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Abstract

Purpose: The aim of this study was to develop and validate a scale to assess work role motivation in school principals: the Work Role Motivation Scale for School Principals (WRMS-SP). The WRMS-SP is designed to measure intrinsic motivation, three types of extrinsic motivation (identified, introjected, and external), and amotivation with respect to three work roles (administrative, instructional leadership, and informative). **Research Design:** Data were gathered via a sample of 570 French Canadian school principals who completed an online questionnaire. **Findings:** Confirmatory factor analyses support (a) the 15-factor scale structure (5 types of motivation × 3 roles), (b) factor structure invariance over gender and job position, and (3) construct validity through a multitrait-multimethod matrix method analysis, which confirms the convergent and discriminant validity of the constructs and supports simplex patterns with respect to the roles, as well as intercorrelations between subscales and external criteria. **Conclusions:** The WRMS-SP is a promising instrument that could deepen our understanding, both theoretical and applied, of the professional functioning of principals and the repercussions on school success and improvement.

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Keywords

motivation, school principals, scale development, self-determination theory (SDT)

Recent studies have shown that school administrations are experiencing increasing dissatisfaction and occupational difficulties (Friedman, 1995; see Chapman, 2005). Faced with more complex and burdensome jobs, many principals regularly question their career choice (Su, Gamage, & Mininberg, 2003). Considering the important role they play in school success and improvement, it seems relevant to explore the various reasons that lead principals to engage in (or withdraw from) their work. Given the lack of recognized psychometric tools, the aim of this study was to develop and validate a multidimensional scale to assess the work motivation of school principals as a function of their work roles: the Work Role Motivation Scale for School Principals (WRMS-SP). On the basis of a well-known theoretical perspective, namely, SDT (Deci & Ryan, 1985), and on a conceptualization that takes into account the specificity of principals' work roles, the WRMS-SP should facilitate research on school principals and interventions that promote their professional functioning and well-being.

School Principals' Motivation

Work motivation is defined as a set of energetic forces that determine the form, directions, intensity, and duration of work-related behavior (Pinder, 1998). Although it is fundamental to an understanding of individual and organizational behavior (Mitchell & Daniels, 2003), researchers in educational administration have largely neglected this topic. The PsycINFO database contains only two scientific articles published since 1970 on school principals' motivation (i.e., Iannone, 1973; Kottkamp & Derczo, 1986). However, these studies overlooked the reasons that underlie and explain principals' behavior. For example, two principals might spend the same amount of time at their jobs and feel equally competent in carrying out their tasks, yet their disparate types of motivation could lead to highly different outcomes. A principal who engages in the job out of interest or because it is meaningful would be better able to attain work goals than one who performs the job under external or internal pressures.

In light of current trends in theory, research, and practice, the time has come to examine the nature of school principals' motivation. Supported by a comprehensive framework, such as SDT, studies of motivation hold the potential

to contribute significantly to our understanding of important issues in school principals' jobs. Indeed, this theory proposes distinct and clear hypotheses regarding the nature, antecedents, and consequences of work motivation. In this validation study, particular attention is paid to the relationship between principals' motivation and different variables concerning attitude (work satisfaction and commitment), psychological health (burnout), and job functioning (transformational leadership and self-efficacy). Many studies have shown that these well-established variables wield a substantial impact on individuals' well-being, their performance, and the performance of organizations (e.g., Faragher, Cass, & Cooper, 2005, Lee & Ashforth, 1996; Meyer, Stanley, Herscovitch, & Topolnysky, 2002). Nevertheless, the research on school administration has largely neglected the work-related behavior of school principals, aside from leadership practices (e.g., Leithwood & Jantzi, 2005). Whereas these practices are basic to an understanding of school improvement, the overall determinants of educational leadership as well as other important job-related issues (recruitment, retention, job stress, and work-related problems) have been underexplored. Accordingly, it appears relevant to seek a deeper understanding of the work motivation of school principals.

SDT

SDT (Deci & Ryan, 1985) is an approach to human motivation that considers not only the intensity of motivation but also its quality. Hence, SDT postulates the existence of different types of motivation that lead to differential outcomes. These motivations provide the reasons for a person to engage in an activity. According to SDT, motivations can be classified into three categories to represent different levels of self-determination: intrinsic motivation, extrinsic motivation, and amotivation. *Intrinsic motivation* refers to performing an activity for the inherent pleasure and satisfaction. *Extrinsic motivation* refers to accomplishing an activity for ends other than the activity itself. In this case, the activity is only a means to the end, or the instrument used to achieve the goal. Finally, *amotivation* is the relative absence of intrinsic and extrinsic motivation. It occurs when people do not perceive a relationship between their actions and the outcomes and feel unable to achieve their goals.

SDT also proposes different types of extrinsic motivation, because behaviors that are adopted for instrumental purposes can be more or less chosen (self-determined). These motivations can also be ordered along a self-determination continuum from lower to higher levels of self-determination, referred to as external, introjected, identified, and integrated regulations. *External regulation* occurs when behaviors are regulated to obtain a reward or to avoid a constraint.

Introjected regulation corresponds to the process whereby an external demand becomes an internal representation. Individuals put pressure on themselves through internal coercion (e.g., anxiety, shame, guilt, pride) to make sure that a particular behavior is performed. *Identified regulation* is defined as behavior that individuals choose to perform because it is congruent with their own values and goals. Instead of succumbing to external or internal pressures, individuals experience choice while doing an activity, although the activity is not interesting. Finally, *integrated regulation* refers to behavior that is performed not only because individuals value their significance but also because it is consistent with their identities. Despite the relevance of this type of motivation, it is difficult to distinguish this latter theoretical construct from identified regulation (Blais, Brière, Lachance, Riddle, & Vallerand, 1993; Tremblay, Blanchard, Taylor, Pelletier, & Villeneuve, 2009). For this reason, integrated regulation is not examined in the present study.

