Exploring the influence of perceived mattering, role stress, and emotional exhaustion on physical education teacher/coach job satisfaction

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Abstract:

Job dissatisfaction has been linked to decreased performance and increased workplace turnover. It is, therefore, important to understand the experiences that are associated with physical education teacher job satisfaction and dissatisfaction. This study examined relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction in teacher/coaches and non-coaching physical education teachers. The participants included 500 physical educators (251 females, 249 males) from the United States. Most participants (91.20%) were Caucasian, and over half (53.60%) coached. Data were collected using an online survey, and analyzed using latent variable modeling procedures. Results supported the conceptual framework, $\chi^2(214) = 511.49$, $p < .001$, RMSEA = .052 (90% CI = [.046, .058], $p = .216$), SRMR = .06, NNFI = .95, CFI = .96, and commonly experienced pathways were invariant across coaching and non-coaching groups. A key goal for schools should be to increase teacher perceived mattering and reduce role stress and emotional exhaustion.

Keywords: Teacher satisfaction | workplace factors | sociology of education | structural equation modeling | invariance analysis

Article:

Introduction

School-based physical education (PE) has the potential to contribute to the holistic mission of primary and secondary education by facilitating student development in the physical, cognitive, and affective domains (Bailey, 2006). Considering student development in these domains is influenced by the effectiveness of the teacher (Rink, 2013), and teachers' effectiveness is connected to perceptions of their work role and the degree to which they perceive stress, burnout, and other factors such as marginalization (Richards et al., 2013), a developing line of inquiry has centered on discovering working conditions that facilitate job satisfaction (see Richards et al.,

2017). This research agenda has revealed psychosocial factors inherent to teaching, such as perceiving that one matters to others and the experience of role stress, can lead to feelings of emotional exhaustion (Richards et al., 2016b; Skaalvik and Skaalvik, 2009, 2011). Emotional exhaustion, in turn, has been linked to reduced feelings of job satisfaction as well as intentions to leave the teaching profession (Koustelios and Tsigilis, 2005).

In the United States, it is common for physical educators to also coach afterschool sports, and many teacher/coaches (T/Cs) are heavily invested in their coaching responsibilities (Ryan, 2008). Some evidence indicates that T/Cs and non-coaching teachers (NCTs) experience different levels of stress and burnout (Richards et al., 2014a), suggesting a need to understand how both groups experience the relationships among variables that relate to job satisfaction. The purpose of this study was to examine the relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction in T/Cs and NCTs. Grounded in role socialization theory (Richards, 2015), the ensuing literature review develops a conceptual model that is subsequently tested through structural equation modeling (SEM). Invariance analysis is then used to examine the model across T/Cs and NCTs.

Role socialization theory

Role socialization theory is a sociological perspective that borrows from occupational socialization theory (Templin and Schempp, 1989) and role theory (Merton, 1957) to examine ways in which individuals are recruited into, prepared for, and socialized through the role of physical educator (Richards et al., 2014b). It is posited that individuals learn skills required to teach PE, and develop subjective theories (Grotjahn, 1991) for what it means to be a physical educator, based on interactions with socializing agents (e.g. other PE teachers, coaches, teacher educators). Unlike functionalist perspectives, role socialization theory conceptualizes career socialization to be dialectical whereby individuals are able to resist the forces of those who seek to socialize them (Schempp and Graber, 1992).

Social relationships and interactions within the workplace are central to understanding how individuals navigate and derive meaning from their work. Physical educators navigate their work environment and derive professional purpose through interactions with key stakeholders (e.g. administrators, colleagues, students, parents; Richards, 2015). The expectations for performance of the role of physical educator are socially constructed and contextually bound to school environments (Richards, 2015), meaning that physical educators can perceive congruence in one environment, but conflicting expectations in another. Given that key stakeholders often have diverse socialization experiences (Hindin, 2007), it is common for there to be inconsistency, particularly regarding the status afforded to PE (Richards and Hemphill, 2017).

Inconsistency in expectations can result in subject marginalization whereby physical educators are implicitly or explicitly told that they and their subject do not matter (Kougioumtzis et al., 2011; Shoval et al., 2010). Similarly, conflicting expectations can cause role stress, which can lead to emotional exhaustion and burnout (Byrne, 1994). These constructs have been further linked to job dissatisfaction and an increased propensity to leave teaching prematurely (Judge et al., 2001; Richards et al., 2017). While PE is marginalized in some environments, it is also possible for physical educators to perceive that they and their discipline matter to those around them (Gaudreault et al., 2016). Individuals who perceive that they matter are more likely to feel a sense of workplace belonging (Marshall, 2001), which may help to decrease stress and burnout while enhancing job satisfaction.
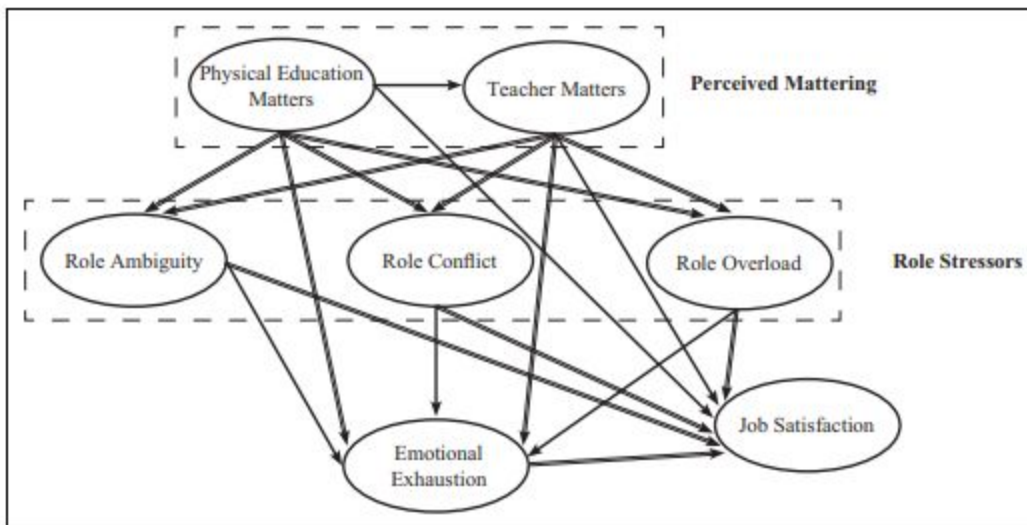
Figure 1. Conceptual model illustrating the hypothesized relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction. Solid lines indicate a hypothesized positive relationship, and dashed lines indicate hypothesized negative relationships in the model. Double lines indicate hypothesized negative relationships.

