

# The impact of resilience on role stressors and burnout in elementary and secondary teachers

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**Abstract** The role of a teacher is becoming increasingly complex, and it is more important than ever that teachers develop resilience to overcome stress and burnout. A conceptual framework to explain the ability of resilience to decrease role stress and burnout was developed and tested. Participants included 415 teachers (174 elementary, 241 secondary) who taught in three adjacent school districts in the Midwest of the United States. Data were collected through a cross-sectional survey that included measures of resilience, role stressors, and burnout. Structural equation modeling was used to test the conceptual framework, and invariance analysis examined the equivalence of relationships across elementary and secondary teacher groups. Results generally supported the conceptual framework, and commonly experienced pathways were found to be invariant across groups. This study emphasizes the importance of resilience in helping to reduce perceived teacher stress and feelings of burnout.

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## 1 Introduction and background

Stemming back to Kyriacou and Sutcliffe's (1978) research, teaching has been recognized as an emotionally draining and stressful occupation (Day et al. 2007; Gu and Day 2007). Long days, intense workloads, and limited interactions with other adults are among the reasons for why Ryan (1970) once described teachers as the "ranks of the chalk-soiled, ink stained, over-challenged, under-supported, memo-ridden, privacy-riddled, patience-worn, school-fatigued, lovers of children and ideas" (p. vi). Recent government initiatives have only added to the complexity of these responsibilities (Montgomery and Rupp 2005; Valli et al. 2007). In the United States, this is best exemplified by the No Child Left Behind Act and the Race to the Top Fund, which ushered high stakes testing and accountability into the national education discourse at both the elementary and secondary levels.

At the school level, organizational and contextual factors have been found to play a significant role in shaping the lives and careers of teachers, with workplace stress being cited as a common occurrence (Day and Gu 2010). Teachers face a wide array of stress, such as excessive workload, disruptive students, and lack of support from administrators and parents (Montgomery and Rupp 2005; Conley and You 2009). This stress has been linked to burnout, which is characterized by the depletion of emotional resources, feeling negatively toward others, and losing a feeling of accomplishment in one's work (Maslach et al. 2001). Teachers who feel burned out are less likely to be satisfied with their work and feel a sense of commitment to the school as an organization (Nagar 2012). They are also more likely to transition out of the teaching profession prematurely (Smith and Ingersoll 2004). Recently, the National Commission on Teaching and America's Future reported that 16.8 % of teachers leave the profession each year, which costs an estimated \$7.3 billion (Barnes et al. 2007). While teacher effectiveness varies across all levels of experience, evidence indicates that teachers become more effective through the first years of their careers (Henry et al. 2011), and that turnover has a negative impact on student achievement (Ronfeldt et al. 2013). Further, teachers who feel burned out, but remain in the profession, are unlikely to teach as effectively as those who feel comfortable with their work and working environment (Olivier and Venter 2003).

Supporting teachers' job satisfaction and retaining their commitment and dedication to the profession is integral to both their career longevity and student achievement given that teachers are the foundation upon which the American educational system is built (Day et al. 2007). This sentiment is captured by Stronge et al. (2011) who noted that "one conclusion regarding effective teachers is abundantly clear: the common denominator in school improvement and student success *is* the teacher [emphasis in original]" (351). Various scholars have begun studying resilience as an intrapersonal quality that can help teachers cope with the

stressors they encounter in their work and allow them to thrive rather than just survive in schools (Gloria et al. 2013; Beltman et al. 2011). Resilience has been defined as a malleable, adaptive “process of development that occurs overtime” involving “the ability to adjust to varied situations and increase one’s competence in the face of adverse conditions” (Bobek 2002).

There are numerous stressors associated with teaching in the American public school system, many of which have been exacerbated by public policies that prioritize high states testing and accountability. While these stressors result in intense feelings of role stress and burnout for some teachers, others are able to navigate through them effectively. The former group may transition out of teaching prematurely, while the later is more likely to include teachers who go on to lead long careers in public education. Given that resilience has been found to help individuals cope with stressors, teachers with higher perceived resilience may be less vulnerable to the experience of role stress and burnout, which could increase their career longevity and effectiveness. Grounded in role theory (Linton 1936; Parsons 1951), the purpose of this investigation was to examine the impact of resilience on perceived stress and burnout in elementary and secondary teachers. RQs included: (1) what are the relationships among resilience, role stressors, and burnout? and (2) how do the relationships among resilience, role stress, and burnout vary between elementary and secondary teachers?

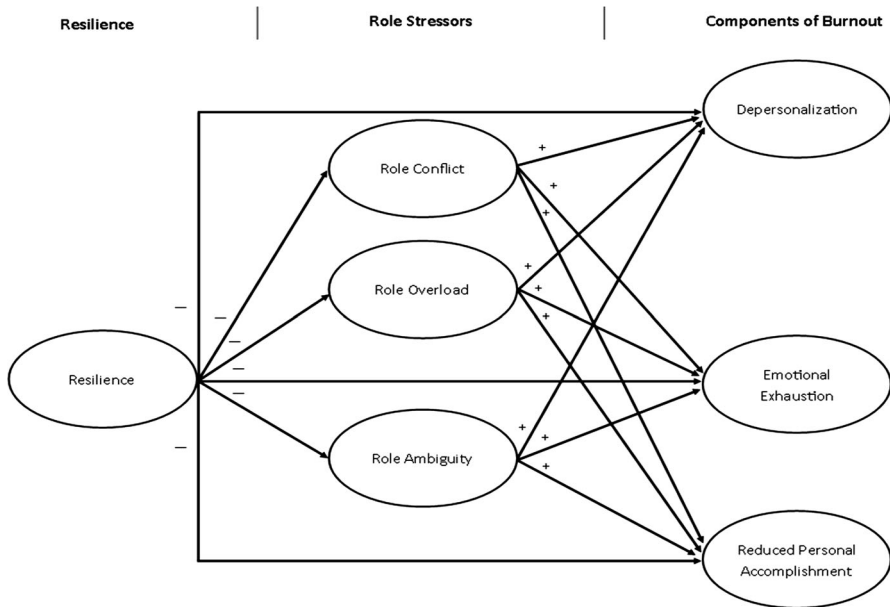
## 2 Developing a conceptual model for the study

