these subscales strongly contributed to the assessment of teachers' global levels of work engagement and burnout, while also retaining something unique. This research thereby extends our knowledge about the dimensionality of both constructs and capitalizes on this improved representation to achieve a clearer picture of teachers' profiles of burnout and work engagement.

## Work engagement and burnout profiles

Our results revealed that three profiles best summarized the work engagement configurations observed among the current sample of teachers: (1) *Vigorously Engaged*, (2) *Disengaged*, and (3) *Engaged*. Likewise, three distinct profiles best represented the teachers' burnout configurations observed among this sample: (1) *Burned-Out*, (2) *Adapted*, and (3) *Normative*. Although these results only partially supported our hypotheses (i.e. no *Normative* profile was identified for work engagement, and no *Mentally Distanced* profile was identified for burnout), all of these profiles were expected based on their identification in prior person-centered studies of work engagement (e.g. Gillet et al., 2019; Simbula et al., 2013) and burnout (e.g. Leiter & Maslach, 2016; Sandrin et al., 2022), as summarized in Table S1. It is interesting to note that despite methodological differences the percentage of teachers in most profiles is similar to that reported in previous person-centered studies. For instance, in a study of teachers, Gillet et al. (2022) reported 60.1% (of the sample) in moderate to high burnout profiles. More importantly, in addition to providing evidence of replicability for these prior results to the current sample of teachers, despite a few minor differences related to the *Normative* burnout profile, our results also supported the generalizability of these across two time points, taken over the course of a school year. These observations indicate that these profiles seem to reflect core psychological mechanisms involved in the experience of work engagement and burnout among employees, rather than sample-specific or ephemeral phenomena reflecting random sampling variations. More precisely, this evidence of replicability across studies, types of employees, and time supports the value and likely generalizability of devising interventions strategies targeting specific profiles of work engagement and burnout (e.g. Meyer & Morin, 2016).

Adding to the evidence obtained as part of our measurement analyses, these person-centered results also further reinforced the value of relying on a proper disaggregation of the global and specific components of work engagement (Gillet et al., 2019) and burnout (Sandrin et al., 2022) in person-centered investigations. Indeed, none of the profiles identified in this study was characterized by matching levels across all work engagement (i.e. global work engagement and specific vigor, dedication, and absorption) and burnout (i.e. global burnout and specific emotional exhaustion, cynicism, and professional efficacy) indicators. Consequently, although the components of each of those constructs are complementary and known to be highly intercorrelated (Leiter & Maslach, 2000; Schaufeli et al., 2002), our findings demonstrate the value of capturing this overlap via the estimation of a global factor underpinning all components associated with each construct to obtain a clearer picture of the role uniquely played by each component beyond this global construct. Indeed, when considering our results, it is important to keep in mind that the specific facets of both constructs no longer reflect the whole variance shared among the items from these subscales. Rather, while they retain a similar meaning, these specific facets now represent the degree of discrepancy (or imbalance) between employees' raw scores on each subscale and their global levels of work engagement and burnout. In the present study, and consistent with the central role played by the G-factors as capturing the core of work engagement and burnout across dimensions, we found that a majority of the profiles were primarily defined by their global

levels of work engagement (*Disengaged* and *Engaged*) and burnout (*Burned-Out* and *Normative*). However, and clearly supporting the value of also considering the S-factors, two of our profiles were found to be substantially defined by at least one of these specific components (*Vigorously Engaged* and *Adapted*). Yet, it would be particularly important for future investigations to more systematically understand whether and how these profiles would differ across different occupational groups (e.g. nurses and managers) or cultures (e.g. North America, Europe, and Asia), as well as whether intervention strategies can be devised to nurture more desirable profiles.