Given the different types of motivation situated on the self-determination continuum, SDT postulates specific relations between the motivations and their psychological, affective, and behavioral outcomes. On the basis of the premise that self-determination contributes to optimal functioning and well-being, it is proposed that self-determined motivation (intrinsic motivation and identified regulation) fosters positive outcomes, whereas non-self-determined motivation (introjected regulation, external regulation, and amotivation) leads to negative outcomes. In the workplace, research indicates that self-determined motivation is positively associated with individual performance and psychological health (Baard, Deci, & Ryan, 2004), work satisfaction (Blais et al., 1993), and organizational commitment (Gagné, Chemolli, Forest, & Koestner, 2008). Conversely, studies have shown that less self-determined motivation is associated with burnout (Fernet, Guay, & Sénécal, 2004) and turnover intention (Richer, Blanchard, & Vallerand, 2002).

Specificity of Work Activities in the Study of Motivation

The hierarchical model of self-determined motivation (Vallerand, 1997) proposes that the different motivations operate at three levels of generality, namely, global, contextual, and situational. Generally, researchers who advocate SDT opt for generic measures, regardless of the generality level investigated. More precisely, in the workplace, the various measures developed (e.g., the Blais Work Motivation Inventory [Blais et al., 1993], the Motivation at Work Scale [Gagné et al., 2010], and the Work Extrinsic and Intrinsic Motivation Scale [Tremblay et al., 2009]) evaluate the overall work setting without distinguishing the specific contributions of particular work activities. They therefore

measure the different types of worker motivation connected with the kind of work or profession. This type of instrument has the advantage of being able to compare different job types. However, it is limited in terms of accounting for the specific motivational processes of particular professions, including the work activities involved. In addition, no scale has been developed to date to assess the work role motivation of school principals. Because they are generally stable over time, scales that assess the overall motivation of workers are less sensitive to variations produced by factors linked to individual work activities. In this case, work motivations that are assessed by contextual measures can be primarily determined by individual characteristics. Thus, the motivation of school principals toward specific work roles, such as the administrative role, is not necessarily the same as for the informational role. It is therefore plausible that a role that requires more psychological investment and is demotivating would contribute to work-related problems, even if a principal considers it pleasant and stimulating to perform other roles of the job. On this point, recent studies show that teachers' motivations vary across tasks (e.g., teaching, classroom management; Fernet, Sénécal, Guay, Marsh, & Dowson, 2008) and that burnout is closely associated with this variation (Fernet, Guay, Sénécal, & Austin, 2010). Similar results are reported in school learning, in which student motivation as a function of specific subjects was measured (i.e., writing, reading, and math; Guay, Marsh, Dowson, Larose, & Boivin, 2005). Consequently, a measure of work motivation that accounts for the psychological and behavioral variations generated by the precise nature of specific work roles should provide a more accurate analysis of the motivational experience of school principals, that is, the relations that they have with diverse aspects of their job. Applied to school principals, this conceptualization could deepen our understanding of their psychological functioning and work-related behaviors.

School Principals' Roles

Recent studies in diverse countries, including Canada, the United States, Australia, China, France, Belgium, and Great Britain (see Cattonar et al., 2007; Chapman, 2005; Su et al., 2003), show that the school principal's job involves a plethora of responsibilities and work roles. Despite recent transformations of the school systems in these countries and potential cultural differences in the importance placed on the diverse roles assumed by school principals, a constellation of three central roles related to this function emerges (Cattonar et al., 2007). These are the administrative role (e.g., school administrator, human resources manager, financial and materials manager), the instructional

leadership role (e.g., pedagogical leader, agent for changes in practices, educational project planner, supervisor of teachers' work, staff supervisor), and the informational role (e.g., promoter of the school to the community, point of contact with parents, liaison with authorities). This tripartite conceptualization of the work roles of school principals underlies the development of the motivation scale.

Research Objectives

This aim of this study was to develop and validate the WRMS-SP. There were two specific objectives. The first was to develop items reflecting the five main types of motivation proposed by SDT, namely, intrinsic motivation, identified regulation, introjected regulation, external regulation, and amotivation, as a function of the three main work roles of school principals. The second objective was to assess the construct validity of the scale using three statistical analyses.

First, a factor structure analysis was performed to determine how the items support the 5 motivational constructs proposed by SDT with respect to the 3 work roles. A 15-factor structure (5 types of motivation \times 3 roles) should be confirmed. Factor structure invariance with respect to participants' gender and position (principal or assistant principal) was also examined.

Second, the scale's convergent-discriminant validity was assessed using the 15-factor model. Adopting the multitrait-multimethod matrix method (MTMM; Campbell & Fiske, 1959), positive associations between a precise motivation type (e.g., intrinsic motivation) toward work roles and this motivation type toward other roles were expected. In addition, in line with the hypothesis of the differentiation of motivational constructs (Guay et al., 2005), the amplitude of correlations should gradually increase as a function of the self-determination continuum. Specifically, weaker correlations were predicted between intrinsic motivations toward roles, and stronger correlations were predicted between amotivation constructs. Regarding discriminant validity, it was postulated that convergent correlation coefficients would be higher than discriminant correlation coefficients, that is, between the different noncorresponding motivation types that underlie the set of roles. For example, intrinsic motivation toward the administrative role should be more strongly associated with intrinsic motivation toward other roles than other motivations underlying this particular role or other roles.

Third, the 15-factor model was used to examine the simplex pattern between motivation types for each work role. On the basis of the self-determination continuum, this pattern suggests that adjacent motivations are more strongly

correlated than distant motivations. For each role, intrinsic motivation was therefore expected to be positively associated with identified regulations and should be progressively more correlated, although negatively, with introjected regulation, external regulation, and amotivation.

Fourth, analyses were performed to explore any differences in terms of participants' gender and job position with respect to the 15 motivational factors. Although some studies suggest that women are more self-determined (intrinsic motivation, identified regulation) than men in the workplace (Fernet et al., 2008; Vallerand, 1997), no studies have assessed the potential differences related to a specific job position.

Fifth, a 22-factor model comprising 15 factors and 7 variables that are theoretically associated (principals' self-efficacy in the three roles, transformational leadership, work satisfaction, occupational commitment, and burnout) were also tested. According to Marsh, Martin, and Hau (2006), the inclusion of external criteria in a confirmatory factor analysis (CFA) allows a more effective assessment of the measure's construct validity. Considering that self-determined motivation is linked to optimal functioning (Deci & Ryan, 2008), principals' intrinsic motivation and identified regulation were expected to be positively associated with their self-efficacy, transformational leadership, work satisfaction, and occupational commitment and negatively with burnout. On the other hand, non-self-determined motivations (introjected regulation, external regulation, and amotivation) should be negatively associated with principals' self-efficacy, transformational leadership, work satisfaction, and occupational commitment and positively associated with burnout. In addition, specific relations were expected between motivation subscales and self-efficacy. For example, motivations toward the administrative role should be more strongly associated with self-efficacy in this particular role than toward other roles. Similarly, principals' transformational leadership should be more closely linked to motivations in the instructional leadership role than toward other roles. However, work satisfaction, occupational commitment, and burnout, which are global contextual measures, should not be more strongly associated with motivation toward a particular role.