Figure 1 depicts a research-based conceptual framework for understanding the relationships among resilience, role stress, and burnout that is grounded in role theory. Generally, we hypothesized that role stress would positively predict burnout, but that resilience would reduce both role stress and burnout. This model assumes that potential stressors are present in all school environments and teachers who develop a higher level of resilience are better able to cope with those stressors, which reduces feelings of role stress and burnout.

### 2.1 Foundational tenants of role theory and role stressors

Important to understanding one’s experience as an educator is the manner in which the role of teacher is socially constructed and contextually bound. Role theory (Linton 1936; Parsons 1951) is a sociological perspective that has been adopted by educational researchers to describe how the occupational role of teacher is conceptualized, particularly in response to the stressors that arise in the school setting (Conley and Woolsley 2000; Conley and You 2009). Through socialization, individuals are taught what it means to fill specific social roles as well as expectations for performance of those roles (Conrad 2004; Richards 2015). Internally and externally enforced norms for performance subsequently guide behavior (Turner 2001).

Role-sets, which can be viewed as the relationships in which a person is involved by virtue of playing a particular social role, are important in conceptualizing



**Fig. 1** Conceptual framework for understanding the relationships among resilience, role stressors, and the components of burnout. It was hypothesized that resilience would negatively predict role stress. Resilience was also hypothesized to negative predict burnout directly and indirectly through the influence on role stress. The (+) symbols represent hypothesized positive relationships and the (-) symbols represent hypothesized negative relationships

expectations for role performance (Merton 1957). A teacher has a role-set for stakeholders in the educational process such as the principal, colleagues, parents, and children (Richards et al. 2013). Interactions with role-sets help social actors understand and identify expectations for behavior, and judge the degree to which they are fulfilling the expected requirements of their work (Turner 2001). When the social actor and role-sets agree upon expectations for performance, role consensus occurs and the role can be performed with little tension (Biddle 1986). Schools where teachers, students, parents, and administrators share relative agreement on enactment of the teacher role are more likely to reflect consensus. A teaching context that promotes role consensus involves a shared technical culture amongst teachers and administrators, and is more likely to foster teacher resilience (Mansfield et al. 2012). However, a lack of consensus increases role stress, which has been linked to burnout (Conley and You 2009; Beehr 1995).

Role stress results from inconsistencies between one's expectations for the performance of a given role and those expectations held by role-sets (Richards et al. 2013; Conley and You 2009). The three most prominent role stressors include role conflict, role overload, and role ambiguity (Turner 2001; Hindin 2007). *Role conflict* occurs when role-sets have varying expectations for behavior that are incompatible in the performance of the specified role (Conley and You 2009). When expectations are markedly different, the teacher may not be able to meet all expectations

simultaneously and must choose how to prioritize their time (Richards et al. 2013). *Role overload* occurs when individuals play more roles than time or resources permit, or when the responsibilities associated with the performance of a particular role are too multifaceted to be fulfilled by one individual (Chan 2003). Finally, *role ambiguity* occurs when expectations for role performance are too vague or incomplete to appropriately guide behavior (Conley and You 2009). Teachers may not understand the expectations of role-sets, which impacts the degree to which they are able to perform the role as intended (Hindin 2007).

## 2.2 Teacher burnout

Associated with role stress is the multidimensional syndrome of burnout (Maslach and Leiter 2008; Gloria et al. 2013), which is an outcome of prolonged engagement in high stress situations (Skaalvik and Skaalvik 2011). Maslach and colleagues (Maslach and Jackson 1986; Maslach et al. 2001) conceptualize burnout as emotional withdrawal from one's work and define it in relation to three interrelated constructs: emotional exhaustion, depersonalization, and reduced personal accomplishment. *Emotional exhaustion* relates to feeling psychologically drained of one's resources (Maslach et al. 2001). Individuals who are emotionally exhausted feel as if they have depleted all of their emotional resources and are overexerted in their work role. *Depersonalization* is marked by a negative, unsympathetic attitude toward others in the work environment (Maslach et al. 1996a). These negative attitudes typically manifest through impersonal interactions with colleagues and students. *Reduced personal accomplishment* denotes the tendency to hold diminished feelings of achievement (Maslach and Leiter 2008).

Research related to grade level has been inconclusive with some research documenting higher levels of burnout among elementary teachers (Yavuz 2009), whereas other research suggests that secondary teachers feel more burned out (Gold et al. 1991). Important to the current study, role conflict, role overload, and role ambiguity have been identified as antecedents to burnout (Byrne 1991; Alarcon 2011). Teachers who perceive role overload are more likely to report burnout than their colleagues who are satisfied with the amount of work they perform (Chan 2003). High levels of role conflict are associated with higher levels of emotional exhaustion and total burnout (Byrne 1991). Finally, role ambiguity has been found to correlate strongly with the dimensions of depersonalization and emotional exhaustion, as well as total burnout (Ventura et al. 2015).