In terms of within-person stability, our results revealed that membership into the three burnout profiles (67.5% to 95.1%), as well as into the *Disengaged* (89.7%) and *Engaged* (97.3%) profiles was highly stable over time, whereas membership into the *Vigorously Engaged* profile was not as stable (11.7%). These results suggest that membership into five of the six profiles identified in this study is unlikely to change on its own in the absence of a systematic exposure to external changes or interventions. Indeed, although exposure to changes or interventions was not directly measured in the present study, such changes are unlikely to have affected all teachers in a systematic manner, suggesting that most teachers probably underwent a normative work experience over the course of the study. Importantly, the rates of stability observed in this study are aligned with previous results showing that employees' levels of work engagement (Grødal et al., 2019; Heinrichs et al., 2020) and burnout (Frøgéli et al., 2019; Kinnunen et al., 2019) tend to be moderately to highly stable over time. As far as teachers are concerned, the very nature of teaching involving multiple relationships, challenges, and demands requires them to expend constant energy to engage daily in these activities, which may explain the stability of these psychological states. Membership into the *Vigorously Engaged* profile appeared to be highly unstable over time (11.7%). This observation suggests that it might be easier for interventions to support change among employees corresponding to this profile, although they more realistically suggest that interventions might be needed to help support these employees in maintaining their high levels of work engagement over time. These results suggest that it might be harder to maintain a profile characterized by a more imbalanced configuration over time and, maybe more importantly, by the lowest levels of dedication. This last observation could be linked to the constant chase of efficiency that characterizes modern societies, leading to a work intensification phenomenon (Huyghebaert, Gillet, Beltou, et al., 2018) known to be particularly present in socially-valued specialized occupations such as teaching (Lawrence et al., 2019). This result suggests that maintaining high levels of work engagement, vigor, and absorption may be particularly hard for teachers lacking matching levels of dedication, even in a rather short period of time (i.e. during a school year), in a society that values hard work (Gillet et al., 2018).

## Associations between burnout and work engagement profile membership

Cross-sectionally, many teachers corresponding to the *Vigorously Engaged* profile corresponded to the *Normative* burnout profile, whereas almost all *Disengaged* teachers corresponded to the *Burned-Out* profile. Although a majority of *Engaged* teachers corresponded to the *Normative* burnout profile, some of them also corresponded to the *Burned-Out* and *Adapted* profiles. Over a period of 8 months, our longitudinal analyses revealed a similar pattern of associations over time between these two sets of profiles (T1 work engagement profiles to T2 burnout profiles). Furthermore, many teachers corresponding to the *Burned-Out* profile at T1 corresponded to the *Disengaged* profile at T2, whereas almost all *Adapted* teachers at T1 corresponded to the *Engaged*

profile at T2. Finally, many teachers corresponding to the *Normative* burnout profile at T1 corresponded to the *Engaged* profile at T2.

In sum, these results indicate strong associations between the *Engaged* profile and the *Adapted* profile, as well as between the *Disengaged* profile and the *Burned-Out* profile, consistent with the idea that, for many employees, these two constructs represent incompatible psychological states (e.g. Bakker & Demerouti, 2007; Cole et al., 2012; Crawford et al., 2010). However, strong associations were also observed between the two highly engaged profiles and the *Normative* burnout profile. This second set of result suggests that the aforementioned incompatibility might have a threshold preventing most highly engaged employees to display high levels of burnout, without necessarily being sufficient to protect them against the experience of more normative levels of burnout.

However, our results also revealed that some *Vigorously Engaged* and *Engaged* teachers also presented a *Burned-Out* profile. This result indicates that, as hypothesized, some teachers may jointly experience burnout and work engagement (Abós et al., 2019; Moeller et al., 2018), thus reinforcing the idea that although both states might be incompatible for many employees, this incompatibility is far from absolute. Indeed, highly engaged employees spend longer hours at work and display a greater need for recovery, which can both be involved in the emergence of burnout (Schaufeli et al., 2008; Sonnentag et al., 2008). In this regard, *Engaged* teachers are also more likely to transition to the *Burned-Out* profile (31.0%) than their *Vigorously Engaged* colleagues (9.8%), just like roughly a third of the *Burned-Out* teachers (29.8%) transitioned to the *Engaged* profile over time (none transitioned to the *Vigorously Engaged* profile). These results clearly suggest that *Engaged* teachers may be less protected against burnout than *Vigorously Engaged* ones. On the one hand, this result reinforces the importance of the high specific levels of vigor and absorption displayed by the *Vigorously Engaged* teachers (e.g. Gillet et al., 2019). On the other hand, part of this result could also reflect the lower level of dedication observed in the *Vigorously Engaged* profile. Indeed, research suggests that when employees are excessively enthusiastic and challenged at work, they eventually lack the opportunity to recover and restore their resources (Sonnentag, 2011). Thus, this result suggests that in the absence of high levels of dedication, highly engaged teachers are unlikely to be able to maintain the investment of enough energy and resources in their work to generate burnout.

