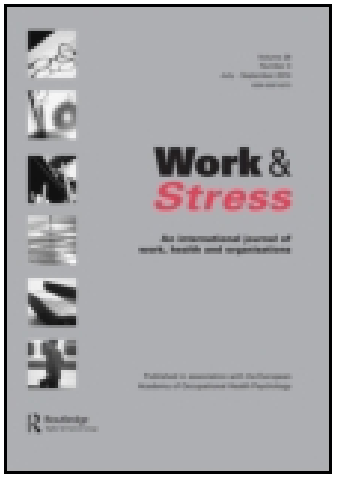




Work & Stress: An International Journal of Work, Health & Organisations
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/twst20

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Published online: 02 Mar 2015.

To cite this article: Claude Fernet, Sarah-Geneviève Trépanier, Stéphanie Austin, Marylène Gagné & Jacques Forest (2015) Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation, Work & Stress: An International Journal of Work, Health & Organisations, 29:1, 11-31, DOI: 10.1080/02678373.2014.1003998

To link to this article: http://dx.doi.org/10.1080/02678373.2014.1003998

*Work & Stress,* 2015
Vol. 29, No. 1, 11–31, http://dx.doi.org/10.1080/02678373.2014.1003998



# Transformational leadership and optimal functioning at work: On the mediating role of employees' perceived job characteristics and motivation

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(*Received 21 March 2013; accepted 16 June 2014*)



This study aimed to deepen our understanding of the motivational mechanisms involved in the relationship between transformational leadership (TFL) and employee functioning. Drawing on the TFL literature, the job demands–resources model and self-determination theory, we propose an integrative model that relates TFL to employee psychological health (burnout and psychological distress), attitudes (occupational commitment and turnover intention) and performance (professional efficacy, self-reported individual and objective organizational performance) through two explanatory mechanisms: perceived job characteristics (job demands and resources) and employee motivation (autonomous and controlled). This research was conducted in two occupational settings (nurses and school principals), using a distinct variable operationalization for each. Results of both studies provide support for the hypothesized model, suggesting that TFL relates to optimal job functioning (psychological health, job attitudes and performance) by contributing to favourable perceptions of job characteristics (more resources and less demands) and high-quality work motivation (more autonomous motivation and less controlled motivation) in employees. Theoretical contributions and managerial implications as well as directions for future research are presented.

**Keywords:** transformational leadership; job demands–resources model; self-determination theory; work motivation; psychological strain; job attitudes; job performance

## Introduction

To remain competitive and to ensure sustainability, today's organizations must adopt practices that foster high-quality functioning in their employees. Of the proposed practices, studies largely agree on the virtues of transformational leadership (TFL; Judge & Piccolo, 2004). This leadership style involves behaviours that transform employees' standards and values and mobilizes them to achieve organizational goals that transcend

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their individual interests (Bass, 1985). TFL is associated with multiple motivational outcomes in employees, including empowerment (Avolio, Zhu, Koh, & Bhatia, 2004), autonomous motivation (Wang & Gagne, 2013) and self-concordance (Bono & Judge, 2003). By fostering positive perceptions of job characteristics, leaders can also affect employees' attitudes, performance (Piccolo & Colquitt, 2006) and psychological health (Nielsen & Daniels, 2012; Nielsen, Randall, Yarker, & Brenner, 2008).

Although the latter studies have advanced the understanding of the motivational effect of TFL behaviours, more research is needed to better grasp the role of TFL in employee functioning. Most studies have investigated the relationship between TFL and positive manifestations of employee functioning. However, in addition to contributing to employees' attitudes and performance, whether TFL simultaneously prevents employees' psychological strain remains to be explored. Moreover, although scholars have begun to address psychological mechanisms (e.g. emotional reactions, meaning, trust) linking TFL to employee functioning (see Arnold & Connelly, 2013), little is known about the motivational processes involved. Could job characteristics explain the motivational role of TFL in job performance, attitudes and psychological strain through the same motivational processes?

To address these issues, we tested a motivational TFL model which posits that leadership is simultaneously related to employees' perceptions of job demands and resources, which are differentially associated with employee motivation (autonomous or controlled motivation) and which are in turn linked to employees' performance, attitudes and psychological strain (see Figure 1). This study makes a unique contribution to management theory by uniting three predominant perspectives: TFL theory (Bass, 1985), self-determination theory (SDT; Deci & Ryan, 2000) and the job demands–resources (JD-R) model (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001).

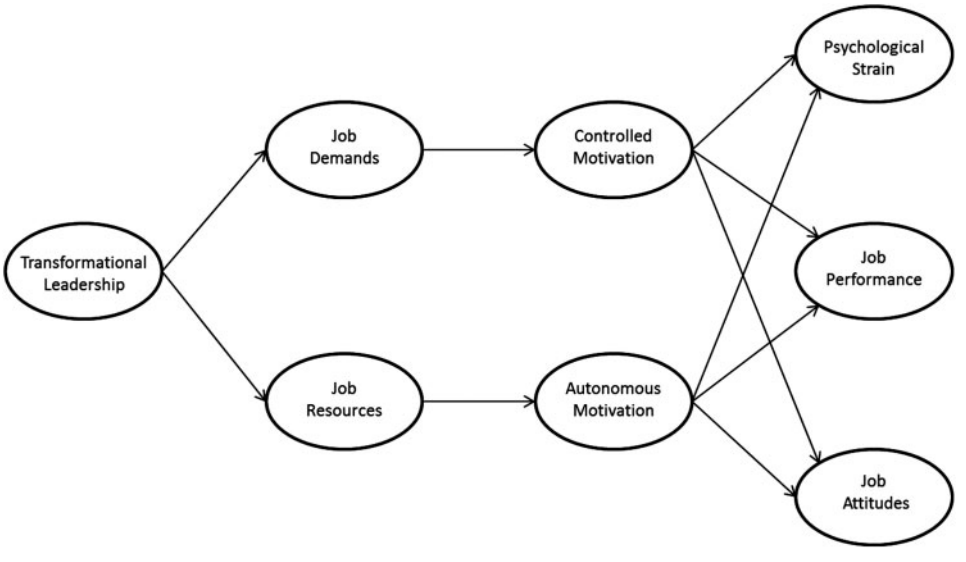


Figure 1. The hypothesized model.