Method

Scale Development

The scale items were developed by a research group comprising two professors and three graduate students who were thoroughly versed in the theoretical tenets of SDT. The generated items were designed to reflect the 5 main

motivational constructs proposed by SDT. The wording of the items had to answer the following question: "Why do you perform your work roles?" The selected items had to apply to each of the three work roles. To obtain a relatively brief scale of 30 items, only 2 items per motivational construct were retained (2 items \times 5 motivation types \times 3 work roles). On the basis of existing motivation measures (e.g., the Academic Motivation Scale [Vallerand, Blais, Brière, & Pelletier, 1989]), the items are answered on a 7-point, Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). The items are presented in Table 1.

Procedure and Participants

The data were collected as part of a research project on the work-related well-being of school principals in the province of Quebec, Canada. In May 2008, a letter presenting the study objective was sent to all school principals belonging to Fédération Québécoise des Directeurs et Directrices d'Établissement d'Enseignement (the Federation of Quebec School Principals), comprising 2,400 members. A total of 568 school principals filled out the online questionnaire, posted on my university Web site, representing 24% of the federation's membership. The average age of participants was 45 years ($SD = 7.2$ years), and the average number of years of experience in their current positions (principal or assistant principal) was 6.27 years ($SD = 5.51$ years). Of the participants, 59% were women, 63% held the position of principal, and 59% worked in elementary schools.

Measures

All measures were administered in French. Instruments that were originally written in English were translated into French and then translated back into English. English-speaking judges verified the semantic similarity between the back-translated items and the original items.

School principals' self-efficacy was assessed using the School Principals Self-Efficacy Scale (Fernet, Austin, & Dussault, 2009). This scale includes 12 items designed to assess the three role content domains of school principals: administrative self-efficacy (3 items; e.g., "I believe I can be very creative in my administrative tasks"), instructional leadership self-efficacy (6 items; e.g., "I believe I can ensure that staff achieve their work objectives"), and informational self-efficacy (3 items; e.g., "I believe I can play an important role promoting my school in the community"). All items are rated on a 5-point, Likert-type scale ranging from 1 (*do not agree at all*) to 5 (*completely agree*).

Table 1. Factor Loadings From the 15-Factor CFA Solution

Item	Factor														
	Administrative role					Instructional leadership role					Informational role				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Intrinsic motivation															
For the pleasure that I get from performing this role.					.85					.79					.88
Because the activities related to this role are interesting and stimulating.					.91					.86					.90
Identified regulation															
Because this role enables me to achieve my own work objectives.					.93					.72					.88
Because I feel this role is essential in performing my job.					.65					.59					.71
Introjected regulation															
Because I would feel guilty if I did not perform this role properly.					.68					.67					.67
To prove to myself that I can perform this role properly.					.61					.63					.61
External regulation															
Because this role is part of my job. We are paid to do this.					.75					.78					.74
Because my position requires it.					.53					.50					.50
Amotivation															
I don't know. Sometimes it seems pointless.					.53					.53					.54
I don't know. Most of the time, I'm not really keen on performing this role.					.87					.61					.81

Note: For the purpose of this article, the back-translation procedure described by Vallerand and Halliwell (1983) to translate the original French Canadian items into English was used. The original version is available on request from the author.

In a preliminary validation study conducted in a sample of 497 French Canadian school principals (Fernet et al., 2009), this scale showed adequate construct validity, supported by correlations between subscales and indicators of principals' well-being (burnout and work satisfaction). In addition, internal consistency values of the subscales ranged from .72 to .77. A CFA performed on the present sample supported the factorial validity of this scale: $\chi^2(51, N = 568) = 167.746, p < .001$, comparative fit index (CFI) = .937, nonnormed fit index (NNFI) = .918, root mean square error of approximation (RMSEA) = .067. The internal consistency values of the subscales ranged from .70 to .80, which is similar to the results obtained in the previous study.

Transformational leadership was assessed using the self-reported Transformational Leadership Scale (Dussault, Fernet, & Frenette, 2010). This scale comprises 13 items evaluating intellectual stimulation (e.g., "I get staff involved in the problem-solving process"), individualized consideration (e.g., "I respect other opinions than mine"), and charisma and motivational inspiration (e.g., "I communicate my vision of the future"). Items were rated on a 4-point, Likert-type scale ranging from 1 (*do not agree at all*) to 4 (*completely agree*). In the validation study, Dussault et al. (2010) provided results supporting the factorial structure and reliability of the scale.

Work satisfaction was assessed using the Work Satisfaction Scale, which is an adaptation of the Satisfaction With Life Scale (Diener, Emmons, Larsen, & Griffin, 1985; French version by Blais, Vallerand, Pelletier, & Brière, 1989), wherein the term *life* is replaced by *work*. This scale consists of five items (e.g., "If I could change anything at my job, I would change practically nothing") scored on a 7-point, Likert-type scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). In the present study, the internal consistency value of the scale was .86.

Occupational commitment was assessed using the Affective Commitment subscale of the Occupational Commitment Questionnaire (Meyer, Allen, & Smith, 1993). This dimension has been found more strongly related to employee behaviors, such as job performance and attendance, than the other components (normative and continuance commitment) (Meyer, Becker, & Vandenberghe, 2004). In the present study, the six items capture commitment toward the occupation (e.g., "I feel emotionally attached to my occupation") rather than the organization (see Meyer et al., 1993). All items are scored on a 5-point, Likert-type scale ranging from 1 (*do not agree at all*) to 5 (*completely agree*). The internal consistency value of the scale was .84.