Development of a conceptual model

Grounded in the tenets of role socialization theory, Figure 1 depicts a research-based conceptual framework for understanding the relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction. It was hypothesized that perceived mattering would relate negatively to role stress and emotional exhaustion, but positively to job satisfaction. Role stress was expected to relate positively to emotional exhaustion, but negatively to job satisfaction, and emotional exhaustion was expected to associate negatively with job satisfaction. Research hypotheses are developed through a review of the literature in the following sections.

Physical education teacher job satisfaction

Defined as evaluative judgments individuals hold toward their working roles, job satisfaction has been linked to career longevity and role productivity (Judge et al., 2001). In a scoping review of PE teacher satisfaction research, Richards and colleagues (2017) found workplace variables and interpersonal relationships to influence teachers' job satisfaction levels more than demographic characteristics. Among the factors that related positively with PE teacher satisfaction were employment in smaller schools, access to adequate and quality resources, receiving recognition of quality teaching performance, teaching a manageable schedule, and working with cooperative students (Ma¨kela¨ et al., 2015). While demographic characteristics are important to consider, comparably less attention has focused on the relationships between various intrinsic and psychosocial constructs that may develop from these workplace factors and influence PE teachers' job satisfaction. Emerging evidence does, however, suggest that job satisfaction relates positively to self-efficacy (Ma¨kela¨ et al., 2015) and emotional intelligence (Mousavi et al., 2012), and negatively with role stress (Koustelios et al., 2004).

Emotional exhaustion

Emotional exhaustion comprises one of three dimensions of burnout, which is a condition marked by emotional depletion and withdrawal from work due to prolonged stress (Maslach et al., 2001). In particular, emotional exhaustion reflects the point at which individuals perceive themselves to be emotionally overextended (Maslach and Leiter, 2008). Feeling emotional exhaustion has been described as the first step in the burnout progression (Maslach, 1982), and is viewed as the central or core component of burnout (Grandey, 2003). Several studies have observed a negative relationship between emotional exhaustion and job satisfaction (Skaalvik and Skaalvik, 2009, 2011), suggesting that teachers who are burned out are less satisfied with their work and more likely to prematurely transition out of the teaching profession (Ma¨kela¨ et al., 2015). The experience of subject marginalization and social isolation among PE teachers may enhance emotional exhaustion (Kougioumtzis et al., 2011; Laureano et al., 2014), thus leading to the following hypothesis:

> **H1:** Teachers' perception of emotional exhaustion will be inversely related to job satisfaction.

Role stressors in teaching

As noted previously, role socialization theory posits that when individuals hold incongruent expectations for the performance of social roles, challenges arise in the form of role stress (Conley and You, 2009; Hindin, 2007). Hindin (2007) observed role stress to exist in the forms of role conflict (i.e. incompatible expectations for role performance), role overload (i.e. role expectations exceed available time or resources), and role ambiguity (i.e. role expectations too unclear to guide behavior). These role stressors have been found to negatively impact job satisfaction in general education (Conley and You, 2009) and PE (Koustelios et al., 2004). In addition, role stress has been positively linked with emotional exhaustion across various educational contexts (Byrne, 1994; Richards et al., 2016b). Therefore:

> **H2:** Role stress will be negatively related to job satisfaction both directly and indirectly through increased emotional exhaustion.

Perceived mattering

Perceived mattering is the "psychological tendency to evaluate the self as significant to specific other people" (Marshall, 2001: 174). As conceptualized by Rosenberg and McCullough (1981), mattering includes four dimensions: attention (evoking interest from others), importance (the belief that others are concerned with one's well-being), dependence (feeling a sense of utility), and ego-extension (a sense that others are invested in one's performance). Physical educators' perceptions of mattering have been further delineated by the extent to which they (teacher matters) and their subject (PE matters) are valued by others (Gaudreault et al., 2016). Physical educators have reported modest levels of mattering, and PE matters has been found to predict teacher mattering (Gaudreault et al., 2016; Richards et al., 2017). Considering that supportive environments may decrease negative perceptions of the workplace culture (Skaalvik and Skaalvik, 2011), perceived mattering may decrease stress and emotional exhaustion and increase

positive job appraisals. This literature suggests that:

> **H3:** Perceiving that PE matters will be positively related to perceptions of teacher mattering.

> **H4:** Perceived mattering will be positively related to job satisfaction directly and indirectly through their attenuating effect on role stress and emotional exhaustion.

Invariance across teacher/coaches and non-coaching teachers

Beyond examining the relationships specified in the conceptual model for all teachers in aggregate, the researchers sought to understand if T/Cs and NCTs experience the pattern of relationships differently. Previous research has documented that these two groups experience levels of role stress and emotional exhaustion differently (Richards et al., 2014a), and that concurrently performing teaching and coaching roles can cause inter-role conflict, which leads the T/C to prioritize one role over the other (Konukman et al., 2010). Given that accountability and reward structures often favor coaching, it is often given priority (Ryan, 2008). Further, T/Cs may believe that they matter more or differently than NCTs because they receive specific accolades for their coaching prowess that are not afforded to NCTs for quality teaching (Ryan, 2008). While differences in the perception of psychosocial variables have been noted, the relationships among many of the variables in the conceptual model have been shown to be significant across occupational groups and cultures, which leads to the following hypothesis:

> **H5:** Pathways in the conceptual model common to both T/Cs and NCTs will be invariant across groups.