**Hypothesis 1** Research has documented a connection between role stressors and burnout. Therefore, role conflict, role ambiguity, and role overload were hypothesized to predict emotional exhaustion, depersonalization, and reduced personal accomplishment.

## 2.3 Teacher resilience

While much has been learned about teacher stress and burnout, only recently have scholars begun to ask questions related to what helps teachers survive and thrive

in schools (Beltman et al. 2011). Gloria et al. (2013) explain that resilient teachers are those who are able to persist through stressful situations while balancing their needs and those of their students. There has been debate as to whether resilience should be conceptualized as an innate quality, or one that is developed over time (Yonezawa et al. 2011). Seminal studies assumed that resilience was a quality that teachers either possessed or did not possess (Masten and Gramezy 1985); however, scholars have recently begun to view resilience as a construct that can be nurtured and developed. Yonezawa et al. (2011), for example, conceptualize resilience “as a dynamic construct that emerges within the interplay between individuals’ strengths and self-efficacy and social environments in which they live and work” (916).

Resilience has proven important to understanding how some teachers cope with hardship while others succumb to the challenges of their work lives (Day and Gu 2010; Gu and Day 2007; Luthar and Cicchetti 2000). Higher levels of resilience fuel teachers with positive energy required to overcome stressful working conditions (Gu and Day 2007), such as teaching in urban environments (Yonezawa et al. 2011). Mansfield, Beltman, Price, and McConney (2012) included dynamic, school-level factors in their model for understanding teacher resilience, and Pearce and Morrison (2011) found that a supportive environment helped a beginning teacher build resilience. Prior research has also found that teacher effectiveness can be predicted by traits such as perseverance, passion, and life satisfaction, which are associated with resilience (Duckworth et al. 2009; Fleming et al. 2013).

**Hypothesis 2** Resilience is believed to fuel teachers with the capacity to overcome stress. It was, therefore, hypothesized that resilience would reduce the role stressors of role conflict, role overload, and role ambiguity perceived by teachers.

**Hypothesis 3** Given that resilience helps teachers manage and recover from the type of stress that could lead to burnout, higher resilience should be associated with lower levels of burnout. Therefore, the negative effect of resilience on the components of burnout was hypothesized to be both direct and indirect through its effect on role stressors.

## 2.4 Invariance across elementary and secondary teachers

In addition to examining the conceptual framework for all teachers in aggregate, we were interested in whether or not the hypothesized pattern of relationships outlined in Fig. 1 was similar across teachers who taught at the elementary and secondary levels. Teaching at the elementary level is vastly different than teaching in secondary school. Elementary teachers typically work with the same children for the entire day and are more isolated from their teaching colleagues than teachers at the secondary level (Klassen 2010). While there are some differences in predictors of burnout among elementary and secondary teachers, common predictors have been found to be experienced similarly across groups (Byrne 1994). Evidence also indicates that resilience is important in the management of stress in both elementary and secondary teachers (Beltman et al. 2011; Gu and Day 2007). What is less clear

is whether or not the relationships among resilience, role stress, and burnout are similar across levels.

**Hypothesis 4** While the sources of stress vary across teaching levels, elementary and secondary level teachers experience common predictors of burnout in similar ways. Resilience may, therefore, also negatively impact stress and burnout in a similar fashion. It was, therefore, hypothesized that common pathways in the conceptual framework would be invariant across elementary and secondary teacher groups.

### 3 Research methods

#### 3.1 Participants and setting

An email was sent to teachers from three adjacent school districts in the Midwestern United States with a request to participate in the investigation. Across the districts, 1325 teachers (618 elementary, 707 secondary) received the request. One district was located in a small city ( $n = 465$  teachers), one served a rural community ( $n = 723$  teachers), and the third was located in a college town ( $n = 137$  teachers). The district serving the small city was positioned in a community of approximately 70,000 residents across 30 square miles. It included eight elementary, two middle, and two high schools that served over 7500 students, of whom 15 % were English-language learners (ELL), 83 % were White, 20 % had individualized education programs (IEPs), and 70 % were on the free and reduced lunch program. Teachers in the district were predominantly White (97 %), with others identifying as Hispanic (.9 %), Asian (.7 %), African American (.7 %), and Mixed Race (.7 %). The teachers were also skewed toward being more experienced, with 43.9 % having 16 or more years of teaching experience.

The rural school district served residents who did not live in the city limits of either of the first two districts, but occupied the same county. The county that fed into the district included over 170,000 residents across approximately 500 square miles. The district included nine elementary, six middle, and three high schools that served over 12,000 students, of whom 6 % were ELL, 91 % were White, 15 % had IEPs, and 37 % were on the free and reduced lunch program. Teachers were primarily White (98.4 %), with fewer Hispanic (.9 %), Asian (.4 %), and African American (.3 %) racial affiliations. Teachers with five or fewer years of experience made up 20.9 % of the workforce, while 40 % of the teachers had 16 or more years of experience.

The college town school district was located in the same community as a large university that was classified as having “Highest Research Activity” by the 2015 Carnegie Classification of Institutions of Higher Education. The community included approximately 30,000 residents (excluding students attending the university) over eight square miles. The district included two elementary schools and a combined junior/senior high school and served around 2000 students, of whom 6 % were ELL, 81 % were White, 11 % had IEPs, and 15 % were on the free and

reduced lunch program. Teachers in the district were predominately White (98.6 %), with fewer identifying as Asian (.7 %) and African American (.7 %). While a notable percentage of teachers were new to the district (26.7 % had 0–5 years of experience), 40 % had been teaching for 16 or more years.