Burnout was assessed using two subscales of the Maslach Burnout Inventory–General Survey (Schaufeli, Leiter, Maslach, & Jackson, 1996): exhaustion and

cynicism. These dimensions are generally considered as the “core elements of burnout” (Demerouti, Bakker, Nachreiner, & Schaufeli, 2001). Both subscales are composed of five items, such as “I feel emotionally drained by my work” (exhaustion) and “I have become less enthusiastic about my work” (cynicism). Responses to all items are scored on a 7-point, Likert-type scale ranging from 0 (*never*) to 6 (*daily*). In the present study, the Cronbach’s α values for these subscales were .90 and .72, respectively.

Statistical Analyses

CFA. The adequacy of the models tested was assessed by structural equation modeling using EQS (Bentler & Wu, 1998). All models were tested with standardized coefficients obtained using maximum likelihood estimation. To ascertain the model fit, we used the CFI, the NNFI, and the RMSEA. The CFI and NNFI vary along a continuum of 0 to 1, where values greater than .90 are typically taken to reflect an acceptable fit, with values superior to .95 being ideal (Schumacker & Lomax, 1996). RMSEA values below .05 indicate a close fit, whereas values up to .08 represent acceptable errors of approximation (Hu & Bentler, 1999).

Correlated errors or uniquenesses of parallel items. Following Marsh and Hau (1996), it was predicted that there would be correlated uniquenesses between items for which the wording is the same. Marsh and Hau argued that when parallel wording is used to assess different traits, the idiosyncratic wording of the parallel items reflects a method effect, so that correlations among the factors would be artificially inflated if correlated uniquenesses were not included. On the basis of these recommendations, correlated uniquenesses were included in the model tested.

Multiple group tests of invariance. Separate tests were conducted to evaluate whether the factor loadings, factor variances, and factor correlations were invariant (i.e., had the same values) across gender and principal’s position. The invariance of the factor structure for gender and position would be supported if the addition of invariance constraints results in little or no change in goodness of fit (see Marsh, Hau, & Grayson, 2005).

Missing data. In this study, 11% of the 568 participants had at least one missing response. Despite the relatively small sample size, it is generally considered inappropriate to disregard missing values using a listwise deletion of cases (see Peugh & Enders, 2004). Accordingly, the full information maximum likelihood approach was used to estimate missing values. In short, this methodology rebuilds the covariance matrix and sample means estimates

so that maximum function use is made of all nonmissing data, resulting in more accurate results than with other traditional approaches to missing data (Jamshidian & Bentler, 1999).

Multiple-indicator-multiple-indicator-cause (MIMIC) model. A MIMIC model (Jöreskog & Goldberger, 1975; Kaplan, 1999) was performed to provide a more stringent test of the construct validity of the WRMS-SP. The MIMIC model has the advantage of being a latent variable approach in which the dependent variables are used as multiple indicators. In this study, potential gender and principal's position effects on the 15-factorial scale structure were explored. A three single-degree-of-freedom contrast variable was constructed to represent the linear effects of gender (0 = women, 1 = men), principal's position (0 = principal, 1 = assistant principal), and the Gender \times Principal's Position interaction. Next, a model in which latent variables are predicted by gender and job position as well as the interaction term was tested.

Results

Preliminary Analyses

The average score on the 30 items ranged from 1.54 to 6.32, and the standard deviation ranged from .81 to 2.25. The correlation coefficients between the two items on the subscale varied from .67 to .78 ($M = .74$) for intrinsic motivation, from .35 to .57 ($M = .48$) for identified regulation, from .41 to .43 ($M = .42$) for introjected motivation, from .36 to .38 ($M = .37$) for external regulation, and from .35 to .49 ($M = .44$) for amotivation.

Factor Analyses

Data were first submitted to a CFA to assess the scale's factor structure. In this 15-factor model, the 30 items (2 items \times 15 motivational constructs) accounted for the 5 motivational constructs toward the principals' three work roles. The results indicate adequate adjustment indices (see Table 2, Model 1a) and satisfactory factor loadings ($\geq .50$) (see Table 1).

The model's factor structure invariance was then assessed with respect to participants' gender and job positions. Four models were successively tested to examine parameter equivalences (factor loadings, variances, and covariances) as a function of participants' gender and positions. In both cases, the results support the invariance of the 15-factor model (see Table 2, Models 2 and 3), because the adjustment indices (CFI, NNFI, and RMSEA) were comparable between the different models despite the addition of constraints (e.g., Cheung

Table 2. Fit Indices for the Models Tested

Model	χ^2	df	CFI	NNFI	RMSEA
Model 1: total group CFA models					
1a: 15-factor model	722.690	270	.970	.951	.055
1b: 22-factor model	1,761.675	963	.969	.959	.039
Model 2: CFA gender group invariance of the 15-factor model					
2a: No invariance	1,882.004	540	.966	.945	.067
2b: FL	1,893.257	555	.966	.947	.066
2c: FL + FV	1,914.414	570	.966	.948	.065
2d: FL + FV + FC	2,134.840	675	.958	.946	.063
Model 3: CFA principals' position group invariance of the 15-factor model					
3a: No invariance	1,798.770	540	.965	.944	.065
3b: FL	1,824.789	555	.965	.945	.065
3c: FL + FV	1,840.759	570	.965	.947	.064
3d: FL + FV + FC	2,032.815	675	.959	.947	.061
Model 4: MIMIC					
All paths estimated	782.962	315	.971	.951	.051

Note: CFA = confirmatory factor analysis; CFI = comparative fit index; FC = factor covariances; FL = factor loadings; FV = factor variances; NNFI = nonnormed fit index; RMSEA = root mean square error of approximation; MIMIC = multiple-indicator-multiple-indicator-cause.

& Rensvold, 2002). For example, for the invariance of gender, the model's NNFI's showing the highest constraint (Model 2d) were similar to those of the model without constraint (Model 2a).