Method

Participants and setting

The participants included 500 in-service PE teachers (251 females, 249 males) from the US Northeast (n = 240; 48.00%), Midwest (n = 145; 29.00%), and Southeast (n = 115; 23.00%). The teachers averaged 46.31 years old (SD = 11.30), and had been teaching for 19.41 years (SD = 10.48). Nearly three-quarters of the participants had advanced degrees (e.g. master's degree; n = 363; 72.60%), with fewer reporting only bachelor's degrees (n = 137; 27.40%). Most participants identified as Caucasian (n = 456; 91.20%), followed by those reporting African American (n = 28; 5.60%). Just over half (n = 268; 53.60%) were currently coaching extracurricular sports in addition to teaching. The teachers worked in elementary (n = 160; 32.00%) and secondary (n = 340; 68.00%) schools that were located in urban (n = 112; 22.40%), suburban (n = 207; 41.40%), and rural (n = 181; 36.20%) environments. Detailed participant information in aggregate and divided by coaching status is presented in Table 1.

Research design and instrumentation

Following institutional review board approval, PE teachers in the US Midwest, Northeast, and Southeast were invited via email to participate in the study. Those interested in participating

were asked to follow a URL link to a 46-item online survey. Prior to data collection, the survey was pilot tested with 25 PE teachers to identify potential logistical problems and to estimate a completion time. This pilot led to minor modifications in the survey structure and flow, and it was estimated to take 15–20 min to complete.

Table 1. Demographic information for the participants in aggregate as well as for the divided samples.

		Total sample (n = 500)		Not coaching (n = 232)		Coaching (n = 268)	
Category	Subcategory	Participants	Mean (SD)	Participants	Mean (SD)	Participants	Mean (SD)
Gender	Female	251 (50.20%)		158 (68.10%)		93 (34.70%)	
	Male	249 (49.80%)		74 (31.90%)		175 (65.30%)	
Age (Years)			46.31 (11.30)		47.96 (10.85)		44.89 (11.50)
Years teaching			19.41 (10.48)		20.33 (10.34)		18.60 (10.55)
Race/ ethnicity	Caucasian	456 (91.20%)		215 (92.70%)		241 (89.90%)	
	African American	28 (5.60%)		13 (5.6%)		15 (5.60%)	
	Hispanic	4 (.80%)		1 (.40%)		3 (1.10%)	
	Asian American	1 (.20%)		0 (0.00%)		1 (.40%)	
	Native American	1 (.20%)		0 (0.00%)		1 (.40%)	
	Multiple races	6 (1.20%)		1 (.40%)		5 (1.90%)	
	Other	4 (.80%)		2 (.90%)		2 (.70%)	
Education	Bachelor's	137 (27.40%)		54 (23.30%)		83 (31.00%)	
	Advanced Degree	363 (72.60%)		178 (76.70%)		185 (69.00%)	
Teaching level	Elementary	160 (32.00%)		109 (47.00%)		51 (19.00%)	
	Secondary	340 (68.00%)		123 (53.00%)		217 (81.00%)	

School context	Urban	112 (22.40%)		50 (21.50%)		62 (23.10%)	
	Suburban	207 (41.40%)		103 (44.40%)		104 (38.80%)	
	Rural	181 (36.20%)		79 (34.10%)		102 (38.10%)	
US region	Northeast	240 (48.00%)		128 (55.20%)		112 (41.80%)	
	Midwest	145 (29.00%)		61 (26.30%)		84 (31.30%)	
	Southeast	115 (23.00%)		43 (18.50%)		72 (26.90%)	
Students/ class			31.92 (16.66)		31.62 (17.80)		32.18 (15.44)
Hours/ week			36.92 (4.98)		36.13 (5.70)		37.61 (4.16)

Note: Years Teaching: years of teaching experience; Coach Status: whether or not the participant coached extracurricular sport in addition to teaching responsibilities; Students/class: average number of students in each class; Hours/week: total number of hours spent teaching physical education classes per week

Perceived mattering. Perceived mattering was measured using the Perceived Mattering QuestionnairePhysical Education (Richards et al., 2016a). The instrument includes two four-item subscales to measure teacher matters and PE matters. Participants indicated the extent to which the prompts reflected their feelings on a four-point, Likert-type scale ranging from one (not at all) to four (a lot). Example items included "how much attention do you feel other people pay to you at school?" (teacher matters) and "how important do you feel PE is to other people at school?" (PE matters).

Role stressors. The Teacher Role Stressors Survey (Conley and You, 2009) was used to measure role ambiguity: (e.g. "I know that I have divided my time properly" (reverse scored), role conflict (e.g. "I often receive incompatible requests from two or more people"), and role overload (e.g. "I am rushed in doing my job"). Respondents indicated the extent to which each item applies to them on a seven-point, Likert-type scale ranging from one (very inaccurate) to seven (very accurate).

Emotional exhaustion. Considered the archetype of burnout (Maslach et al., 2001) and the first indictor of burnout among teachers (Maslach and Leiter, 2008), emotional exhaustion was measured using the emotional exhaustion subscale from the Maslach Burnout InventoryEducators Survey (Maslach et al., 1996). Participants respond by indicating how often they feel the way implied in each prompt on a seven-point, Likert-type scale ranging from zero (never) to six (every day). Example items include "I feel burned out from my work" and "I feel used up at the end of the workday."

Job satisfaction. Job satisfaction was measured with three items from the Michigan Organizational Assessment Questionnaire, which evaluates global job satisfaction (Cammann et al., 1979). Participants indicated their level of agreement with each item on a seven-point, Likert-type scale ranging from one (strongly disagree) to seven (strongly agree). Example items included: "all in all, I am satisfied with my job" and "in general, I don't like my job" (reverse scored).

Analytic procedure

Initial analyses were conducted using IBM SPSS 23, and latent variable analyses were conducted using LISREL 9.1. Prior to analysis, the data were cleaned and screened using procedures recommended by Tabachnick and Fidell (2013). After initial screening, descriptive statistics and bivariate correlations were calculated, and latent variable modeling began with confirmatory factor analysis (CFA).