In total, 433 provided partial responses for an initial response rate of 32.68 %. However, 18 teachers returned non-usable surveys in which they failed to answer several key survey questions. The data was, therefore, eliminated from further analysis and the remaining sample consisted of 415 teachers, for a final response rate of 31 % (see Table 1 for a breakdown of participant information by school district). Of the 415 participants, 400 were Caucasian (96.4 %), 7 were Hispanic

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

Category	Subcategory	Total sample (n = 415) Count (%) M (SD)	Small city (n = 154) Count (%) M (SD)	Rural community (n = 213) Count (%) M (SD)	College town (n = 48) Count (%) M (SD)
Gender	Male	121 (29.2 %)	45 (29.2 %)	60 (28.2 %)	16 (33.3 %)
	Female	294 (70.8 %)	109 (70.8 %)	153 (71.8 %)	32 (66.7 %)
Years teaching		16.90 (11.43)	17.92 (12.22)	16.51 (10.92)	15.29 (10.94)
Race/ethnicity	Caucasian	400 (96.4 %)	147 (95.5 %)	206 (96.7 %)	48 (97.9 %)
	African American	4 (1.0 %)	2 (1.3 %)	2 (.9 %)	0 (0 %)
	Hispanic	7 (1.7 %)	4 (2.6 %)	3 (1.4 %)	0 (0 %)
	Native American	1 (.2 %)	0 (0 %)	1 (.5 %)	0 (0 %)
	Mixed race	1 (.2 %)	1 (.6 %)	0 (0 %)	0 (0 %)
	Other	2 (.5 %)	0 (0 %)	1 (.5 %)	1 (2.1 %)
Education	Bachelor's	150 (36.1 %)	48 (31.2 %)	83 (39.0 %)	19 (39.6 %)
	Advanced degree	265 (63.9 %)	106 (68.8 %)	130 (61.0 %)	29 (60.4 %)
School subject	Core	279 (67.2 %)	102 (66.2 %)	148 (69.5 %)	29 (60.4 %)
	Non-Core	136 (32.8 %)	52 (33.8 %)	65 (30.5 %)	19 (39.6 %)
Teaching level	Elementary	174 (41.9 %)	57 (37.0 %)	88 (41.3 %)	29 (60.4 %)
	Secondary	241 (58.1 %)	97 (63.0 %)	125 (58.7 %)	19 (39.6 %)
Students/class		23.99 (8.37)	22.44 (6.13)	25.04 (9.58)	22.68 (5.84)
Hours/day		5.35 (1.17)	5.28 (1.32)	5.49 (1.00)	4.91 (1.26)
Prep time		.87 (.34)	.91 (.40)	.83 (.28)	.87 (.35)
Total prepare		3.01 (1.72)	3.09 (2.10)	2.91 (1.51)	3.22 (1.19)

*Years Teaching* years of teaching experience, *Students/Class* average number of students in each class, *Prep Time* time (in hours) allocated by the school for lesson preparation, *Total Prepare* time (in hours) spent by the teacher inside and outside of school for lesson preparation (includes time allocated by the school)



(1.7 %), 4 were African American (1.0 %), 1 was Native American (.2 %), 1 was Mixed Race (.2 %), and 2 identified as Other (.5 %). The average participant had been teaching for 16.90 years ( $SD = 11.43$ ), held a master's degree ( $n = 231$ , 55.7 %), and had taught in an average of 3.13 different schools over their careers ( $SD = 2.20$ ). Related to subject affiliation, 279 teachers taught primarily core subjects (e.g., mathematics, language arts, science) and 136 taught primarily non-core subjects (e.g., physical education, art, music). The participants were made up of 174 elementary (41.93 %) and 241 (58.07 %) secondary teachers who spent an average of 5.35 h per day teaching ( $SD = 1.17$ ) and had 23.99 students per class ( $SD = 8.37$ ). They had approximately 52.20 min of allocated planning time per day ( $SD = 20.40$ ), but spent a total of 3.01 total hours per day preparing lessons ( $SD = 1.72$ ).

### 3.2 Research Procedures and Instrumentation

Following university research ethics board approval, initial district contact was made through the three superintendents' offices. All agreed to allow their teachers to participate in the study and the researchers subsequently contacted the teachers via email. The email instructed teachers who were interested in participating to follow a URL link that redirected them to an online survey. The survey consisted of 66 items, including a demographic questionnaire (25 items), the Teacher Role Stressors Survey (TRSS; 9 items), the Maslach Burnout Inventory-Educators Survey (MBIES; 22 items), and the 10-item version of the Connor-Davidson Resilience Scale (CD-RISC 10; 10 items). A pilot study was conducted prior to the launch of the survey to gauge the time commitment and identify questions that might lead to misunderstandings. Pilot survey respondents included 35 teachers who did not subsequently participate in the study. Based on pilot data, minor modifications were made to the structure and wording of survey questions, and it was estimated that the survey would take between 15 and 20 min to complete.

#### 3.2.1 Teacher role stressors

Conley and You (2009) developed the TRSS to measure role conflict, role ambiguity, and role overload among members of the teaching profession. Participants were asked to respond to the nine-item TRSS by rating the accuracy of each item relative to their personal experience. Responses were set to a seven-point Likert-type scale anchored by 1 (very inaccurate) and 7 (very accurate). Example questions included: "I feel certain about how much authority I have" (role ambiguity; reverse coded), "I often work under incompatible policies and procedures" (role conflict), and "I am rushed in doing my job" (role overload). Internal consistency for the subscales of the TRSS has been demonstrated in previous research (Conley and You 2009), and was adequate to good in the current investigation (Cronbach's  $\alpha$  ranged from .77 to .82).