## Theory and hypotheses

### *TFL and perceived job characteristics*

Bass (1985) proposed one of the most well-established conceptualizations of TFL, which encompasses four behaviour types: idealized influence, inspirational motivation, intellectual stimulation and individualized consideration (Bass, 1985; Burns, 1978). Managers use idealized influence when they serve as a model or an example, encouraging employees to emotionally identify with them. They use inspirational motivation to encourage collective enthusiasm by sharing their values and goals, clearly communicating the organizational mission and convincing employees of the purpose and necessity of embracing challenges. In this way, managers persuade employees to adhere to the vision. They use intellectual stimulation to foster employees' creativity, innovation and ideas for improvements. Finally, they show their consideration for employees' individual needs through coaching, mentoring and other supportive behaviours. In the literature, these types of behaviours are generally strongly correlated (Judge & Piccolo, 2004), suggesting that TFL is a unitary higher order construct.

To gain a deeper understanding of how TFL acts to motivate employees, we draw on the JD-R model (Demerouti et al., 2001), which considers two categories of job characteristic, job demands and job resources, which play a key role in optimal employee functioning. *Job demands* are the different taxing physical, psychosocial and organizational aspects of the workplace (Demerouti et al., 2001). They can be sources of stress when they hinder task achievement and generate cognitive, physical and emotional costs for employees (see Bakker & Demerouti, 2007, for a review). Examples of job demands include role-related problems (e.g. overload, ambiguity), interpersonal conflicts and organizational constraints. *Job resources* are various physical, psychosocial and organizational aspects that support individuals in their work (Demerouti et al., 2001). They can be of different nature (emotional, cognitive and physical). For example, social support, job control, recognition and skill discretion help employees accomplish their tasks and at the same time enrich their work and contribute to their personal and/or professional development and well-being (Bakker & Demerouti, 2007; Schaufeli & Bakker, 2004).

Scholars have recognized that managers may wield considerable influence over their employees. For instance, they may define and embody the reality in which employees must work (Smircich & Morgan, 1982). Accordingly, Piccolo and Colquitt (2006) found that employees' perceptions of their superior's TFL are related to their perceptions of basic job conditions (variety, identity, significance, autonomy and feedback). Nielsen et al. (2008) found similar results in terms of role clarity, meaningful work and opportunities for development. Other studies, which did not specifically address TFL, also support this perspective. For instance, Schaufeli and Bakker (2004) found that perceptions of leadership quality (based on trust, respect and obligations) were positively associated with perceptions of performance feedback and social support by colleagues. Thus, through their actions, transformational leaders can influence perceptions of job resources by creating an environment that is conducive to communication and sharing, autonomy, as well as individual recognition.

Transformational leaders can also shape employees' perceptions of job demands. For example, they can mitigate job demands by providing employees with a meaningful rationale for the necessity or usefulness of demanding tasks. They can clarify work-related ambiguities (Nielsen et al., 2008) by informing, answering questions and providing guidance or assistance when needed. Despite the lack of empirical studies

specifically addressing TFL in relation to job demands, evidence points to a relationship between certain leadership behaviours and perceived job demands. For example, Schaufeli and Bakker (2004) found that perceptions of leadership quality (based on trust, respect and obligations) were negatively associated with work overload and emotional demands. Based on the above-presented theoretical rationale and the empirical literature, we propose the following hypotheses:

*Hypothesis 1a (H1a)*. TFL will be positively associated with employees' perceptions of job resources (cognitive, emotional and physical in Study 1, participation in decision-making, job recognition and quality of relationships in Study 2).

*Hypothesis 1b (H1b)*. TFL will be negatively associated with employees' perceptions of job demands (cognitive, emotional and physical in Study 1, work overload in Study 2).



### *Perceived job characteristics and employee motivation*

SDT (Deci & Ryan, 2000) provides a comprehensive framework to understand the relationship between perceived job characteristics and employee motivation. An important distinction is made concerning the nature of motivation: not only do people invest in an activity to varied degrees—a quantifiable aspect—they also do so for various reasons—a qualitative aspect. Specifically, two broad forms of motivation—autonomous and controlled—capture the underlying reasons (motives) for performing a job (see Deci & Ryan, 2000; Gagné & Deci, 2005, for reviews). *Autonomous motivation* refers to acting with volition, as when employees engage in their job for the inherent pleasure and satisfaction (intrinsic motivation) and/or because they personally endorse the importance or value of a task (identified regulation). *Controlled motivation* refers to behaviours enacted under internal or external pressure, as when employees perform their job to enhance their self-worth or to avoid anxiety and guilt (introjected regulation) and/or because they are pressured by demands, threats or rewards by an external agent (external regulation).

According to SDT, employees are motivated largely by "aspects of the social environment, including both aspects of the job and the work climate" (Gagné & Deci, 2005, p. 340). Environmental conditions that foster employee growth and development also encourage autonomous motivation. Conversely, a controlling workplace fosters controlled motivation. Regarding leadership, Kovjanic, Schuh, Jonas, Van Quaquebeke, and Van Dick (2012) showed that TFL is related to job satisfaction, occupational self-efficacy and commitment to the leader through the satisfaction of employees' basic psychological needs (autonomy, competence and relatedness). According to SDT, this satisfaction provides the fuel required for optimal motivation (high autonomous and low controlled motivation) and consequently adaptive outcomes (Deci & Ryan, 2000). Apart from TFL-focused studies, SDT-based research generally shows positive associations between managers' autonomy-supportive practices and employee motivation (e.g. Eyal & Roth, 2011). Other studies have associated perceived job characteristics with employee motivation. For example, Parker, Jimmieson, and Amiot (2010) showed that work overload was positively related to controlled motivation, whereas job control was positively related to autonomous motivation. In summary, these results concur with the premises of the JD-R model in that perceptions of job demands and resources impact employees' psychological energy and motivation (Demerouti et al., 2001; Schaufeli &

Bakker, 2004). In light of the available empirical data, we propose the following hypotheses:

*Hypothesis 2a (H2a)*. Employee perceptions of job demands will be positively associated with controlled motivation.

*Hypothesis 2b (H2b)*. Employee perceptions of job resources will be positively associated with autonomous motivation.