Finally, contrary to their *Engaged* colleagues (12.4%), *Vigorously Engaged* teachers never transitioned to the *Adapted* profile. Likewise, *Adapted* teachers almost never transitioned to the *Vigorously Engaged* profile (.3%), although most of them transitioned to the *Engaged* profile (98.9%). These results suggest that the more imbalanced configuration displayed by *Vigorously Engaged* teachers may not be compatible with an *Adapted* burnout configuration. Indeed, these teachers seem to be simultaneously driven by autonomous (pleasure, interest, or personal values) and controlled (internal or external pressures) regulations, resulting in an incompletely integrated internalization process (Trépanier et al., 2015). The use of accommodation mechanisms, such as compensatory motives (e.g. overinvestment in a job where one feels competent or appreciated), would allow for some collateral satisfaction with a work life that generates a more imbalanced work engagement configuration (Gillet et al., 2019). Furthermore, their global levels of work engagement would certainly offer these individuals the psychological nutrients they need to be highly functional at work (Huyghebaert-Zouaghi, Caesens, et al., 2022), although a negative imbalance between these work engagement components may still make it harder for them to truly experience a complete lack of negative manifestations of burnout. These findings thus capitalize on the growing person-centered research stream in organizational studies (Hofmans et al., 2021) to provide a more nuanced perspective on the motivational premise of burnout.

However, as many of our explanations remain tentative, we hope that they will help to generate further research into the psychological mechanisms underpinning these person-centered associations between burnout and work engagement.

## Job demands and resources as predictors of profile membership

By considering the role played by job demands (workload) and resources (control, rewards, community, fairness, and values) in the prediction of profile membership, our results provided practical guidance regarding some of the likely drivers of the distinct work engagement and burnout configurations among teachers. More specifically, workload was associated with a higher likelihood of membership into the *Disengaged* profile relative to the *Engaged* one, into the *Burned-Out* profile relative to the *Normative* and *Adapted* ones, and into the *Normative* profile relative to the *Adapted* one. These results add further evidence supporting the undesirable impact of job demands in relation to work engagement and burnout (Crawford et al., 2010; Lesener et al., 2019), in a way that matched the assumptions of the job demands-resources model (Bakker & Demerouti, 2017). These results are consistent with the idea that exposure to higher levels of job demands decrease the satisfaction of employees' basic psychological needs at work (Fernet et al., 2013; Trépanier et al., 2015) and their ability to properly recover from work (Gillet, Huyghebaert-Zouaghi, et al., 2020), both of which are known to be associated with lower levels of work engagement and higher levels of burnout (Gillet, Morin, Mokoukolo, et al., 2021). Nonetheless, our findings invite future research to consider specific types of job demands (e.g. role ambiguity and conflict) and source of stress (e.g. students, colleagues and principal) among teachers to enrich our understanding of the predictors involved in shaping each profile.