Convergent-Discriminant Validity and Simplex Pattern

The MTMM matrix presented in Table 3 enables a simultaneously assessment of convergent and discriminant validity and the simplex pattern between motivation types. The matrix is subdivided into three sections: (a) correlations in italics show the relations between different motivation types toward distinct roles (discriminant validity), (b) underlined correlations show the relations between same motivation types toward distinct roles (convergent validity),

Table 3. Correlations Between WRMS-SP Subscales From the 15-Factor CFA Solution

Work role	Administrative role					Instructional leadership role					Informational role				
	MI	ID	IJ	EX	AM	MI	ID	IJ	EX	AM	MI	ID	IJ	EX	AM
Administrative role															
MI	—														
ID	.72	—													
IJ	.07	.22	—												
EX	-.01	.09	.72	—											
AM	-.56	-.50	.44	.34	—										
Instructional leadership role															
MI	<u>.09</u>	<u>.20</u>	<u>-.10</u>	<u>-.14</u>	<u>-.06</u>	—									
ID	<u>.13</u>	<u>.50</u>	<u>.03</u>	<u>.00</u>	<u>-.01</u>	.90	—								
IJ	<u>-.15</u>	<u>-.04</u>	<u>.90</u>	<u>.63</u>	<u>.63</u>	.05	.20	—							
EX	<u>.01</u>	<u>.07</u>	<u>.62</u>	<u>.93</u>	<u>.19</u>	<u>-.17</u>	<u>-.03</u>	.54	—						
AM	<u>-.13</u>	<u>-.16</u>	<u>.52</u>	<u>.29</u>	<u>.48</u>	<u>-.50</u>	<u>-.49</u>	.52	.29	—					
Informational role															
MI	<u>.22</u>	<u>.29</u>	<u>-.06</u>	<u>-.09</u>	<u>-.11</u>	<u>.32</u>	<u>.31</u>	<u>-.07</u>	<u>-.10</u>	<u>-.23</u>	—				
ID	<u>.27</u>	<u>.61</u>	<u>.09</u>	<u>-.01</u>	<u>-.12</u>	<u>.29</u>	<u>.49</u>	<u>.06</u>	<u>.01</u>	<u>-.24</u>	.84	—			
IJ	<u>-.10</u>	<u>.03</u>	<u>.90</u>	<u>.63</u>	<u>.60</u>	<u>-.08</u>	<u>.09</u>	<u>.93</u>	<u>.58</u>	<u>.51</u>	<u>.14</u>	.30	—		
EX	<u>.03</u>	<u>.09</u>	<u>.64</u>	<u>.88</u>	<u>.19</u>	<u>-.13</u>	<u>.03</u>	<u>.59</u>	<u>1.00</u>	<u>.31</u>	<u>-.10</u>	<u>-.01</u>	.59	—	
AM	<u>-.18</u>	<u>-.21</u>	<u>.50</u>	<u>.32</u>	<u>.59</u>	<u>-.17</u>	<u>-.16</u>	<u>.58</u>	<u>.26</u>	<u>.72</u>	<u>-.56</u>	<u>-.49</u>	.38	.31	—

Note: AM = amotivation; CFA = confirmatory factor analysis; EX = external regulation; ID = identified regulation; IJ = introjected regulation; IM = intrinsic motivation; WRMS-SP = Work Role Motivation Scale for School Principals. Correlations in boldface type represent relations among different types of motivation assessing the same work roles (quasi-simplex pattern), correlations in italics represent relations among different types of motivation assessing different work roles (divergent validity), and underlined correlations represent relations among the same type of motivation assessing different work roles (convergent validity). Correlation coefficients $\geq .11$ are significant at the .05 level (two tailed).

and (c) correlations in boldface type show the relations between different motivation types toward a specific role (simplex pattern).

Convergent-discriminant validity. Two criteria were initially proposed to assess the scale's convergent and discriminant validity: (a) convergent validity is supported when relations between a specific motivation type (e.g., intrinsic motivation) toward a work role, such as the administrative role, are positively associated with this motivation type toward other roles (e.g., the informational role), and (b) discriminant validity is supported when convergent validity coefficients are higher than discriminant validity coefficients (i.e., between noncorresponding motivation types involving different roles). Convergent validity coefficients were expected to vary as a function of the self-determination continuum. Thus, the weakest correlations should be observed between intrinsic motivations, and the highest correlations should be observed between amotivation constructs.

The correlation coefficients presented in Table 3 support the scale's convergent and discriminant validity. First, for each motivation type, the three convergent coefficients of validity were positive. More precisely, the correlations ranged from .09 to .32 (mean $r = .21$) for intrinsic motivation, from .49 to .61 for identified regulation (mean $r = .53$), from .90 to .93 for introjected regulation (mean $r = .91$), from .88 to 1.00 for external regulation (mean $r = .94$), and from .48 to .72 for amotivation (mean $r = .60$). These results provide partial support for the hypothesis of the differentiation of motivational constructs postulated by Guay et al. (2005). Except for amotivation, the motivations tend to be more specific toward roles with increasing self-determination. In terms of discriminant validity, the results show that overall convergent correlations (mean $r = .64$) were higher than divergent correlations (mean $r = .22$).

Simplex patterns. The relations between motivation types toward each role support the presence of simplex patterns. In connection with the self-determination continuum, the results show that adjacent motivations intercorrelated more strongly than distant motivations. For example, for the informational role, the correlation coefficient between intrinsic motivation and identified regulation was .84, with .30 between identified regulation and introjected regulation, .59 between introjected regulation and external regulation, and .31 between external regulation and amotivation. However, it is noteworthy that for the three work roles, amotivation was more strongly associated with introjected than external regulation. Therefore, the simplex pattern was further explored using the procedure proposed by Ryan and Connell (1989). Thus, a value varying from 1 to 4 was attributed to each correlation (in boldface type) according to its order on the self-determination continuum. For example, the relationship between intrinsic motivation and identified regulation was

attributed a 4, with 1 attributed to the relationship between intrinsic motivation and amotivation. A regression analysis then revealed a congruence coefficient of .75, indicating that these values contributed to 56% of the correlation coefficient variance. These results are similar to the congruence coefficients reported by Ryan and Connell (1989) ($r = .79$) and those of Fernet et al. (2008) ($r = .81$). The presence of a self-determination continuum is therefore supported.

MIMIC Model to Assess the Effects of Gender and Position

A MIMIC model, constructed using a structural equations analysis, was tested to determine the effect of participants' gender and job position, as well as the interaction term on the 15 types of motivation. The results indicate satisfactory adjustment indices (see Table 2, Model 4) and reveal the presence of four main effects. In terms of gender, the results show that women presented higher intrinsic motivation ($r = .21, p < .01$) and identified regulation ($r = .20, p < .01$) than men toward the instructional leadership role. As for job position, the results reveal that principals present higher intrinsic motivation ($r = -.09, p < .05$) and lower amotivation ($r = .10, p < .05$) than assistant principals toward the administrative role. However, it is worth mentioning that most effects of gender and job position were small in magnitude.