### *Work motivation and optimal employee functioning*

SDT-based research underscores the importance of considering the different forms of motivation as they are differentially associated with affective, attitudinal and behavioural outcomes (Gagné & Deci, 2005). Autonomous motivation has been positively associated with psychological well-being, job satisfaction, work engagement and occupational commitment, whereas controlled motivation has been positively associated with negative consequences for employees, including workaholism, burnout and turnover intention (see Fernet, 2013).

Despite the empirical evidence, however, few studies have concomitantly examined the differential role of autonomous and controlled motivation in relation to various outcomes. In a nine-month longitudinal study, Fernet, Austin, and Vallerand (2012) found that employees' autonomous motivation at time 1 simultaneously predicted occupational commitment and strain reactions (emotional exhaustion) at time 2, whereas controlled motivation predicted exhaustion only. Emotional exhaustion is a core dimension of burnout. It refers to an affective strain reaction resulting from overtaxing work (Maslach, Schaufeli, & Leiter, 2001). In contrast, occupational commitment reflects employees' emotional attachment, involvement and identification with the occupation (Meyer, Allen, & Smith, 1993). To deepen our understanding of optimal employee functioning, we also investigated motivation in relation to other manifestations of job attitudes (turnover intention) and psychological strain (psychological distress) as well as job performance. Turnover intention (i.e. employees' thoughts of quitting their current job; O'Driscoll & Beehr, 1994) and psychological distress (i.e. nonspecific symptoms of mental health disorders, such as anxiety or depression; Ilfeld, 1976) have been consistently related to employee motivation (e.g. Blais, Brière, Lachance, Riddle, & Vallerand, 1993). Job performance is defined as all actions and behaviours that are directly involved in the accomplishment of core job tasks and that contribute to organizational effectiveness (Motowidlo, 2003). We focus here on two aspects of job performance: professional efficacy (i.e. feelings of competence and productivity at work; Maslach et al., 2001) and task performance (i.e. in-role behaviours). Professional efficacy has been positively related to autonomous motivation and negatively related, albeit more weakly, to controlled motivation (Blais et al., 1993). Although the link between work motivation and task performance has been largely ignored, Kuvaas (2006) found a positive relationship between intrinsic motivation (which is prototypically autonomous) and self-reported task performance. In view of these findings, we propose the following hypotheses.

*Hypothesis 3 (H3)*. Employees' autonomous motivation will be negatively associated with (H3a) psychological strain (burnout in Study 1, psychological distress in Study 2) and positively associated with (H3b) job attitudes (high occupational commitment in Study 1,

low turnover intention in Study 2) and (H3c) job performance (task performance in Study 1, professional efficacy in Study 2).

*Hypothesis 4 (H4)*. Employees' controlled motivation will be positively associated with (H4a) psychological strain (burnout in Study 1, psychological distress in Study 1) and negatively associated with (H4b) job attitudes (high occupational commitment in Study 1, low turnover intention in Study 2) and (H4c) job performance (task performance in Study 1, professional efficacy in Study 2).

In our hypothesized model, TFL is related to employee functioning (attitudes, strain and performance) through two explanatory mechanisms: employees' perceived job characteristics and motivation. We therefore propose that the relationships between TFL and employee functioning are mediated by perceived job demands and resources as well as controlled and autonomous motivation. The following specific hypotheses are proposed:

*Hypothesis 5 (H5)*: TFL will be negatively related to controlled motivation through perceived job demands.

*Hypothesis 6 (H6)*: TFL will be positively related to autonomous motivation through perceived job resources.

*Hypothesis 7 (H7)*: Perceived demands will be positively related to (H7a) psychological strain and negatively related to (H7b) job attitudes and (H7c) performance through controlled motivation.

*Hypothesis 8 (H8)*: Perceived resources will be negatively related to (H8a) psychological strain and positively related to (H8b) job attitudes and (H8c) performance and through autonomous motivation.

## Overview of the present research

We tested our hypotheses in two cross-sectional studies in school principals and nurses. The variables were operationalized differently for each study in an attempt to capture the reality of the two professional settings (Bakker & Demerouti, 2007) and to allow for some triangulation and generalization of the results (Campbell, 1969). Thus, we sought to show that the motivational processes through which TFL is related to employee functioning remain consistent across different measures. The variables reflecting employee functioning were selected because they represent significant concerns for the two professions. For example, it is generally recognized that nurses are particularly at risk for burnout (e.g. Schaufeli & Enzmann, 1998), and that in Canada (where the study was conducted), 29% of school principals regularly question their career choice (Fortin, 2006), suggesting low occupational commitment.

# STUDY 1

## Method

### *Participants and procedure*

Study 1 was conducted among novice nurses working in public health care in the province of Quebec, Canada. An informative letter was sent to a random sample of 3800 nurses obtained from Quebec's nursing association, inviting them to complete an online

questionnaire addressing workplace factors associated with well-being in the nursing profession. A total of 637 nurses participated in the study, for a 17% response rate. Participants were mostly women (88.4%), and mean age was 29.63 years (standard deviation [*SD*] = 9.40). Average job tenure was 3.47 years (*SD* = 3.45), and 56% of participants worked full-time (i.e. job status). Nurses who took part in the study had different work schedules: 23.9% worked the day shift, 28.3% the evening shift, 21.4% the night shift and 25.9% worked various shifts (day, evening and night). Despite the relatively low response rate, the sample is fairly representative of the demographics of novice nurses (with less than five years' experience) in the association (e.g. 47% of nurses worked full-time; 86% were women; mean age 28.3 years).

### *Measures*

All measures were administered in French. Original English scales were translated into French and then back-translated into English. English-speaking judges verified the semantic correspondence between back-translated and original items (see Vallerand & Halliwell, 1983). Means, standard deviations, Cronbach's alphas and correlations are presented in Table 1.

*Transformational leadership.* TFL was assessed using the seven-item Global Transformational Leadership scale (GTL; Carless, Wearing, & Mann, 2000). On a one- to five-point scale ranging from 1 (never) to 5 (almost always), participants rated their perceptions of the leadership shown by the nursing supervisor. A sample item is "He/she encourages us and recognizes our work." The GTL has shown high convergent validity with lengthier and well-established questionnaires such as the Multifactor Leadership Questionnaire (MLQ) and the Leadership Practice Inventory (LPI) (Carless et al., 2000). In the present study, we created three parcels by pairing higher with lower loading items (see Little, Cunningham, Shahar, & Widaman, 2002) to assess the latent construct *TFL*. Using parcelling for unidimensional constructs improves the parsimoniousness of the model by reducing the number of estimated parameters. Because we were focusing on paths rather than the measurement model, parcelling was deemed appropriate (Bandalos & Finney, 2001).