Confirmatory factor analysis. Prior to SEM, the measurement model was evaluated using concurrent CFA. Through concurrent CFA, all variables were entered into a single CFA model to examine convergent and discriminant validity (Teo et al., 2009). Convergent validity was evaluated by examining loadings, composite reliability (ρ_c), and average variance extracted (AVE). The ρ_c values estimate internal consistency, and should be $\geq .70$ (Diamantopoulos and Siguaw, 2000), whereas AVE is the average variance in indicator variables explained by the construct, and should be $\geq .50$ (Fornell and Larcker, 1981). Discriminant validity examines the independence of constructs in the model, and if $\sqrt{AVE}$ is greater than the correlations, the construct is considered independent (Teo et al., 2009).

The structural model to be estimated. After verifying the measurement model, the hypothesized relationships outlined in Figure 1 were evaluated using SEM, which evaluates the relationships among latent constructs and manifest indicators (Schreiber et al., 2006). After running a model, significance tests for the regression coefficients in the structural model are examined, and nonsignificant pathways are removed (Hatcher, 1994). The direct and indirect effects of the hypothesized relationships were examined using LISREL 9.1. Some of the indirect effects were expected to reflect what MacKinnon et al. (2007) referred to as inconsistent mediation, which occurs when the sign of the direct effect (i.e. perceived mattering on job satisfaction) differs from the sign of the indirect relationship (i.e. perceived mattering on job satisfaction mediated through role stress and emotional exhaustion).

Invariance analysis. An invariance analysis was used to examine potential differences in the hypothesized model based on coaching status. Tests of invariance examine whether or not certain components of the SEM are invariant or equivalent across groups (Meredith, 1993). More restrictive models are nested within less restrictive models, so the model X^2 values can be compared using X^2 difference tests (Byrne, 1998). Tests of invariance begin with separate models being estimated for each group. Pathways in the structural model that are not significant in both groups are then removed from the model before subsequent tests of invariance (Byrne, 1994).

Invariance in the measurement model was established before pathways in the structural

model were examined (Byrne, 1998). First, configural invariance establishes a baseline model through a simultaneous run of both models without any invariance restraints. The baseline model was then used as a comparison for more restrictive models. Second, metric invariance was examined by constraining the λ loadings to be equivalent across groups. Third, scalar invariance involved adding the constraint of equal item intercepts. Finally, invariance of error variances was specified by adding the restraint of equal error variances. After assuring measurement invariance, it was appropriate to examine structural invariance to determine if participants experienced relationships among the constructs similarly (Byrne, 1998).

Goodness-of-fit statistics. Goodness-of-fit statistics are used to examine the extent to which the hypothesized model fit the data in latent variable modeling (Hatcher, 1994). Multiple goodness-of-fit statistics were used, including the X^2 test, the non-normed fit index (NNFI), the comparative fit index (CFI), the standardized root mean square residual (SRMR), and the root mean square error of approximation (RMSEA). The X^2 test was traditionally used as evidence of model fit. However, this test is highly influenced by sample size, and it is no longer considered a reliable measure of fit. Instead, the ratio of X^2 to degrees of freedom (X^2/df) was employed, with a ratio of ≤ 3.00 suggesting good fit (Schreiber et al., 2006). An NNFI or CFI value ≥ .95 is indicative of good fit, whereas a SRMR or RMSEA value should be ≤ .08 (Brown, 2006).

Table 2. Descriptive statistics and convergent validity of the measurement model.

	M	SD	Skewness	Kurtosis	λ Loadings	ρ_c	AVE
Physical Education Matters	2.68	.82	-.24	-.78		.90	.69
PEM1	2.68	.93	-.13	-.89	.85		
PEM2	2.43	.86	.11	-.63	.88		
PEM3	3.05	1.07	-.67	-.95	.70		
PEM4	2.57	.90	-.06	-.77	.88		
Teacher Matters	3.02	.65	-.34	-.53		.86	.61
TM1	3.13	.76	-.58	-.03	.83		
TM2	2.95	.74	-.15	-.61	.75		
TM3	2.99	.88	-.55	-.43	.76		
TM4	3.02	.73	-.38	-.09	.77		
Role Ambiguity	2.08	.76	1.09	2.49		.80	.51
RA1	2.57	1.33	1.09	.87	.53		

	M	SD				c	AVE
RA2	2.28	.97	1.30	2.59	.50		
RA3	1.64	.73	1.65	5.74	.87		
RA4	1.83	.90	1.74	5.43	.87		
Role Conflict	3.05	1.40	.37	-.65		.80	.57
RC1	3.48	1.84	.24	-1.17	.68		
RC2	2.86	1.59	.61	-.67	.77		
RC3	2.80	1.57	.61	-.73	.80		
Role Overload	3.65	1.79	.14	-1.13		.90	.81
RO1	3.83	1.96	.10	-1.26	.87		
RO2	3.46	1.81	.21	-1.19	.93		
Emotional Exhaust	1.87	1.29	.75	.13		.93	.82
EE1	1.87	1.29	.65	-.03	.97		
EE2	2.19	1.44	.51	-.39	.91		
EE3	1.53	1.31	1.13	.71	.83		
Job Satisfaction	6.06	1.06	-1.86	4.28		.89	.73
JS1	6.00	1.16	-1.86	4.07	.92		
JS2	6.12	1.27	-1.89	3.43	.78		
JS3	6.08	1.11	-2.06	5.38	.86		

Note. AVE: average variance extracted; c: composite reliability; physical education matters and teacher matters ranged from 1–4; role ambiguity, role conflict, role overload, and job satisfaction ranged from 1–7; emotional exhaustion ranged from 0–6; all factor loadings were significant at p < .01.

Results

Preliminary analyses

Descriptive statistics for all indicators and composite scores are presented in Table 2. Per the metric underlying each scale, participants perceived high teacher matters (M = 3.02, SD = .65) and job satisfaction (M = 6.07, SD = .1.06), moderate PE matters (M = 2.68, SD = .82) and role overload (M = 3.66, SD = 1.40), and low role ambiguity (M = 2.08, SD = .76), role conflict (M = 3.05, SD = 1.40), and emotional exhaustion (M = 1.87, SD = 1.26). Latent correlations among

study constructs are included in Table 3. All constructs were significantly correlated in the expected direction. The strongest correlations were among role conflict and role overload (r = .57, p < .001), PE matters and teacher matters (r = .56, p < .001), and emotional exhaustion and job satisfaction (r = –.52, p < .001).