Construct Validity on the Basis of External Criteria

To more rigorously evaluate the construct validity of the scale, a second CFA model was tested, in which seven latent factors (i.e., self-efficacy in the three roles, transformational leadership, work satisfaction, occupational commitment, and burnout) were added to the 15-factor model. The adequacy indices of this 22-factor model were satisfactory (see Table 2). The results of this analysis show that the motivation subscales were associated with different external criteria and that the relations were relatively consistent with the self-determination continuum (see Table 4). On one hand, the results on construct specificity indicate that motivations toward a role correlated more strongly with self-efficacy in that role than with self-efficacy toward other roles. For example, the correlation coefficients between principals' perceptions of informational self-efficacy and intrinsic motivation were .19 for the administrative role, .24 for the instructional leadership role, and .49 for the informational role. Similarly, principals' perceptions of transformational leadership were more closely related to motivations in the instructional leadership role than toward

Table 4. Correlations Among WRMS-SP Subscales and External Criteria

Criteria	Administrative role motivations						Instructional leadership role motivations						Informational role motivations							
	IM	ID	IJ	EX	AM	IM	ID	IJ	EX	AM	IM	ID	IJ	EX	AM	IM	ID	IJ	EX	AM
Administrative S-E	.31	.22	-.24	-.08	-.38	.24	.17	-.24	-.14	-.29	.21	.12	-.25	-.12	-.24	.21	.12	-.25	-.12	-.24
Instructional leadership S-E	.13	.15	-.21	-.15	-.23	.39	.35	-.16	-.18	-.40	.31	.27	-.15	-.18	-.30	.31	.27	-.15	-.18	-.30
Informational S-E	.19	.20	-.18	-.14	-.21	.24	.28	-.17	-.12	-.16	.49	.47	-.04	-.13	-.36	.49	.47	-.04	-.13	-.36
Transformational leadership	.13	.23	-.16	-.07	-.20	.46	.49	-.10	-.14	-.38	.36	.38	-.10	-.12	-.29	.36	.38	-.10	-.12	-.29
Work satisfaction	.34	.31	-.14	-.20	-.36	.36	.35	-.12	-.16	-.32	.32	.33	-.10	-.14	-.28	.32	.33	-.10	-.14	-.28
Occupational commitment	.35	.33	-.11	-.17	-.42	.42	.52	-.05	-.15	-.50	.35	.39	-.06	-.12	-.43	.35	.39	-.06	-.12	-.43
Burnout	-.25	-.22	.31	.28	.44	-.31	-.30	.27	.26	.50	-.25	-.22	.29	.25	.43	-.25	-.22	.29	.25	.43

Note: AM = amotivation; EX = external regulation; ID = identified regulation; IJ = introjected regulation; IM = intrinsic motivation; S-E = self-efficacy; WRMS-SP = Work Role Motivation Scale for School Principals. Correlation coefficients $\geq .12$ are significant at the .05 level (two tailed).

the other roles. On the other hand, regarding the more general contextual constructs, work satisfaction was not more closely linked with motivations toward any particular task. However, occupational commitment and burnout were associated more with motivations toward the instructional leadership role.

Discussion

The aim of this study was to develop and validate the WRMS-SP, a scale designed to measure work role motivation among school principals (i.e., in the administrative, instructional leadership, and informational roles). Taken together, the results demonstrate the psychometric quality of the WRMS-SP. Specifically, the analyses support the multifactorial structure (15 factors) of the scale and its invariance with respect to principal's gender and position (principal or assistant principal). In addition, overall intercorrelations between the subscales and the external criteria support the presence of a self-determination continuum for each work role. The construct validity is also supported by the MTMM analysis, which confirms the convergent and divergent validity of the motivation types.

Theoretical and Practical Implications

The results of this study have a number of theoretical and practical implications. First, they confirm the multidimensional nature of school principals' motivations. In other words, principals have different reasons for engaging in their work activities. These reasons correspond to the different types of motivation proposed by SDT (Deci & Ryan, 1985), and they vary with the degree of self-determination that is specific to an array of work roles. This scale provides an in-depth analysis of school principals' motivations, underscoring the importance of personal choice in the self-regulation of behavior. The present results therefore advance our understanding of why school principals engage in (or withdraw from) their work.

Second, the findings highlight the importance of construct specificity in the study of work motivation. The notion of specificity accounts for the variability of the psychological processes inherent in a particular work activity. The results show that principals' motivations, particularly intrinsic motivation and identified regulation, are specific to work roles. For example, a principal can take pleasure in supervising the staff's work (e.g., instructional leadership) while getting less satisfaction out of promoting the school to the community (e.g., the informational role). These results corroborate those of

Fernet et al. (2008), which reveal the relevance of work motivation specificity for teaching tasks. Similarly, the present study attempts to assess work motivation using a measure that is sensitive to the psychological and behavioral variations generated by the particular nature of work roles. This conceptualization appears to be in line with SDT, which contends that human motivation is a function of the interaction between individuals and environmental characteristics (Ryan, 1995). Hence, motivation cannot be reduced to a general orientation of a person toward a life context. Nevertheless, it is important to mention that introjected and external regulations are less differentiable across work roles. A principal who self-imposes or is subjected to constraints in one role would internalize these same forms of control in other areas of the job. Notwithstanding, the development of a specific measure of work motivation appears to offer a more accurate analysis of the work motivation experienced by principals with diverse aspects of their job. Consequently, this conceptualization should help improve our understanding, predictions, and interventions concerning principals who present less self-determined work motivation or occupational problems. In addition, to further the validation of this instrument with school principals, future research could aim to deepen our understanding of the role of principals' motivation in terms of other function-related aspects such as decision making, conflict resolution, the delegation of responsibilities, leadership practices, change management, and so on.