*Job demands and resources.* Job demands and resources were assessed using an adapted version of the DISC 2.0 questionnaire (van de Ven, Vlerick, & De Jonge, 2008). It contains six subscales assessing cognitive, emotional and physical demands and resources. Sample items for job demands are "I have to display high levels of concentration and precision at work" (cognitive; four items), "I have to deal with people whose problems affect me emotionally" (emotional; four items) and "I have to perform a lot of physically strenuous tasks to carry out my job" (physical; four items). Sample items for job resources are "I have access to useful information that helps me carry out complex tasks" (cognitive; four items), "I get emotional support from others when a tough situation occurs at work" (emotional; four items) and "I can take a break when my work becomes too physically strenuous" (physical; four items). Participants were asked to rate on a five-point scale from 1 (never) to 5 (almost always) the frequency with which they experienced these situations. Mean scores on each demand and resource type (cognitive, emotional and physical) were used as indicators of the latent constructs *job demands* and *job resources*, respectively, as recommended when conceptualizing multidimensional variables (Kline, 2005).

Table 1. Means, standard deviations and latent correlations between variables.

| | Study1 | | | Study 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Variable | *Mean* | *SD* | $\alpha$ | *Mean* | *SD* | $\alpha$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1. Transformational leadership | 2.77 | 1.00 | .94 | 3.31 | 0.83 | .93 | – | −.21** | .43** | −.06 | .22* | −.15 | −.28** | .16* |
| 2. Job demands | 5.03 | 0.98 | .83 | 3.28 | 0.78 | .78 | −.32** | – | −.55** | .18* | −.22** | .65** | −.30** | −.36** |
| 3. Job resources | 4.41 | 0.96 | .76 | 3.70 | 0.56 | .84 | .45** | −.35** | – | −.22* | .70** | −.57** | −.51** | .67** |
| 4. Controlled motivation | 3.35 | 1.01 | .73 | 3.70 | 0.56 | .88 | −.14* | .20** | −.04 | – | .01 | .13 | .08 | −.17 |
| 5. Autonomous motivation | 5.59 | 0.90 | .84 | 4.71 | 0.93 | .84 | .23** | .03 | .30** | −.12* | – | −.39** | −.50** | .56** |
| 6. Psychological strain | 2.99 | 1.08 | .83 | 1.67 | 0.43 | .77 | −.40** | .54** | −.50** | .37** | −.55** | – | .35** | −.39** |
| 7. Job attitudes | 3.27 | 0.77 | .77 | 2.02 | 1.47 | .88 | .42** | −.13** | .40** | −.11* | .35** | .50** | – | −.28** |
| 8. Job performance | 6.14 | 0.71 | .90 | 6.12 | 0.62 | .84 | .09* | .08 | .16** | −.14* | .31** | −.24** | .16** | – |

Note: Correlations for Study 1 are below the diagonal. Study 1: Psychological Strain = burnout; Job attitudes = affective commitment; Job performance = in-role performance; Study 2: Strain = psychological distress; Job attitudes = turnover intention; Performance = professional efficacy; α = Cronbach's alphas.
*$p < .05$; **$p < .01$.

*Work motivation.* The Multidimensional Work Motivation Scale (Gagné et al., in press) was used to assess autonomous and controlled motivation. Participants rated on a seven-point scale from 1 (not at all for this reason) to 7 (exactly for this reason) their primary reasons for performing their job. Four motivational dimensions were assessed: external regulation (three items; e.g. "To get others' approval"), introjected regulation (two items; e.g. "Because otherwise, I would be ashamed of myself"), identified regulation (three items; e.g. "Because this job has a personal significance for me") and intrinsic motivation (three items; e.g. "Because my work is stimulating"). Mean scores on identified regulation and intrinsic motivation were used as indicators of the latent construct *autonomous motivation*, and mean scores on external and introjected regulation were used for the latent construct *controlled motivation*.

*Psychological strain.* Psychological strain was operationalized by burnout, assessed with the emotional exhaustion and cynicism subscales of the MBI-GS (Schaufeli, Leiter, Maslach, & Jackson, 1996). Emotional exhaustion (e.g. "I feel used up at the end of a work day") and cynicism (e.g. "I doubt the significance of my work") were assessed with five items each. All items were rated on a seven-point scale ranging from 1 (never) to 7 (every day). Mean scores on subscales were used as indicators for the latent construct *burnout*.

*Job attitudes.* Job attitudes were operationalized by occupational commitment, assessed with the affective commitment subscale of the Occupational Commitment Questionnaire (Meyer et al., 1993). A sample item is "I feel emotionally attached to my occupation" (six items). Items were scored on a five-point scale ranging from 1 (strongly disagree) to 5 (strongly agree). Two parcels were created by pairing higher with lower loading items to assess the latent construct *occupational commitment*.

*Job performance.* Job performance was assessed using a four-item self-report scale adapted from the in-role performance subscale of William and Anderson (1991). On a 1 (do not agree at all) to 7 (very strongly agree) scale, participants indicated the extent to which they agreed with the proposed statements regarding their work performance. A sample item is "I adequately complete the tasks that are assigned to me." Two parcels were created by pairing higher with lower loading items to assess the latent construct *job performance*.

### *Analyses*

The hypothesized model was tested with structural equation modelling in *Mplus* (Muthén & Muthén, 2012). All models were tested with standardized coefficients obtained by maximum likelihood estimation. Goodness-of-fit was assessed using four indices: the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residuals (SRMR). Values above .90 for the CFI and the TLI indicate good fit (Hoyle, 1995), while values of .08 or less for the RMSEA and SRMR are deemed acceptable (Browne & Cudeck, 1993).