A series of X^2 tests and independent-samples t-tests was conducted to examine how demographic variables and study constructs varied by coaching status. The proportion of males in the T/C group was significantly higher than the NCT, X^2 (1) = 55.50, p < .001, V = .33, and T/Cs were more likely to be teaching in secondary schools than elementary schools, X^2 (1) = 44.65, p < .001, V = .30. Physical educators working in the Southeast were more likely to be T/Cs than NCTs, $X^2(2)$ = 9.49, p < .001, V = .14, and those who coached were younger than their non-coaching counterparts, t(482) = 3.01, p = .003, d = .27.

Verification of the factor structure

The latent variable analyses began with a concurrent CFA to examine factorial validity of the measurement model (Teo et al., 2009). Results indicated that the hypothesized model was a good fit for the data (see Table 4 for an overview of SEM results). All of the λ loadings, and ρ_c and AVE values for each construct are presented in Table 2, and were examined to evaluate construct reliability. The λ loadings were strong (i.e. ≥ .50) and significant at the α = .05 level (i.e. t-values > 3.21). All of the ρ_c values were > .70, and all of the AVE values were > .50 as recommended. The diagonal elements of the correlation matrix presented in Table 3 have been replaced with $\sqrt{AVE}$ to examine discriminant validity. In line with recommendations from the literature (Teo et al., 2009), all of the $\sqrt{AVE}$ values were greater than the correlations between the constructs and other constructs in the model.

Evaluation of the conceptual model

With the measurement model verified, the conceptual model depicted in Figure 1 was evaluated through SEM. It was hypothesized that perceived mattering would reduce role stress and emotional exhaustion, but enhance job satisfaction. Role stress was expected to enhance emotional exhaustion and reduce job satisfaction. Finally, a negative relationship between emotional exhaustion and job satisfaction was predicted. Both direct and indirect relationships were hypothesized in the framework. Given the expected correlation among the role stressors, their latent disturbances were allowed to covary in the model. The test of the hypothesized model (MA) indicated good model fit.

While the conceptual model was a good fit for the data, the b weights for several pathways in the structural model were not significant (i.e. t < 1.96). These included the paths from PE matters to role ambiguity and emotional exhaustion, from teacher matters to role overload, and from role ambiguity to emotional exhaustion. Removing these pathways and re-specifying the model (MA1) maintained goodness-of-fit. A X^2 difference test further indicated that removing the nonsignificant pathways did not significantly deteriorate fit. Figure 2 displays the final, total group model (MA1) with completely standardized regression coefficients (see Table 4 for a summary of the results latent variable analyses).

As illustrated in Figure 2, PE matters had the strongest direct effect on teacher matters (β = .56, p < .01), and the strongest indirect effects on role ambiguity (β = –.22, p < .01) and job satisfaction (β = .22, p < .01). Teacher matters had the largest direct effect on role ambiguity (β

= .40, p < .01), and the largest indirect effect on job satisfaction (β = .17, p < .01). Of the role stressors, role overload had the largest direct effect on emotional exhaustion (β = .36, p < .01), and role ambiguity had the largest direct effect on job satisfaction (β = −.23, p < .01). Role overload had the largest indirect effect on job satisfaction (β = −.12, p < .05). Emotional exhaustion had a medium and negative direct effect on job satisfaction (β = −.33, p < .05).

**Table 4.** Fit indices for structural equation modeling and multiple group analysis

Model description	X^2	df	X^2/df	CFI	NNFI	SRMR	RMSEA	X^2_{diff} Models	df_{diff}	X^2_{diff}
Confirmatory factor analyses	501.47	209	2.40	.958	.950	.055	.052	---	---	---
Single group models										
Initial total group model (MA)	501.47	209	2.40	.958	.950	.055	.052	---	---	---
Reduced total group model (MA1)	511.49	214	2.39	.958	.950	.060	.052	MA1 to MA	5	10.02[NS]
Teacher/coach model (MB)	386.89	214	1.81	.953	.944	.060	.054	---	---	---
Reduced teacher/coach model (MB1)	391.82	217	1.80	.952	.944	.063	.054	MB1 to MB	4	4.93[NS]
Non-coaching model (MC)	390.38	214	1.82	.948	.939	.072	.060	---	---	---
Reduced non-coaching model (MC1)	393.83	216	1.82	.948	.939	.076	.060	MC1 to MC	2	3.45[NS]
Multiple group models										
Configural invariance (M0)	813.19	436	1.87	.970	.965	.068	.060	---	---	---
Full metric invariance (M1)	840.33	452	1.86	.969	.966	.073	.059	M1 to M0	16	27.14*
Partial metric invariance (M2)	833.97	451	1.85	.970	.966	.073	.059	M2 to M0	15	20.78[NS]
Scalar invariance (M3)	833.97	467	1.79	.971	.969	.073	.057	M3 to M0	31	20.78[NS]
Invariance of error variances (M4)	861.53	490	1.76	.971	.970	.074	.056	M4 to M0	54	48.34[NS]

| Full structural invariance (M5) | 877.31 | 509 | 1.72 | .971 | .971 | .075 | .054 | M5 to M0 | 73 | 64.12[NS] |

Note: Tests of statistical significance are based on the X^2_{diff} in relation to the df_{diff}; SEM: structural equation modeling; CFI: comparative fit index; NNFI: non-normed fit index; SRMR: standardized root mean square residual; RMSEA: root mean square error of approximation; *p < .05; [NS]Not Significant.