### 3.2.2 *Teacher burnout*

Maslach et al. (1996b) developed the MBI-ES to measure the burnout facets of emotional exhaustion, depersonalization, and reduced personal accomplishment among teachers. Participants responded to 22 burnout-related questions on a seven-point Likert-type scale anchored by 0 (never) and 6 (every day). Example questions include: “I can easily understand how my students feel about things” (reduced personal accomplishment; reverse scored), “I feel I treat some students as if they were impersonal objects” (depersonalization), and “I feel emotionally drained from my work” (emotional exhaustion). Internal consistency for the MBI-ES has been documented in previous research (Maslach et al. 1996b), and ranged from adequate to very good in the current investigation (Cronbach’s  $\alpha$  ranged from .74 to .90).

### 3.2.3 *Teacher resilience*

Connor and Davidson (2003) developed the Connor-Davidson Resilience Scale (CD-RISC) as a multi-faceted measure of resilience. Using the 25 items included in the original CD-RISC, Campbell-Sills and Stein (2007) created and validated a 10-item version, the CD-RISC 10. Whereas the factor structure of the CD-RISC has been unstable across studies (e.g., Lamond et al. 2008), the CD-RISC 10 has consistently demonstrated a stable, unidimensional factor structure (e.g., Campbell-Sills and Stein 2007; Richards et al. 2014). Therefore, the CD-RISC 10 was administered as a unidimensional measure of resilience in the current investigation. Participants were asked to respond to the resilience items by indicating the extent to which the items related to their experiences in the past month. Responses were set to a five-point, Likert-type scale anchored by 0 (not true at all) and 4 (true nearly all the time). Example items include: “I am able to adapt when changes occur” and “during times of stress/crisis, I know where to turn for help.” Internal consistency for the CD-RISC 10 has been demonstrated previously (Campbell-Sills and Stein 2007; Richards et al. 2014), and was good in the current study (Cronbach’s  $\alpha = .80$ ).

## 3.3 Analytic procedure

Preceding statistical analysis, the researchers conducted standard procedures for data screening (Tabachnick and Fidell 2013). The data were checked for normality and linearity; and the assumptions associated with SEM were evaluated. Following data screening, items were recoded as necessary and internal consistency assessments for all scales and subscales were conducted using Cronbach’s coefficient  $\alpha$ . It was determined that all factors exceeded the  $\alpha = .70$  standard for internal consistency and indicators for each of the factors were averaged into composite scores. Once the scales and subscales were created, descriptive statistics were calculated and independent samples *t* tests were used to examine differences between elementary and secondary teacher for all constructs.

### 3.3.1 Confirmatory factor analysis

Prior to proceeding with SEM analyses, a confirmatory factor analysis (CFA) was conducted to verify the psychometric quality of the instruments used in the study. All variables were entered into a single CFA in order to examine latent correlations among study constructs, as well as convergent and discriminant validity (Teo et al. 2009). Convergent validity was examined through factor loadings, composite reliability ( $\rho_c$ ), and average variance extracted (AVE) scores. Factor loadings that have  $t$  values above 1.96 are significant at the  $\alpha = .05$  level and are considered good indicators of the construct (Brown 2006). The  $\rho_c$  values should be .70 or higher, and AVE values should be approximately .50 or higher (Diamantopoulos and Siguaw 2000; Fornell and Larcker 1981). Discriminant validity examines the independence of constructs in the model, and was evaluated by examining latent correlations among the variables. Low to moderate correlations indicate that the latent variables are related, but relatively independent from one another (Byrne 1998).

### 3.3.2 The Statistical model to be estimated

After verifying the factor structure, the relationships among variables outlined in Fig. 1 were evaluated using SEM in LISREL 9.1 (Jöreskog and Sörbom 2013). SEM evaluates relationships among latent (i.e., unmeasured) constructs that are supported by logic or theory (Schreiber et al. 2006), and is based on variance and covariance matrix estimation whereby all variables in the model are evaluated simultaneously (Byrne 1998). SEM analyses include both a measurement model, which represents the relationships among manifest indicators and latent factors (i.e., the model tested through CFA), and a structural model, which includes the predictive relationships among latent constructs. (Schreiber et al. 2006). After specifying the structural model, significance tests for the regression coefficients of the relationships among the latent constructs were examined. Non-significant pathways were removed and the final model was obtained when all pathways were significant (Byrne 1998).

The direct effects of resilience on role stress and burnout, as well as the indirect effects of resilience on burnout as mediated through role stress were evaluated using LISREL 9.1 (Jöreskog and Sörbom 2013). We anticipated what MacKinnon, Fairchild, and Fritz (2007) referred to as an inconsistent mediation model. This occurs when the sign of the direct effect (i.e., resilience on burnout) differs from the sign of the indirect effects (i.e., role stress on resilience, resilience on burnout). Specifically, we hypothesized that that role stress would positively predict burnout (Hypothesis 1), but that resilience would negatively predict role stress (Hypothesis 2) and burnout (Hypothesis 3). This results in a negative direct effect, and an indirect effect that contains both negative and positive components.

### 3.3.3 Invariance analysis

Invariance analysis was used to examine differences in the hypothesized model based on teaching level (Hypothesis 4). Tests of invariance examine whether certain

elements of the hypothesized model are invariant or equivalent across groups. Since increasingly more restrictive models are nested within less restrictive models, the model  $\chi^2$  values can be compared using  $\chi^2$  difference tests (Byrne 1998). A non-significant  $\chi^2$  difference test indicates that the models are not significantly different and the groups are invariant relative to the parameters tested. In testing for multi-group invariance, separate models are first estimated for each group. Pathways in the structural model that are not significant in both groups are removed from the model before testing for invariance (Byrne 1991).