## Results and discussion study 1

### *Preliminary analysis*

We initially tested a measurement model ($\chi^2(124) = 433.741$, CFI = .925, TLI = .896, SRMR = .067, RMSEA = .070 [confidence interval, CI = .063, .078]), which provided

satisfactory fit to the data (factor loadings above .47, $p < .01$). However, because JD-R–based research has typically conceptualized leadership as a job resource (e.g. supervisory support; e.g. Demerouti et al., 2001), we used confirmatory factor analysis (CFA) to compare the hypothesized structure (i.e. TFL and job resources as distinct constructs) to a model with leadership as a job resource. Results revealed that the latter model ($\chi^2(98) = 440.681$, CFI = .881, TLI = .835, SRMR = .076, RMSEA = .083 [CI = .075, .091]) did not provide good data fit, indicating that leadership is best represented as a distinct construct from job resources. The originally proposed conceptualization was therefore retained.

We then performed a multivariate analysis of variance (MANOVA) to detect differences in variables according to significant background variables in nurses (gender, age, job status and work schedule). As no significant differences were found, demographic characteristics were excluded from further analysis.



### *Testing the hypothesized model*

In Study 1, the hypothesized model ($\chi^2(137) = 567.532$, CFI = .896, TLI = .870, SRMR = .092, RMSEA = .079 [CI = .072, .086]) provided acceptable fit to the data, although there was room for improvement. We then examined whether including additional links in the model would significantly improve the model fit. Using a stepwise approach, we added links from TFL to work motivation and from job characteristics to outcomes. Six separately considered links significantly increased the model fit of the hypothesized model (TFL to controlled motivation, autonomous motivation and commitment; job demands to burnout and commitment; and job resources to commitment). Because these paths were consistent with prior empirical findings stemming from both the JD-R model and the TFL literature (e.g. Hakanen, Bakker, & Schaufeli, 2006; Piccolo & Colquitt, 2006), we included them in the model to more adequately represent the data. When these six links were added simultaneously, only four remained significant (TFL to autonomous motivation and commitment, job demands to burnout and job resources to commitment). A subsequent model, with the four links added to the hypothesized model, provided satisfactory fit to the data ($\chi^2(133) = 463.163$, CFI = .920, TLI = .897, SRMR = .077, RMSEA = .070 [CI = .063, .077]) and significantly improved the fit ($\Delta\chi^2(4) = 99.12$; $p < .01$). This final model (Figure 2; for simplicity, covariances are not shown) therefore obtained the best fit. The results nevertheless provide support for the hypothesized model: TFL is negatively related to job demands (supporting H1a) and positively related to job resources (supporting H1b). In addition, job demands are positively associated with controlled motivation (supporting H2a) and job resources are positively associated with autonomous motivation (supporting H2b). Moreover, autonomous motivation are negatively related to burnout and positively related to commitment and job performance (supporting H3a, H3b and H3c). As for controlled motivation, it is positively associated with burnout and negatively associated with job performance, but not commitment. These results provide support for H4a and H4c but not H4b. The final model explains 71% of the variance in burnout, 26% in job performance and 11% in occupational commitment.

To more formally test the final model, we used bootstrapping to determine whether (1) job characteristics mediated the paths between TFL and employee motivation and (2) employee motivation mediated the paths between perceived job characteristics and the outcomes. Bias-corrected bootstrap 95% confidence intervals were computed from 1000 bootstrap samples. Confidence intervals indicate significant mediation when they exclude

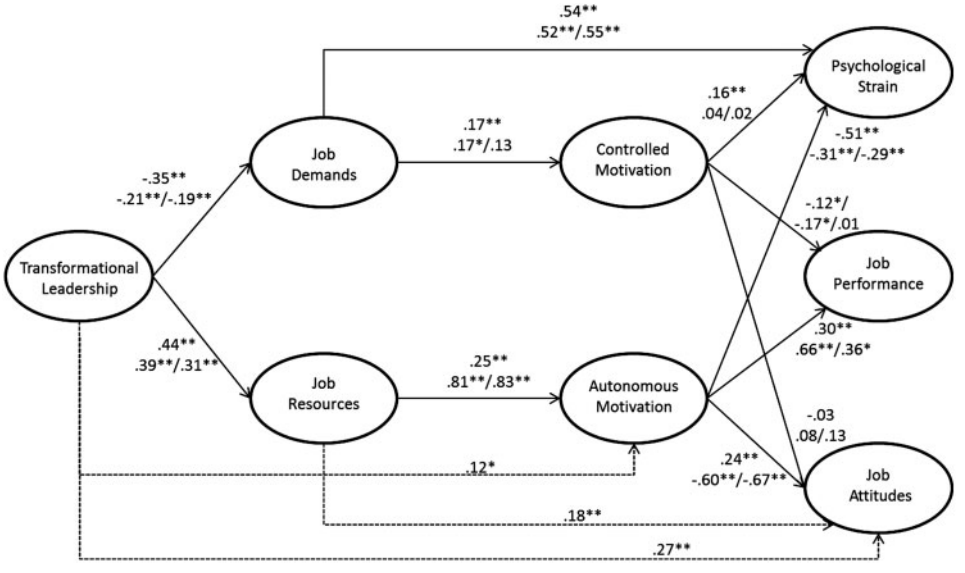


Figure 2. Final model (standardized path coefficients). Top: coefficients in the nurses sample in Study 1 (psychological strain = burnout; job performance = in-role performance and job attitudes = occupational commitment). Bottom: coefficients on the left are based on the full sample of school principals in Study 2 (psychological strain = psychological distress; job performance = professional efficacy and job attitudes = turnover intention) and coefficients on the right are based on the supplementary analyses (job performance = school performance). Dotted arrows refer to the links included in Study 1 only. *$p < .05$; **$p < .01$.

zero. As presented in Table 2, results indicated significant indirect relationships of TFL on controlled motivation through job demands and on autonomous motivation through job resources (supporting H5 and H6). Results also indicated significant indirect relationships of job demands on burnout and occupational commitment through controlled motivation (supporting H7a and H7b), and of job resources on burnout, commitment and job performance through autonomous motivation (supporting H8a, H8b and H8c). Note that H7c was not supported, because the indirect relationship of job demands on performance through controlled motivation was nonsignificant.