Invariance by coaching status

The process of invariance testing began with the specification of separate models for T/Cs (MB) and NCTs (MC) based on MA1. The goodness-of-fit statistics indicated that the model was a good fit for both groups (see Table 3). However, several of the b weights for pathways in the structural model were not significant in both groups. In the T/C model (MB), non-significant pathways included from teacher matters to role conflict, teacher matters to job satisfaction, PE matters to role conflict, and role conflict to job satisfaction. These non-significant pathways were removed, and the resulting model (MB1) had good fit. In the NCT model (MC), non-significant pathways included from teacher matters to role conflict, PE matters to role conflict, and PE matters to job satisfaction. All of these pathways were removed and the NCT model was rerun (MC1), and the model fit remained good.
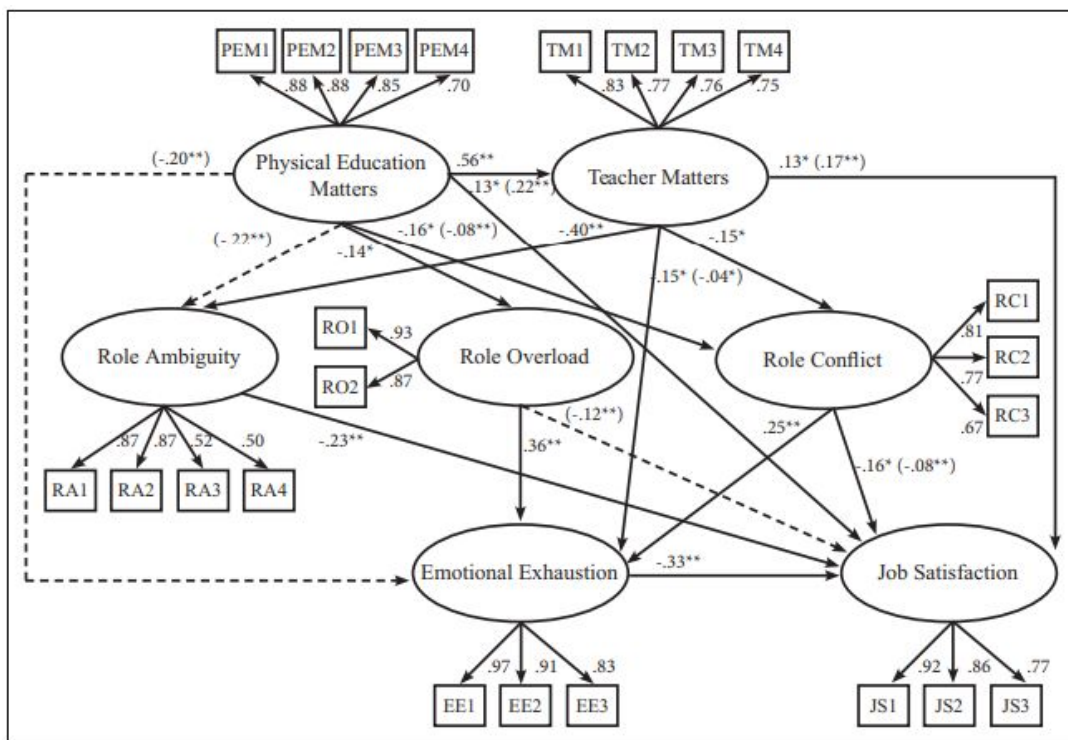
Figure 2. Final structural model with completely standardized regression path coefficients. Values in parentheses represent indirect effects and dashed lines represent a significant indirect effect where there is a non-significant direct effect, *p < .05, **p < .01.

Measurement invariance. Byrne (1994) recommended that only common pathways found to be significant in individual groups be tested for invariance. As a result, all structural pathways

found to be non-significant in the NCT and T/C models were removed from subsequent analyses. Using this adjusted model, tests for measurement invariance began by examining configural invariance through a simultaneous run of both groups (M0; see Table 4). The model fit was good. Metric invariance was examined next (M1). While model fit was good, the X^2 difference test indicated fit was significantly worse than M0, $X^2_{diff}(16) = 27.14$, p = .039. Full metric invariance is not required as long as at least one indicator for each latent construct is invariant (Teo et al., 2009). The model modification indices were examined, and the invariance restraint was released for one job satisfaction item (JS3: "In general, I like working here"). The model was re-specified (M2). The fit remained good, and the X^2 difference test was not significant. Next, scalar invariance (M3) was examined. The model fit was good, and the X^2 difference test was not significant. Finally, the model to examine invariance of error variances (M4) had good fit, and the X^2 difference test was not significant.
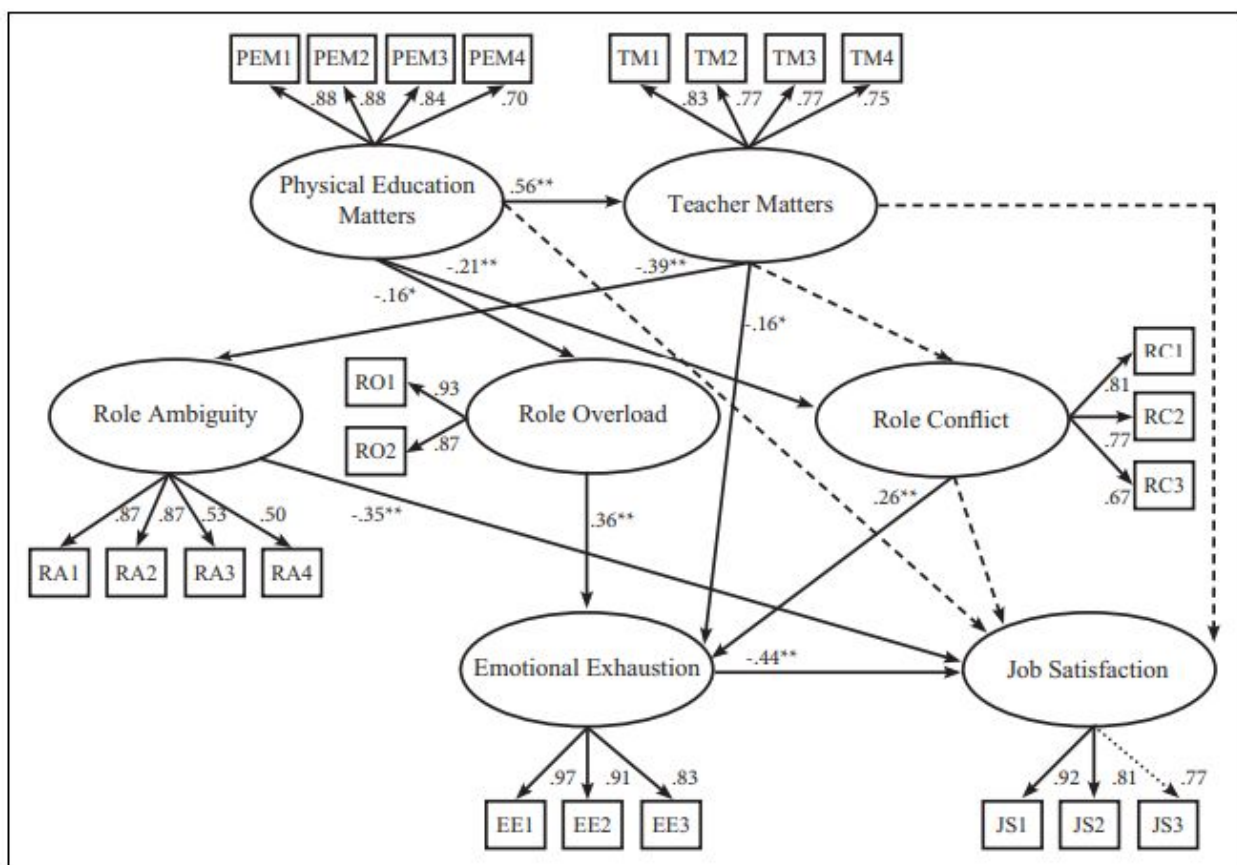
Figure 3. Final invariant model. Only pathways found to be significant across both groups were tested for invariance; dashed arrows represent relationships that were significant for one group, but not both; dotted arrows represent non-invariant indicators in the measurement model, *p < .05, ** p < .01.