Next, equivalence of the measurement model must be established before pathways in the structural model can be interpreted (Byrne 1998). Teo and colleagues (2009) recommend a three-step process for examining measurement invariances that involves configural, metric, and scalar invariance. Configural invariance establishes a baseline model through a simultaneous run of both groups without any invariance restraints. This baseline model is used as a comparison for all successively restrictive models. In the second step, metric invariance is established by constraining the factors loadings to be invariant across groups. Finally, scalar invariance compares the intercepts of each measured variable across groups (Teo et al. 2009). After verifying the invariance of the measurement model, it is appropriate to examine the invariance of the relationships among latent constructs in the structural model (Byrne 1998). Structural invariance would indicate that groups experienced the relationships among variables similarly.

### 3.3.4 Goodness-of-fit statistics

In all latent variable analyses, fit statistics were used to evaluate the degree to which the hypothesized model fit the data (Hatcher 1994). Good model fit provides evidence supporting the specified relationships among variables, whereas poor model fit indicates that the model has been misspecified (Schreiber et al. 2006). The current study utilized multiple goodness-of-fit indices including  $\chi^2$ , 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). Traditionally, a non-significant  $\chi^2$  was used as evidence of model fit. However, the  $\chi^2$  test is sensitive to sample size and is no longer considered a reliable criterion for model evaluation. Instead, the ratio of  $\chi^2$  to its degrees of freedom ( $\chi^2/df$ ) was employed with a ratio of  $\leq 3.00$  indicating good fit (Schreiber et al. 2006). NNFI and CFI values  $\geq .95$ , and SRMR and RMSEA  $\leq .08$  also indicate good model fit (Brown 2006).

## 4 Results

### 4.1 Descriptive statistics

Table 2 displays the means and standard deviations for each study construct. In relation to the range of values on the scales, participants expressed low levels of role

**Table 2** Descriptive statistics of the constructs

Construct	Overall Sample ( <i>n</i> = 415)		Elementary ( <i>n</i> = 174)		Secondary ( <i>n</i> = 241)		<i>t</i> test ( <i>df</i> = 413)		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i> value	<i>P</i>	<i>D</i>
RES	3.22	.46	3.19	.48	3.23	.44	−.90	.370	.09
RC	3.41	1.49	3.31	1.52	3.49	1.46	−1.18	.238	.11
RA	2.45	.99	2.39	.95	2.48	1.03	−.96	.339	.09
RO	5.50	1.47	5.65	1.48	5.40	1.46	1.72	.087	.16
EE	2.90	1.32	2.87	1.39	2.92	1.26	−.40	.691	.04
DP*	1.39	1.18	1.22	1.15	1.52	1.19	−2.52	.012	.24
RPA	1.08	.73	1.01	.71	1.12	.74	−1.62	.106	.16

Emotional exhaustion, depersonalization, and personal accomplishment are set to a seven-point scale ranging from 0 to 6; role ambiguity, role conflict, and role overload are set to a seven-point scale ranging from 1 to 7; and resilience is set to a five-point scale ranging from 0 to 4, *RES* resilience, *RC* role conflict, *RA* role ambiguity, *RO* role overload, *EE* emotional exhaustion, *DP* depersonalization, *RPA* reduced personal accomplishment

\*  $p < .05$

ambiguity, depersonalization, emotional exhaustion, and reduced personal accomplishment; moderate levels of role conflict; and high levels of role overload and resilience. Independent-samples *t* tests indicated that secondary teachers reported significantly higher depersonalization,  $t(413) = -2.52$ ,  $p = .012$ ,  $d = .24$ , but no other differences were significant.

## 4.2 Confirmation of the factor structure

The CFA, which evaluated all measures simultaneously, indicated good model fit when participants were considered in aggregate and separated by teaching level (See Table 3). Factor loadings and  $\rho_c$  and AVE for the constructs are presented in Table 4. Factor loadings were all strong and significant at the  $\alpha = .001$  level (i.e., associated with *t* values above 3.29) when the participants were examined in aggregate and by teaching level. The majority of  $\rho_c$  and AVE values were in the acceptable range (i.e.,  $\rho_c > .70$  and  $AVE > .50$ ). AVE was slightly below the recommended cut point for depersonalization and reduced personal accomplishment when examined for the total sample, elementary teachers, and secondary teachers. AVE was also slightly low for resilience in the total sample and in the secondary teacher group. Table 5 displays the latent variable correlation matrices for all participants in aggregate, and divided by elementary and secondary teachers. The relationships in the correlation matrices match the hypothesized relationships: role stressors and the facets of burnout correlated positively with one another and negatively with resilience. Most correlations were significant, but were not so strong as to indicate that the constructs were redundant, which supports discriminant validity.