Third, the results clearly show that principals' motivations are distinctly associated with their self-efficacy in their work roles. Among other things, the result reveal that principals who present self-determined motivations (intrinsic motivation and identified regulation) toward a particular role (e.g., administrative) have greater perceptions of self-efficacy in that particular role. Conversely, those who show less self-determined motivations (introjected regulation, external regulation, and amotivation) toward that particular role also feel less self-efficacious. These results are relevant in light of recent research on the self-efficacy of school principals. For example, Leithwood and Jantzi (2008) showed that self-efficacy in instructional leadership is a determinant of student performance. It is therefore reasonable to posit that when principals value their work, they will be more likely to put more effort into it. Consequently, a principal's work motivation would be an additional and complementary resource for developing a workplace atmosphere conducive to the school's educational mission. The relationship pattern observed between motivations and perceived transformational leadership supports this idea. Thus, self-determined principals would be better able to effectively influence the work of the school staff as well as student performance. Although studies of educational leadership suggest a small and indirect relationship between principals'

leadership practices and student performance (Hallinger & Heck, 1998), it would be useful to examine the role of self-determined motivation in this relationship.

Furthermore, the results reveal that certain global contextual variables, such as occupational commitment and burnout, are more closely linked with the instructional leadership role than other work roles. This suggests that certain work roles are more salient than others in explaining school principals' attitude and well-being. This measure therefore offers the potential to better understand important work-related issues, such as recruitment, retention, turnover, occupational health, performance, and so on.

Fourth, by its specific nature, the WRMS-SP opens the way to studies that could promote organizational interventions in schools. We can now understand the underlying reasons for principals' engagement in their work roles. In recent times, as principals are coping with all sorts of transformations at school (e.g., restructuring and reforms), this instrument could be used to precisely target the repercussions of these changes according to different work motivations. For example, pedagogical changes (e.g., curriculum), reduction in resources (human, financial, and material), and school regulation form changes (e.g., accountability policies, distribution of responsibilities and authorities, student and teacher assessment, reorganization of school boards) most probably affect principals' motivations. However, it is unlikely that these types of change will affect all principals in the same way. In addition, the consequences would become apparent only in certain well-defined work activities. This scale could then be used to more accurately assess the effects of changes on the principal's diverse work roles. Such analysis could bring to light new solutions or avenues to facilitate the implementation of school transformational changes, as well as to maintain principals' motivation, and assure successful school improvement.

Limitations

This study has some limitations. First, the small number of external criteria restricts the scope of the results on the scale's construct validity. In light of these promising preliminary results, future research should include other variables that are theoretically associated with school principals' motivations and their function. Similarly, objective measures and multiple methods could be used to minimize the common variance bias. Finally, longitudinal studies would provide additional support for the validity of the WRMS-SP and for construct stability over time.

In sum, the WRMS-SP is a multidimensional instrument designed to measure school principals' motivation. Because it accounts for the specificity of work roles, the WRMS-SP is a promising tool that should deepen our understanding, both theoretical and applied, of the professional functioning of principals and the repercussions on school success and improvement.

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References

- Baard, P. P., Deci, E. L., & Ryan, R. M. (2004). Intrinsic need satisfaction: A motivational basis of performance and well-being in two work settings. *Journal of Applied Social Psychology, 34*, 2045-2068.
- Bentler, P., & Wu, E. (1998). EQS for Windows [Computer software]. Encino, CA: Multivariate Software.
- Blais, M. R., Brière, N. M., Lachance, L., Riddle, A. S., & Vallerand, R. J. (1993). L'inventaire des motivations au travail de Blais [The Blais Work Motivation Inventory]. *Revue Québécoise de Psychologie, 14*, 185-215.
- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction With Life Scale" [French Canadian validation of the Satisfaction With Life Scale]. *Canadian Journal of Behavioural Science, 21*, 210-223.
- Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin, 56*, 81-105.
- Cattonar, B., Lessard, C., Blais, J.-G., Larose, F., Riopel, M.-C., Tardif, M., et al. (2007). *School principals in Canada: Context, profile and work*. PanCanadian Surveys of Principals and Teachers in Elementary and Secondary Schools (2005-2006) (Report: Current Trends in the Evolution of School Personnel in Canadian Elementary and Secondary Schools). Montreal, Canada: Université de Montréal.
- Chapman, J. D. (2005). *Recruitment, retention, and development of school principals* (Education Policy Series). Paris: UNESCO.

- Cheung, G. W., & Rensvold, R. B. (2002). Evaluating goodness-of-fit indexes for testing measurement invariance. *Structural Equation Modeling Journal*, 9(2), 233-255.
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.
- Deci, E. L., & Ryan, R. M. (2008). Facilitating optimal motivation and psychological well-being across life's domains. *Canadian Psychology*, 49(1), 14-23.
- Demerouti, E., Bakker, A. B., Nachreiner, F., & Schaufeli, W. B. (2001). The job demands-resources model of burnout. *Journal of Applied Psychology*, 86(3), 499-512.
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The Satisfaction With Life Scale. *Journal of Personality Assessment*, 49, 71-76.
- Dussault, M., Fernet, C., & Frenette, É. (2010). *The Transformational Leadership Scale (TSL): Validation of a new self-report leadership scale*. Manuscript submitted for publication.
- Faragher, E. B., Cass, M., & Cooper, C. L. (2005). The relationship between job satisfaction and health: A meta-analysis. *Occupational and Environmental Medicine*, 62, 105-112.
- Fernet, C., Austin, S., & Dussault, M. (2009, November). *L'importance de la spécificité des rôles professionnels lors de l'évaluation de la perception d'efficacité personnelle des directions d'école* [The importance of specific professional roles in the assessment of school principals' self-efficacy]. Paper presented at the 31st meeting of L'Association Pour le Développement des Méthodologies d'Évaluation en Éducation, Quebec, Canada.
- Fernet, C., Guay, F., & Senécal, C. (2004). Adjusting to job demands: The role of work self-determination and job control in predicting burnout. *Journal of Vocational Behavior*, 65(1), 39-56.
- Fernet, C., Guay, F., Senécal, C., & Austin, S. (2010). *Predicting intraindividual changes in teacher burnout: The role of perceived work environment and motivational factors*. Manuscript submitted for publication.
- Fernet, C., Senécal, C., Guay, F., Marsh, H., & Dowson, M. (2008). The Work Tasks Motivation Scale for Teachers (WTMST). *Journal of Career Assessment*, 16(2), 256-279.
- Friedman, I. A. (1995). Measuring school principal-experienced burnout. *Educational and Psychological Measurement*, 55(4), 641-651.
- Gagné, M., Chemolli, E., Forest, J., & Koestner, R. (2008). The temporal relations between work motivation and organizational commitment. *Psychologica Belgica*, 48(2-3), 219-241.