Structural invariance. After assuring measurement invariance, analyses were conducted to examine invariance in the structural model. These analyses examined whether or not the T/Cs and NCTs experienced the hypothesized relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction similarly. The test of structural invariance began by specifying all relationships in the structural model to be invariant (M5). The model fit was good,

and 2 difference was not significant (see Table 4). Given that full structural invariance did not significantly deteriorate model fit, no further tests of structural invariance were necessary. These results, therefore, indicate that T/Cs and NCTs experience common pathways in the relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction similarly. Figure 3 includes invariant model using the common metric completely standardized solution.

Discussion

This study evaluated a conceptual model for understanding the relationships among perceived mattering, role stress, emotional exhaustion, and job satisfaction in PE T/Cs and NCTs that was grounded in role socialization theory (Richards, 2015). Results provide general support for the study hypotheses (see Figure 1). As predicted in H1, emotional exhaustion had a strong, negative relationship with job satisfaction. This supports existing literature indicating that burnout is a negative predictor of job satisfaction (Skaalvik and Skaalvik, 2011), and that an important goal of teacher job satisfaction research and practice should be to reduce burnout. This is particularly important given that, through its negative influence on job satisfaction, burnout has been found to increase turnover intentions among teachers (Skaalvik and Skaalvik, 2011).

In H2, the relationship among role stressors and emotional exhaustion and job satisfaction was examined. As has been found previously (Byrne, 1994; Richards et al., 2016b), some (overload and conflict), but not all (ambiguity) role stressors significantly predicted emotional exhaustion. However, all the role stressors significantly decreased job satisfaction either directly, or indirectly through emotional exhaustion. This adds to literature highlighting the relationship between role stress and job satisfaction (Conley and You, 2009) by positing emotional exhaustion as an important mediating variable. Given the importance of job satisfaction both in terms of job performance and career longevity (Judge et al., 2001), reducing stress and emotional exhaustion should be an important mission for schools.

In relation to H3, findings from previous research indicating that perceptions of PE matters positively influence one's perceived mattering as a teacher were confirmed (Richards et al., 2017). Subsequently, the role of perceived mattering on PE teachers' perceptions of role stress, emotional exhaustion, and job satisfaction was examined in H4. In the aggregate model, both teacher matters and PE matters had direct and indirect effects associated with enhanced job satisfaction. This supports prior research reporting that positive psychosocial variables are associated with more positive impressions of the workplace, including higher job satisfaction (Skaalvik and Skaalvik, 2009). Teacher matters had a direct negative effect on role ambiguity and role conflict, whereas PE matters was negatively associated with role conflict and role overload directly, and role ambiguity indirectly. Only teacher matters was directly associated with emotional exhaustion; however, PE matters exhibited a significant indirect effect, particularly through role overload and role conflict. Taken together, the results of this study indicate that enhancing perceived mattering is one potential way to reduce teachers' perceptions of stress and emotional exhaustion while enhancing job satisfaction. It is, therefore, important that school environments are structured in a way that helps teachers feel a sense of connection and community, which includes reducing marginalization so that teachers feel as if their work is valued and supported (Gaudreault et al., 2016).

After establishing relationships in the aggregate model, differences were examined between T/Cs and NCTs (H5). When examined independently, the connection between teacher matters and role conflict and PE matters and role conflict did not reach significance in either

group. In the T/C group, teacher matters and role conflict were not associated with job satisfaction, and in the NCT group, PE matters was not associated with job satisfaction. Nevertheless, the general pattern of hypothesized relationships was similar. Invariance analysis was then used to determine whether T/Cs and NCTs experienced common pathways in the structural model similarly. In concert with previous studies examining stress and burnout in teachers (Byrne, 1994; Richards et al., 2016b), T/Cs and NCTs in this study perceived the constructs in a similar way (i.e. measurement invariance), and common pathways were determined to be invariant across groups. Thus, while there are notable differences across groups, results indicate that in both groups, job satisfaction is reduced by experiencing role stress and emotional exhaustion, and enhanced through perceived mattering.

Implications for practice

Education has been characterized as a stressful profession (Day et al., 2007). Some evidence suggests that it is becoming increasingly stressful with increased student and teacher evaluation, a negative public perception of teaching, and an increase in non-instructional components of teachers' work (Montgomery and Rupp, 2005; Richards et al., 2013; Valli et al., 2007). In part, these factors have led to a reduction in reported teacher satisfaction over previous decades in the US (Markow and Pieters, 2012). Given that evidence generally supports the notion that more satisfied teachers are more effective (Olivier and Venter, 2003), there is a need to create environments that increase the likelihood that teachers will positively appraise their work.