**Table 3** Fit indices for structural equation modeling and multiple group analysis

Model description	$\chi^2$	Df	$\chi^2/df$	CFI	NNFI	SRMR	RMSEA	$\chi^2_{diff}$	Models	$Df_{diff}$	$\chi^2_{diff}$
<b>Confirmatory factor analyses</b>											
Pooled total sample	586.55	278	2.11	.97	.97	.06	.05	—	—	—	—
Elementary teachers	443.07	278	1.59	.97	.96	.07	.06	—	—	—	—
Secondary teachers	465.52	278	1.67	.97	.97	.06	.05	—	—	—	—
<b>Single group models</b>											
Initial total group model (MA)	586.55	278	2.11	.97	.97	.06	.05	—	—	—	—
Reduced total group model (MA1)	589.06	281	2.10	.97	.97	.05	.05	MA1 to MA	3	2.51 <sup>NS</sup>	—
Secondary model (MB)	466.73	281	1.66	.97	.97	.06	.05	—	—	—	—
Elementary model (MC)	447.43	281	1.59	.97	.96	.07	.06	—	—	—	—
Reduced elementary model (MC1)	452.30	284	1.59	.97	.96	.08	.06	MC1 to MC	3	4.87 <sup>NS</sup>	—
<b>Multiple group models</b>											
Configural invariance (M0)	1105.79	568	1.95	.96	.95	.07	.06	—	—	—	—
Full metric invariance (M1)	1174.05	587	2.00	.96	.95	.08	.06	M1 to M0	19	68.26*	—
Partial metric invariance (M2)	1133.05	585	1.94	.96	.95	.08	.06	M2 to M0	17	27.26 <sup>NS</sup>	—
Scalar invariance (M3)	1133.05	602	1.88	.96	.96	.08	.06	M3 to M0	34	27.26 <sup>NS</sup>	—
Full Structural Invariance (M4)	1165.81	624	1.87	.96	.96	.08	.06	M4 to M0	56	60.02 <sup>NS</sup>	—

Tests of statistical significance are based in the  $\chi^2_{diff}$  in relation to the  $\chi^2_{diff}$ -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

\*  $p < .05$ , <sup>NS</sup> not significant

**Table 4** Convergent validity for constructs in aggregate and divided by males and females

Construct	Overall sample ( $n = 415$ )			Elementary ( $n = 174$ )			Secondary ( $n = 241$ )		
	FL	$\rho_c$	AVE	FL	$\rho_c$	AVE	FL	$\rho_c$	AVE
RES		.83	.49		.84	.50		.82	.48
RES1	.74*			.74*			.73*		
RES2	.70*			.71*			.70*		
RES3	.69*			.71*			.69*		
RES4	.69*			.70*			.68*		
RES5	.68*			.69*			.67*		
RC		.79	.54		.81	.60		.75	.50
RC1	.79*			.83*			.76*		
RC2	.75*			.75*			.75*		
RC3	.66*			.74*			.59*		
RA		.80	.51		.81	.52		.79	.51
RA1	.83*			.76*			.91*		
RA2	.76*			.73*			.74*		
RA3	.72*			.71*			.70*		
RA4	.49*			.67*			.40*		
RO		.82	.70		.77	.63		.86	.75
RO1	.91*			.85*			.94*		
RO2	.76*			.73*			.79*		
EE		.92	.80		.94	.85		.92	.79
EE1	.92*			.95*			.91*		
EE2	.92*			.94*			.90*		
EE3	.85*			.87*			.85*		
DP		.76	.41		.75	.40		.76	.42
DP1	.88*			.86*			.90*		
DP2	.86*			.85*			.85*		
DP3	.48*			.54*			.44*		
DP4	.40*			.39*			.44*		
DP5	.39*			.32*			.40*		
RPA		.77	.46		.76	.45		.78	.47
RPA1	.71*			.78*			.75*		
RPA2	.71*			.65*			.69*		
RPA3	.65*			.65*			.67*		
RPA4	.63*			.57*			.63*		

FL factor loading,  $\rho_c$  composite reliability, AVE average variance extracted

\*  $p < .001$

### 4.3 Evaluation of the conceptual framework

In the conceptual framework (Fig. 1), it was hypothesized that role stressors would predict burnout (Hypothesis 1), but that resilience would reduce the perception of

**Table 5** Latent correlations among variables

Constructs	1.	2.	3.	4.	5.	6.	7.
For all participants in aggregate ( <i>n</i> = 415)							
1. RES	1.00						
2. EE	-.32**	1.00					
3. RPA	-.58**	.42**	1.00				
4. DP	-.33**	.72**	.50**	1.00			
5. RA	-.27**	.42**	.41**	.41**	1.00		
6. RC	-.18**	.57**	.39**	.55**	.47**	1.00	
7. RO	-.23**	.63**	.25**	.40**	.34**	.62**	1.00
For elementary teachers ( <i>n</i> = 174)							
1. RES	1.00						
2. EE	-.31**	1.00					
3. RPA	-.69**	.38**	1.00				
4. DP	-.31**	.72**	.51**	1.00			
5. RA	-.39**	.42**	.46**	.38**	1.00		
6. RC	-.15 <sup>NS</sup>	.55**	.27**	.52**	.44**	1.00	
7. RO	-.16 <sup>NS</sup>	.73**	.23*	.46**	.39**	.62**	1.00
For secondary teachers ( <i>n</i> = 241)							
1. RES	1.00						
2. EE	-.32**	1.00					
3. RPA	-.52**	.44**	1.00				
4. DP	-.35**	.72**	.49**	1.00			
5. RA	-.22**	.41**	.39**	.45**	1.00		
6. RC	-.22*	.58**	.29**	.57**	.51**	1.00	
7. RO	-.28**	.57**	.27**	.36**	.31**	.63**	1.00

RES resilience, RC role conflict, RA role ambiguity, RO role overload, EE emotional exhaustion, DP depersonalization, RPA reduced personal accomplishment

\*  $p < .05$ , \*\*  $p < .01$ , <sup>NS</sup> Not Significant (two-tailed)