Teachers' perceptions of rewards and values were associated with an increased likelihood of membership into the *Engaged* profile relative to the *Disengaged* one, into the *Normative* and *Adapted* profiles relative to the *Burned-Out* one, and into the *Adapted* burnout profile relative to the *Normative* one. Moreover, their perceptions of control were also associated with their likelihood of membership into the *Engaged* profile relative to the *Disengaged* one. These results confirm the role of rewards, values, and control as key drivers of psychological functioning at work, expanding upon prior variable-centered research supporting the role of these variables in the prediction of work engagement and burnout (Crawford et al., 2010; Goering et al., 2017). These results are consistent with the idea that teachers exposed to a work environment in which sufficient resources are available to properly satisfy their psychological needs should be more likely to experience positive motivational states (e.g. autonomous motivation and self-efficacy; Fernet et al., 2012) and optimal functioning at work (Bakker & Demerouti, 2007; Fernet et al., 2016; Gillet et al., 2012).

It was, however, interesting to note that teachers' perceptions of workload were also associated with their likelihood of membership into the *Engaged* profile relative to the *Vigorously Engaged* one, whereas the opposite was true for their perceptions of community. In addition to reinforcing the distinction between these two profiles, these results also support the previous observation of associations between these two facets of the work environment and teachers' specific levels of vigor and absorption (negative for workload: Reis et al., 2017; Sonnentag & Niessen, 2008; and positive for community: Gillet et al., 2015; Maslach & Leiter, 2008). For workload, this association has been explained by the fact that job demands require energy and effort, thus taking a toll of one's personal resources (Bakker & Demerouti, 2007). Furthermore, teachers exposed to higher workloads may come to display higher levels of activation and to exhibit withdrawal

behaviors that are incompatible with their ability to feel vigorous and absorbed at work (Meurs & Perrewé, 2011). In contrast, job resources, such as community, have been previously shown to promote creativity and proactive behaviors, to yield opportunities for development, to result in opportunities to contribute to new stimulating projects or strategies, and to contribute to psychological need satisfaction, autonomous motivation, and flow (Bakker & Demerouti, 2007; Gillet et al., 2012), all of which share conceptual connections with vigor and absorption at work.

Lastly, teachers' perceptions of fairness were unexpectedly associated with their membership into the *Disengaged* profile relative to the *Engaged* one. These results thus show that inter-individual differences in fairness perceptions may be detrimental to teacher's global levels of work engagement. This result is interesting given that prior variable-centered research has consistently positioned fairness as a positive driver of psychological health in a "the more, the better" perspective (e.g. Fouquereau et al., 2020; Greenberg & Cropanzano, 2001). Nevertheless, recent findings rather suggest a "too much of a good thing" interpretation according to which high levels of fairness perceptions might be detrimental in some situations (Brockner et al., 2009; Rodwell & Fernando, 2015; Tremblay et al., 2018). Indeed, higher levels of fairness could be stressful, especially for busy teachers, who might consider the need to act in a fair and equitable manner toward their colleagues and students as a job demands, rather than as a pure type of job resources when considered solely from the perspective of their own treatment at work. Clearly, additional studies are needed to replicate the present results and to identify the mechanisms underlying these unexpected relations.

## Limitations and future directions

The present research has some limitations, which nevertheless open the way to promising new research avenues. First, the fact that this study relied solely on self-report measures increases the risk of social desirability and self-report biases. To alleviate these concerns, it would be useful for future studies to consider incorporating objective measures (e.g. organizational data on absenteeism) and informant ratings of employees' functioning (e.g. colleagues, school administrators). Second, the present study was conducted among a sample of Canadian teachers. Further research is thus needed to generalize the current results in different work settings, countries, languages, and cultures. Third, the current research assessed the stability of work engagement and burnout profiles over an eight-month period (i.e. a typical school year), which was not characterized by any specific or systematic change or transition for most participants. Clearly, estimates of stability reported in the current investigation could be reduced if longer time intervals were considered, or if continuity and change were assessed across more meaningful transitions or interventions (e.g. professional training). Future studies should thus examine the extent to which our findings would generalize to longer periods of time, transitions, interventions, and changes. Finally, workload, control, rewards, community, fairness, and values were the only predictors of interest in our research. Yet, it would be interesting to examine how other personal characteristics (e.g. psychological capital and self-efficacy) as well as hindrance (e.g. role conflict, overload and ambiguity) and challenge (e.g. role responsibility and complexity) demands relate to employees' work engagement and burnout. Likewise, positive (e.g. organizational citizenship behaviors and creativity) and negative (e.g. absenteeism, counterproductive behaviors) outcomes could be included to better understand the implications of the work engagement and burnout profiles. Of particular interest in educational settings, future studies should consider how teachers' engagement and burnout profiles relate to student achievement and motivational outcomes during a school year.