- Gagné, M., Forest, J., Gilbert, M.-H., Aubé, C., Morin, E., & Malorni, A. (2010). The Motivation at Work Scale: Validation in two languages. *Educational and Psychological Measurement, 70*, 628-646.
- Guay, F., Marsh, H. W., Dowson, M., Larose, S., & Boivin, M. (2005). *Academic motivation among young elementary school children: Factor structure, age and gender effects*. Paper presented at the conference of the Australian Association for Research in Education, University of Western Sydney, Australia.
- Hallinger, P., & Heck, R. (1998). Exploring the principal's contribution to school effectiveness: 1980-1995. *School Effectiveness and School Improvement, 9*, 157-191.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.
- Iannone, R. (1973). What motivates principals? *Journal of Educational Research, 66*(6), 260-262.
- Jamshidian, M., & Bentler, P. M. (1999). ML estimation of mean and covariance structures with missing data using complete data routines. *Journal of Educational and Behavioral Statistics, 24*(1), 21-41.
- Jöreskog, K., & Goldberger, A. (1975). Estimation of a model with multiple indicators and multiple causes of a single latent variable. *Journal of the American Statistical Association, 10*, 631-639.
- Kaplan, D. (1999). An extension of the propensity score adjustment method for the analysis of group differences in MIMIC models. *Multivariate Behavioral Research, 34*, 467-492.
- Kottkamp, R. B., & Derczo, M. T. (1986). Expectancy motivation scales for school principals: Development and validity tests. *Educational and Psychological Measurement, 46*, 425-432.
- Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*, 123-133.
- Leithwood, K., & Jantzi, D. (2005). A review of transformational school leadership research 1996-2005. *Leadership and Policy in Schools, 4*, 177-199.
- Leithwood, K., & Jantzi, D. (2008). Linking leadership to student learning: The contributions of leader efficacy. *Educational Administration Quarterly, 44*(4), 496-528.
- Marsh, H. W., & Hau, K.-T. (1996). Assessing goodness of fit: Is parsimony always desirable? *Journal of Experimental Education, 64*, 364-390.
- Marsh, H. W., Hau, K. T., & Grayson, D. (2005). Goodness of fit evaluation in structural equation modeling. In A. Maydeu-Olivares & J. McCardle (Eds.), *Contemporary psychometrics: A festschrift to Roderick P. McDonald* (pp. 275-340). Hillsdale, NJ: Lawrence Erlbaum.

- Marsh, H. W., Martin, A. J., & Hau, K-T. (2006). A multiple method perspective on self-concept research in educational psychology: A construct validity approach. In M. Eid & E. Diener (Eds.), *Handbook of multimethod measurement in psychology* (pp. 441-456). Washington, DC: American Psychological Association.
- Meyer, J. P., Allen, N. J., & Smith, C. A. (1993). Commitment to organizations and occupations: Extension and test of a three-component conceptualization. *Journal of Applied Psychology, 78*, 538-551.
- Meyer, J. P., Becker, T. E., & Vandenberghe, C. (1993). Employee commitment and motivation: A conceptual analysis and integrative model. *Journal of Applied Psychology, 89*(6), 991-1007.
- Meyer, J. P., Stanley, D. J., Herscovitch, L., & Topolnytsky, L. (2002). Affective, continuance, and normative commitment to the organization: A meta-analysis of antecedents, correlates, and consequences. *Journal of Vocational Behavior, 61*(1), 20-52.
- Mitchell, T. R., & Daniels, D. (2003). Motivation. In W. C. Borman, D. R. Ilgen, & R. J. Klimoski (Eds.), *Handbook of psychology, Vol. 12: Industrial and organizational psychology* (pp. 225-254). Hoboken, NJ: John Wiley.
- Peugh, J. L., & Enders, C. K. (2004). Missing data in educational research: A review of reporting practices and suggestions for improvement. *Review of Educational Research, 74*(4), 525-556.
- Pinder, C. C. (1998). *Work motivation in organizational behavior*. Upper Saddle River, NJ: Prentice Hall.
- Richer, S. F., Blanchard, C., & Vallerand, R. J. (2002). A motivational model of work turnover. *Journal of Applied Social Psychology, 32*, 2089-2113.
- Ryan, R. M. (1995). Psychological needs and the facilitation of integrative processes. *Journal of Personality, 63*, 397-427.
- Ryan, R. M., & Connell, J. P. (1989). Perceived locus of causality and internalization: Examining reasons for acting in two domains. *Journal of Personality and Social Psychology, 57*, 749-761.
- Schaufeli, W. B., Leiter, M. P., Maslach, C., & Jackson, S. E. (1996). Maslach Burnout Inventory-General Survey. In C. Maslach, S. E. Jackson, & M. P. Leiter (Eds.), *The Maslach Burnout Inventory: Test manual* (3rd ed., pp. 22-26). Palo Alto, CA: Consulting Psychologists Press.
- Schumacker, R. E., & Lomax, R. G. (1996). *A beginner's guide to structural equation modeling*. Mahwah, NJ: Lawrence Erlbaum.
- Su, Z., Gamage, D., & Mininberg, E. (2003). Professional preparation and development of school leaders in Australia and the USA. *International Education Journal, 4*(1), 42-59.

- Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., & Villeneuve, M. (2009). Work Extrinsic and Intrinsic Motivation Scale: Its value for organizational research. *Canadian Journal of Behavioural Science, 41*(4), 213-226.
- Vallerand, R. J. (1997). Toward a hierarchical model of intrinsic and extrinsic motivation. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 271-360). New York: Academic Press.
- Vallerand, R. J., Blais, M. R., Brière, N., & Pelletier, L. G. (1989). Construction et validation de l'Échelle de Motivation en Éducation (EME) [Development and validation of the Academic Motivation Scale]. *Revue Canadienne des Sciences du Comportement, 2*(3), 323-349.
- Vallerand, R. J., & Halliwell, W. R. (1983). Toward a cross-cultural validation methodology for psychological inventories: Implications in sport psychology. *Canadian Journal of Applied Sport Sciences, 8*, 9-18.

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