Based on the results of this study, teacher satisfaction can be enhanced by developing school cultures in which PE teachers perceive that they and their discipline matter. While teaching may be an inherently stressful occupation, there are things that administrators and school support personnel can do to reduce role stress, thus enhancing job satisfaction. Role conflict, for example, can be reduced by developing a shared vision for the role of the PE teacher in the context of the school that facilitates common expectations for teacher behavior (Conley and You, 2009). Role overload can be managed through monitoring the amount of work that teachers are asked to perform and then supporting them in their efforts to meet the work demands (Richards et al., 2013). Finally, role ambiguity can be reduced by creating and clearly articulating expectations for job performance and then holding PE teachers accountable for performance in a way that is aligned with these expectations (Biddle, 1986). In particular, a shared vision and clearly articulated expectations for performance in the teaching and coaching roles should be developed so PE teachers understand how they will be held responsible for effective performance in both roles (Ryan, 2008).

A key point underlying the previous recommendation relates to the development of a supportive school environment that fosters perceived mattering. Evidence suggests that perceived mattering is enhanced when PE teachers derive higher levels of personal accomplishment from their work and when they develop resilience (Richards et al., 2017). Resilience, which is the ability to recover from stressful situations quickly, has also been shown to reduce role stress and emotional exhaustion (Day and Gu, 2009; Richards et al., 2016b). Schools that promote the development of resilience by creating supportive, collegial, and nurturing environments are likely to enhance perceived mattering and facilitate job satisfaction. Similarly, perceived mattering is closely connected to perceptions of marginalization (Baumeister and Leary, 1995), so helping to elevate the position of PE in the school is likely to enhance the extent to which physical educators feel as if they matter. This involves advocating at

the level of the profession generally, but evidence also indicates that physical educators can enhance the status of the subject in their own schools through more targeted, localized advocacy (Lux and McCullick, 2011). Helping policymakers and administrators see that quality PE makes a legitimate contribution to a child's educational experience underpins these recommendations.

While this study has recommendations for in-service PE teachers, there are also important implications for the structure of PE teacher education programmes. Beyond content and pedagogy, there is a need to prepare pre-service teachers for the sociopolitical realities of life in schools (Richards et al., 2013). This preparation should focus on skills and strategies for navigating the social milieu of schools (Lacey, 1977), as well as the importance of building a sense of community. Mansfield et al. (2016) recommend infusing a focus on (a) building resilience, (b) creating relationships, (c) pursuing well-being, (d) maintaining motivation, and (e) managing emotions in teacher education programmes. While content and pedagogy are central components of teacher education, they are not sufficient. Teachers who are well prepared for the technical aspects of teaching, but do not possess the social skills needed to implement what they have learned in school environments, are unlikely to succeed, and may burn out and prematurely leave teaching (Mäkelä et al., 2014).

Limitations of the research design

While the current study adds to the developing literature related to PE teacher satisfaction, there are limitations that merit reference. First, the average participant had been teaching for nearly 20 years and was over 45 years old. The clear majority were also Caucasians, and most had advanced degrees. The findings, therefore, may not extend to younger teachers, teachers of color, and those just beginning their careers. In future studies, scholars should make a concentrated effort to oversample these populations. Second, the cross-sectional nature of this study neglects the fact that teachers' perceptions of workplace variables change over time (Carson et al., 2010), and the correlational nature of the study precludes discussion of causal relationships. A repeated measures design could account for these variations.

Third, while the sampling approach allowed for the recruitment of a large response pool across multiple geographic regions, it did not allow for the calculation of a response rate. While recent evidence suggests that a lower response rate may not necessarily mean that the sample is unrepresentative of the population (Lambert and Miller, 2014), the potential for response bias cannot be ruled out. Finally, the self-report nature of the study merits mention. The survey questions reflect perceptions of experiences rather than observations of those experiences in practice. While sensemaking is important because perceptions predict behavior (Taylor and Van Every, 2000), more direct evaluations are possible through observations and fieldwork.

Conclusions and directions for future research

Despite connections between job satisfaction, retention, teacher effectiveness, and student learning (Skaalvik and Skaalvik, 2011), relatively little research has examined factors that relate to the job satisfaction of PE teachers, particularly within the US (Richards et al., 2017). Some findings from the general teacher job satisfaction literature can be extended to PE teacher satisfaction; however, PE teachers must cope with factors such as isolation and marginalization that are not as common among classroom teachers (Laureano et al., 2014; Shoval et al., 2010). Future studies should seek to connect PE teachers' perceptions of the workplace environment

with teaching efficacy and student learning outcomes (e.g. physical activity). Systematic observation of teaching has much to offer in this respect. Researchers may also seek to better understand the episodic nature of job satisfaction, and how workplace events lead to affective responses that may have short- and long-term implications for job satisfaction. Ecological momentary analysis, for example, can be used to examine fluctuations in PE teachers' emotions that influence their job satisfaction during a workday (Carson et al., 2010).

Researchers may also consider examining the role of other variables that may further mediate the relationships examined in this model, such as emotional intelligence (Mousavi et al., 2012) and emotional labor (Lee, 2017), which may also relate to teachers' affective experiences. Further, while research related to PE teachers' perceptions of the workplace environment is important, it is equally important to use more direct measures of teacher stress. Future research could, for example, seek to understand the relationship between self-report measures of stress and satisfaction with more direct measures of biological markers triggered by stress (e.g. blood pressure). While quantitative research is important for understanding the relationships among variables that relate to job satisfaction, the significance of qualitative research should not be understated. The literature related to PE teacher satisfaction to date has been predominately quantitative, with only one identified study using qualitative methods (see Richards et al., 2017). Mixed-methods research, in particular, holds great promise as quantitative research can identify relationships among constructs, and qualitative inquiry allows researchers to gain an in-depth understanding of how PE teachers experience their work lives.

Declaration of Conflicting Interests

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