### *Alternative model*

Although we proposed that TFL is related to work-related outcomes through job characteristics and employee motivation, we also explored an alternate structure. For instance, suboptimal employee functioning (high strain, low commitment and low performance) could promote perceptions of unfavourable job characteristics (more demands and less resources) and foster negatively biased perceptions of TFL, which could undermine employee motivation. Accordingly, we tested whether job characteristics and TFL would mediate the relationship between employee functioning and motivation. The results failed to provide support for this alternative model ($\chi^2(138) = 661.410$, CFI = .873, TLI = .843, SRMR = .116, RMSEA = .087 [CI = .080, .093]).

In summary, our results provided initial support for the mediating role of job demands in the relationship between TFL and controlled motivation and for the mediating role of

Table 2. The mediating effects of TFL on work motivation through job characteristics and of job characteristics on outcomes through work motivation.

| Predictor | Mediator | Outcome | Point estimate | *SE* | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Leadership | Job demands | Controlled motivation | −.23**/−.04/−.03 | .06/.03/.03 | −.34/−.09/−.08 | −.13/.01/−.02 |
| Leadership | Job resources | Autonomous motivation | .17**/.32**/.27† | .05/.10/.16 | .09/.16/.004 | .25/.49/.54 |
| Job demands | Controlled motivation | Psychological strain | .51**/.03/.02 | .11/.04/.09 | .33/−.03/−.12 | .70/.09/.16 |
| Job demands | Controlled motivation | Job attitudes | −.20**/.02/.02 | .05/.03/.04 | −.29/−.03/−.05 | −.12/.07/.09 |
| Job demands | Controlled motivation | Job performance | .00/−.04/−.01 | .07/.03/−.06 | −.10/−.03/−.06 | .11/.07/.06 |
| Job resources | Autonomous motivation | Psychological strain | −.26*/−.58**/−.71** | .11/.14/.18** | −.43/−.69/−.10 | −.08/−.35/−.42 |
| Job resources | Autonomous motivation | Job attitudes | .13*/−.53**/−.49** | .06/.09/.15 | .02/−.69/−.74 | .23/−.38/−.24 |
| Job resources | Autonomous motivation | Job performance | .13**/.61**/.39** | .04/.12/.15 | .06/.41/.15 | .19/.84/.63 |

*Note.* CI = confidence interval; SE = standard error; Coefficients on the left represent the nurses sample (Study 1); Coefficients in the centre and on the right represent the school principals sample (Study 2; main and supplementary analyses).
*$p < .05$; **$p < .01$; †$p < .10$.

controlled motivation between job demands and both burnout and commitment. The results also largely supported the mediating role of job resources in the relationship between TFL and autonomous motivation and the mediating role of autonomous motivation between job resources and each work-related outcome. Despite these encouraging findings, we decided to further test their validity and generalizability using a constructive replication in a different sample and with a different variable operationalization. We also wanted to test our hypothesized model with an objective measure of organizational performance.

## STUDY 2

### Method

#### *Participants and procedure*

In Study 2, the sample comprised French-Canadian high school principals and vice-principals, all members of Quebec's federation of school principals. Of the 780 members approached to participate in a study addressing various aspects of school management, 210 participated, for a response rate of 27%. Of the participants, 49% were women, 30% were principals (versus 70% vice-principals; job position) and mean age was 43.71 years ($SD$ = 7.46). Average job tenure in the position was 5.17 years ($SD$ = 4.61), and the majority (98.6%) of participants worked full-time. The sample is fairly representative of the demographics of the federation members, with the exception of gender (58% of federation members were women).

#### *Measures*

As in Study 1, all measures were administrated in French. The same translation procedure was applied for original English measures. Means, standard deviations, Cronbach's alphas and correlations are presented in Table 1.

*Transformational leadership.* TFL was assessed using the same scale and parcelling approach as in Study 1.

*Job demands and resources.* Job demands were assessed using the work overload subscale of the Areas of Work Life Scale (AWS; Leiter & Maslach, 2004). A sample item is "I do not have time to do the work that must be done" (6 items). Three job resources were assessed: participation in decision-making, job recognition and quality of relationships with school staff. These resources are considered in most JD-R–based studies (see Fernet et al., 2012). More importantly, these resources echo the need for autonomy, competence and relatedness, the fulfilment of which is necessary to sustain employee motivation (Gagné & Deci, 2005). Participation in decision-making was assessed using Cammann, Fichman, Jenkins, and Klesh's (1979) scale (three items, e.g. "The school board is open to my ideas and suggestions"). Job recognition was measured with the corresponding subscale of the AWS (four items). A sample item is "I receive recognition from others for my work." Quality of relationships with school staff was measured by a five-item scale derived from Richer and Vallerand (1998). A sample item is "Currently, I feel supported in my relationship with the school staff." Items assessing job demands, job recognition and quality of relationships were scored on a five-point scale from 1 (strongly disagree) to 5 (strongly agree), while items assessing participation in decision-making were rated on a four-point scale from 1 (strongly disagree) to 4 (strongly agree).

Using the overload items, three parcels were created by pairing higher with lower loading items to assess the latent construct *job demands*. Mean scores on each job resource were used as indicators for the latent construct *job resources*.

*Work motivation.* Autonomous and controlled motivation were assessed using the Work Role Motivation Scale for School Principals (Fernet, 2011). Unlike Study 1, which addressed generic work motivation, this scale addresses work motivation towards different work roles (i.e. administrative, informational and instructional leadership). The four motivational dimensions of the roles (i.e. intrinsic motivation, identified regulation, introjected regulation and external regulation) are assessed with two items each. Sample items are "For the pleasure that I get from performing this role" (intrinsic motivation), "Because this role enables me to achieve my own work objectives" (identified regulation), "To prove to myself that I can perform this role properly" (introjected regulation) and "Because this role is part of my job. We are paid to do this" (external regulation). All items were scored on a seven-point scale ranging from 1 (does not correspond at all) to 7 (corresponds completely). An autonomous motivation score was calculated for each role by averaging intrinsic and identified regulation items, and a controlled motivation score was calculated by averaging external and introjected regulation items. Three indicators (one per role) were used to assess the latent constructs *autonomous motivation* and *controlled motivation*.

*Psychological strain.* Psychological strain was operationalized as psychological distress, using the 14-item Psychiatric Symptom Index (Ilfeld, 1976) to assess four symptoms experienced during the previous week: anxiety (three items), depression (five items), irritability (four items) and cognitive problems (two items). A sample item is "I felt agitated or nervous" (anxiety). Items were scored on a four-point scale ranging from 1 (never) to 4 (very often). The mean score of each symptom was used to build the latent construct *psychological distress*.