## Practical implications

From an intervention perspective, our findings suggest that school administrators should be particularly attentive to teachers exposed to high workload and low rewards, values, and control. Indeed, our results showed that these employees were less likely to belong to the *Engaged* and *Adapted* profiles and more likely to belong to the *Disengaged* and *Burned-Out* profiles. Therefore, changes designed to increase teachers' rewards, values, and control, and to reduce their workload should contribute to better functioning. For instance, workload could be limited at the organizational level by stating clear segmentation norms and encouraging balanced and healthier lifestyles (Kreiner et al., 2006). Workload could also be reduced at the individual level through coaching or counseling (e.g. developing new habits and replacing one's old malfunctioning behaviors; Van Gordon et al., 2017). Likewise, interventions seeking to create well-being-oriented work environments, and by offering enabling versus enclosing work-life policies might be considered (Bourdeau et al., 2019). More generally, it might be useful to encourage more efficient work recovery processes to protect teachers' professional well-being and to facilitate positive spillover between their work and personal roles (Demsky et al., 2014). Efficient work recovery can be developed and trained, and approaches to successfully train work recovery have been previously shown to be efficient. For instance, participants involved in a recovery training program (e.g. time management, self-reflection) displayed better recovery (e.g. relaxation) and sleep quality after the training, in comparison to those not involved in this training (Hahn et al., 2011). Mindfulness-based interventions are also useful to increase recovery during off-job time (Hülshager et al., 2015).

Similarly, interventions seeking to increase rewards, values, and control seem particularly interesting for teachers as a way to reduce their likelihood of membership into profiles characterized by high global levels of burnout and low global levels of work engagement. For instance, moving toward high-involvement managerial systems (e.g. opportunity-enhancing practices including flexible job design, work teams, and information sharing) may help to improve teachers' psychological empowerment (Rehman et al., 2019), leading to higher work engagement and reducing the risk of burnout (Boudrias et al., 2012). Organizations should also allocate resources to enactive mastery experiences, to promote self-directed decision-making, and to create opportunities for personal growth. More generally, school administrators might promote a supportive culture by providing teachers with the resources they need to perform their job effectively, and by providing useful training and developmental programs (Eisenberger & Stinglhamber, 2011). Finally, programs designed to sensitize school administrators to the benefits of adopting a more autonomy-supportive approach, and to provide them with tools on how to implement such an approach, might prove beneficial (Gillet et al., 2012).

## ACKNOWLEDGMENTS

This paper was prepared, in part, as part of the first author's research internship in the Substantive-Methodological Synergy Research Laboratory, Concordia University. Preparation of this paper was supported by grants from the *Fonds de Recherche du Québec-Société et Culture* (2019-SE1-252542) and the Social Science and Humanity Research Council of Canada (435-2018-0368).

## CONFLICT OF INTEREST STATEMENT

None of the authors have any conflict of interest to declare.

## DATA AVAILABILITY STATEMENT

Data are available on request from the authors.

## ETHICS STATEMENT

Approval for this study was obtained from the Ethic Committee of the third author's institution. All data underlying the findings, Mplus analysis code, and research materials are available upon request to the first two authors. This study was not preregistered.

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## SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

**How to cite this article:** Drouin-Rousseau, S., Morin, A. J. S., Fernet, C., Blechman, Y., & Gillet, N. (2024). Teachers' profiles of work engagement and burnout over the course of a school year. *Applied Psychology, 73*(1), 57–92. <https://doi.org/10.1111/apps.12465>