*Job attitudes.* Job attitudes were conceptualized as turnover intention, assessed with three items adapted from O'Driscoll and Beehr (1994) and scored on a scale ranging from 1 (strongly disagree) to 7 (strongly agree). A sample item is "I am thinking about quitting my position." Each item was used as an indicator of the latent construct *turnover intention*.

*Job performance.* Performance was conceptualized as professional efficacy (Schaufeli et al., 1996), or feelings of achievement and productivity at work (Maslach et al., 2001). A sample item of this six-item subscale is "I feel I am making an effective contribution to what this organization does." All items were rated on a seven-point scale ranging from 1 (never) to 7 (every day). Two parcels were created by pairing higher with lower loading items to assess the latent construct *job performance*.

## Results and discussion study 2

### *Preliminary analysis*

The measurement model ($\chi^2(224) = 357.810$, CFI = .926, TLI = .909, SRMR = .063, RMSEA = .063 [CI = .051, .075]) provided satisfactory fit to the data (factor loadings above .48, $p < .01$). As in Study 1, CFA was conducted to verify whether TFL was best conceptualized as a job resource. This model provided poor fit to the data ($\chi^2(188) = 290.501$, CFI = .851, TLI = .817, SRMR = .095, RMSEA = .095 [CI = .073, .116]).

A MANOVA was also performed to detect variable differences according to significant background variables (gender, age and job position). As in Study 1, no significant differences were found.

### *Testing the hypothesized model*

In Study 2, the hypothesized model provided satisfactory fit to the data ($\chi^2(237)$ = 396.977, CFI = .912, TLI = .898, SRMR = .076, RMSEA = .067 [CI = .055, .078]). Using the same stepwise approach as in Study 1, we investigated whether adding direct links to the model provided a significant improvement in model fit. Two separate links significantly improved the model fit (from job demands and job resources to psychological distress). As in Study 1, these particular links were included because they were consistent with prior empirical findings based on the JD-R model (e.g. Schaufeli & Bakker, 2004). When these links were added simultaneously to the hypothesized model, only one remained significant (job demands to psychological distress). A subsequent model consisting of the hypothesized model with this additional link provided satisfactory fit to the data ($\chi^2(236)$ = 371.361, CFI = .926, TLI = .913, SRMR = .069, RMSEA = .062 [CI = .050, .074]) and significantly improved the fit over the hypothesized model ($\Delta\chi^2(1)$ = 45.05; $p < .01$). Figure 2 illustrates the final model, indicating that leadership is negatively related to job demands and positively related to job resources, supporting H1a and H1b. In addition, job demands are positively associated with controlled motivation (supporting H2a), while job resources are positively associated with autonomous motivation (supporting H2b). Moreover, autonomous motivation is negatively linked to turnover intention and psychological distress, while positively linked to performance (supporting H3a, H3b and H3c). Finally, controlled motivation is negatively related to job performance, but not distress or turnover intention (supporting H4c but not H4a or H4c). The final model explains 51% of the variance in psychological distress, 36% in job performance and 45% in turnover intention.

As in Study 1, 1000 bootstrap replications were conducted to formally test the proposed mediating paths. Results indicated that job demands did not significantly mediate the relationship between TFL and controlled motivation, nor did controlled motivation mediate the relationship between job demands and outcomes (see Table 2). These results did not provide support for H5, H7a, H7b or H7c. However, a significant indirect TFL relationship on autonomous motivation was found through job resources, supporting H6. Significant indirect relationships of job resources on psychological distress, turnover intention and job performance were also found, all mediated by autonomous motivation (supporting H8a, H8b and H8c).

As in Study 1, we tested an alternative model in which job characteristics and TFL mediate the relationship between employee functioning and motivation. Again, this configuration did not provide good data fit ($\chi^2(238)$ = 464.097, CFI = .876, TLI = .856, SRMR = .130, RMSEA = .080 [CI = .069, .080]). In summary, the findings of Study 1 were constructively replicated, except for the indirect relationships of TFL on controlled motivation through job demands and the indirect relationships of demands on outcomes through controlled motivation.

### *Complementary analyses*

To minimize potential method variance bias and expand the scope of the study, we retested the final model in a subsample of 133 principals for whom we had their school's

performance records. Developed by the Montreal Economic Institute (Boyer & Laberge, 2008), this measure assesses school performance based on students' performance on the Department of Education's standardized tests, graduation rates and course completion rates. It is expressed on a scale of 0 to 100. Of this subsample, 49.6% were women and mean age was 43.71 years ($SD$ = 7.46). Average job tenure in the current position was 5.10 years ($SD$ = 4.14), and the vast majority (98.5%) worked full-time. Mean school performance score was 54.22 ($SD$ = 8.88). ANOVAs indicated that this subsample was similar to the overall Study 2 sample on both background variables (gender, age and job position) and study variables.

The final model provided satisfactory fit to the data ($\chi^2$ = 310.523(215); CFI = .923, TLI = .909; RMSEA = .067 [.050, .083]; SRMR = .082). Figure 2 shows that the results align with those obtained in the full sample, except for two nonsignificant links (from job demands to controlled motivation and from controlled motivation to job performance). H2a and H4c were therefore not confirmed. The model explains 13% of the variance in organizational performance. Bootstrapping analyses revealed a marginally significant ($p < .10$) indirect relationship of TFL on autonomous motivation through job resources (see Table 2). Significant indirect relationships of job resources on psychological distress, turnover intention and job performance were also found, all mediated by autonomous motivation. These results are consistent with the results obtained in the full sample, providing support for H6 and H8a, H8b and H8c, but not for H5, H7a, H7b or H7c. The complementary analyses indicate that with regards to organizational performance, autonomous motivation is more strongly related to each outcome than controlled motivation.

## General discussion

### *Theoretical contributions*

The results of the two studies deepen our understanding of the role of TFL in employee functioning. Whereas previous research has addressed adaptive job characteristics (e.g. autonomy, skill variety), our results show that TFL behaviours are also related to employees' perceptions of unfavourable job characteristics (demands). Thus, TFL behaviours can shape employees' subjective experience of their work (Smircich & Morgan, 1982) and help create a work environment that presents fewer demands and more resources for employees. This is a significant benefit of TFL, given that job demands have consistently been associated with impaired psychological health (LePine, Podsakoff, & Lepine, 2005). Whereas our two studies are based on employees' perceptions of job demands and resources, future studies should investigate whether transformational leaders can also shape the objective nature of job characteristics (i.e. providing more resources and reducing job demands).

The findings also underscore the need to extend our knowledge of the role of TFL in employee motivation. Whereas traditional research has focused on how TFL supports employees' willingness to invest themselves in the attainment of organizational goals, our results show the relevance of considering the underlying motivational processes. Through job resources, TFL nurtures autonomous motivation in employees, such that they can fully value their tasks. This suggests that job resources foster an internalization process (Deci & Ryan, 2000) allowing employees to interiorize their leader's values and goals as their own.

However, only the results of Study 1 indicate that employees' perceptions of job demands can hinder this process: employees may instead adopt controlled motivation, resulting in poor job functioning. In order to cope with job demands, whether emotional, cognitive or physical, employees might opt for suboptimal psychological strategies driven by controlled motivation. For example, they might generate internal pressure (e.g. sense of obligation) in order to not succumb to environmental demands. One possible explanation for the differing results between Study 1 and Study 2 is proposed by Cavanaugh, Boswell, Roehling, and Boudreau (2000). Job demands may differ in quality, and therefore produce different psychological consequences. For example, overload could be perceived more as challenge stressors, resulting in less controlled motivation, in comparison to emotional demands, for example, which may be perceived as hindrance stressors. However, we should mention that, aside from the motivational processes involved, job demands were directly related to employees' psychological strain in both studies. This suggests that, independently of psychological energy (captured by employees' motivation), job demands remain a factor that harms psychological health.

Our results also contribute more specifically to JD-R research, suggesting that although TFL can contribute to employee functioning, the concept goes beyond traditionally investigated resources. Furthermore, the results reveal that TFL behaviours could play a more distal role than work organization factors by acting simultaneously on perceived job resources and job demands. The lack of distinction between leadership behaviours and job resources in JD-R–based studies (e.g. Schaufeli & Bakker, 2004) could partly explain why job resources are simultaneously related to psychological gains (e.g. commitment, engagement) and costs (e.g. burnout, diminished well-being). Our theoretical perspective and empirical evidence extend the motivational and energetic scope of TFL and underscore the need to continue exploring the interface between managerial resources (e.g. leadership, managerial practices) and other resource types in the workplace.

Finally, our results increase the relevance of applying SDT to the workplace. Whereas SDT-based studies emphasize the social environment and have related employee motivation to job aspects such as work climate and superior's interpersonal style, our research sheds new light on potential explanatory mechanisms for these relationships. Moreover, the results point to the need to distinguish forms of employee motivation. Psychological investment at work, which may manifest as autonomous or controlled motivation, was not necessarily associated with the same psychological experiences, attitudes or behaviours at work. Although our results corroborate other studies (e.g. Fernet et al., 2012; Parker et al., 2010), showing that autonomous and controlled motivation are inversely associated with employees' psychological functioning, they provide the first empirical evidence that autonomous motivation is the sole form of motivation that can foster positive job attitudes and performance while at the same time mitigating certain psychological costs. Accordingly, for a deeper comprehension of the role of employee motivation in job functioning, autonomous and controlled motivation should be considered separately.

### *Limitations and future research directions*

Certain limitations should be taken into account in the interpretation of the theoretical contributions. First, a cross-sectional design does not allow establishing definitive causal relationships between variables. Although past longitudinal studies support some of the

links in the final model (e.g. Fernet et al., 2012), reciprocal or inverse relationships between some of the variables cannot be definitively excluded. Future studies could examine these relationships using longitudinal and quasi-experimental designs. Second, because data for the two studies were gathered with the same method, a common variance bias could have affected the results by increasing or decreasing the correlation strengths. We attempted to minimize such bias by using self-report measures formulated in different terms between the two studies, with different scale ranges and by performing supplementary analyses with an objective measure of performance (see Podsakoff, MacKenzie, & Podsakoff, 2012). Measures that conceptualized the variables differently between the two studies were used to improve the results generalization. Further studies are needed to revalidate the model in other occupational settings, using other data sources and measures to assess employees' subjective and objective states, notably for strain outcomes. Third, the participation rate was relatively low for both studies (17% and 27%). Although the samples were fairly representative of the overall membership of each professional association, the results should be interpreted with caution. Fourth, whereas our studies focused on positive and negative attitudes (commitment and turnover intention), only negative manifestations of psychological strain and positive manifestations of performance were examined. In future studies, positive manifestations of health (e.g. work engagement) and negative manifestations of performance (e.g. presenteeism) should be considered.

### *Managerial implications*

Whereas in certain settings it might be difficult to intervene directly in job characteristics, our results suggest that, through their behaviours, leaders can considerably shape employees' perceptions of their work environment, which are related to their motivation and functioning. Therefore, leadership training (e.g. Barling, Weber, & Kelloway, 1996) could be enriched by promoting better alignment between TFL practices and job characteristics. Managers could attempt to create an environment in which employees perceive fewer demands and more resources for employees. For instance, through their words (articulating a compelling vision) and actions (designing a meaningful job), managers could encourage employees to find innovative ways to gain greater control over their tasks. Moreover, TFL practices are a meaningful avenue to promote (directly or indirectly via job resources) high-quality motivation (i.e. autonomous motivation) in employees. Given the benefits for employee functioning—compared to controlled motivation—managers could also rethink certain organizational practices (e.g. HR practices) that hinder employees from developing autonomous motivation.

### *Conclusion*

The theoretical integration in this study serves to deepen our understanding of the role of TFL in employee functioning. Our results suggest that the virtues of TFL lie in the manager's ability to act positively and proactively on perceived job characteristics, which translate in turn into motivational states that either foster or hinder optimal job functioning. By integrating three well-established theoretical frameworks into a comprehensive model, our study aims to provide management tools for nurturing optimal functioning in employees, and hence optimal organizational functioning.

## Acknowledgements

This work was supported by a grant from the Fonds de Recherche du Québec – Société et Culture [127091] and a fellowship from the Fonds de Recherche du Québec - Santé [20470] awarded to the first author.

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