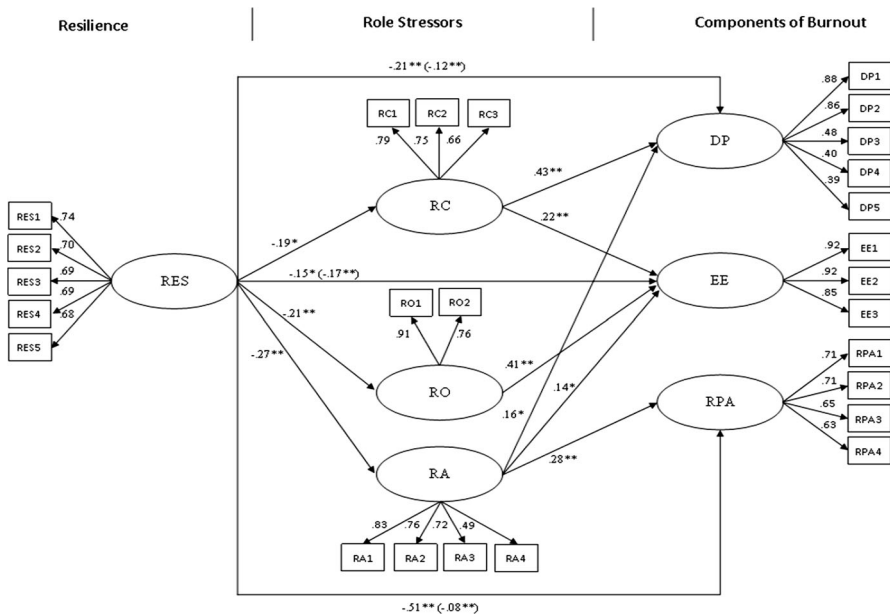
role stress (Hypothesis 2) and burnout (Hypothesis 3). Given that role conflict, role ambiguity, and role overload are all related in that they are forms of role stress, their latent disturbances (i.e., error terms) were allowed to covary in the model. The same was true for emotional exhaustion, reduced personal accomplishment, and depersonalization, which are all facets of burnout.

The results of the SEM analyses are summarized in Table 3. The initial test of the hypothesized model (MA) showed that fit was good,  $\chi^2(278) = 586.55$ ,  $p < .001$ ; CFI = .97; NNFI = .97; SRMR = .05; RMSEA = .05. However, the pathways from role overload to reduced personal accomplishment, role overload to depersonalization, and role conflict to reduced personal accomplishment were non-significant (i.e.,  $t < 1.96$ ). The model was respecified without these pathways (MA1) and the fit remained good,  $\chi^2(281) = 589.06$ ,  $p < .001$ ; CFI = .97; NNFI = .97; SRMR = .05; RMSEA = .05. A  $\chi^2$  difference test indicated



removing the non-significant pathways in MA did not result in a significantly worse fitting model (MA1). Figure 2 displays the final, total group model (MA1) with completely standardized regression coefficients.

Next, the completely standardized regression pathways were examined relative to study hypotheses. Relative to Hypothesis 1, the strongest regression pathway from a role stressor to component of burnout was role conflict to depersonalization ( $\beta = .43, p < .01$ ). For Hypothesis 2, the strongest connection between resilience and the role stressors was resilience to role ambiguity ( $\beta = -.27, p < .01$ ). In reference to Hypothesis 3, both direct and indirect effects in the relationship between resilience and the component of burnout were examined, with role stressors acting as mediating variables. The direct effect of resilience on reduced personal accomplishment was strongest ( $\beta = -.51, p < .01$ ), with a significant indirect effect mediated through role ambiguity ( $\beta = -.08, p < .01$ ), making the total effect .59 ( $p < .01$ ). Next strongest was the direct effect of resilience on depersonalization ( $\beta = -.21, p < .01$ ), with a significant indirect effect mediated through role conflict and role ambiguity ( $\beta = -.12, p < .01$ ), making the total effect .33 ( $p < .01$ ). Finally, the direct effect from resilience to emotional exhaustion was also significant ( $\beta = -.15, p < .05$ ), with a significant indirect effect mediated through all three role stressors ( $\beta = -.17, p < .01$ ), making the total effects .32 ( $p < .01$ ).



**Fig. 2** Final structural model with completely standardized regression path coefficients. Values in parentheses represent the indirect effects of resilience on the components of burnout mediated through the role stressors,  $\chi^2(281) = 589.06, p < .001$ ; CFI = .97; NNFI = .97; SRMR = .05; RMSEA = .05, RES resilience, RC role conflict, RA role ambiguity, RO role overload, EE emotional exhaustion, DP depersonalization, RPA reduced personal accomplishment, \* $p < .05$ , \*\* $p < .01$

## 4.4 Invariance between elementary and secondary teachers

Invariance analyses began with tests of measurement invariance before examining the relationships among latent variables in the structural model (see Table 3).

### 4.4.1 Measurement invariance

The process for testing invariance between groups began with the specification of separate models for secondary (MB) and elementary (MC) teachers. The results indicated that the model was a good fit for both secondary teachers and elementary teachers. However, several of the regression pathways in the structural model were not significant in the elementary teacher sample. These included the pathways from resilience to role conflict, role ambiguity to emotional exhaustion, and role ambiguity to depersonalization. These non-significant pathways were removed and the elementary teacher model was respecified (MC1). Model fit remained good. A  $\chi^2$  difference test indicated removing the non-significant pathways in MC did not result in a significantly worse fitting model in MC1.

Byrne (1994) recommended that only common pathways found to be significant in individual group analyses be tested for invariance. Therefore, all structural pathways found to be non-significant in the elementary teacher model were removed from subsequent tests of invariance. Using this adjusted model, configural invariance was examined through a simultaneous run of both elementary and secondary teacher groups without any invariance restraints (M0). The model fit was good. Next, a metric invariance model was estimated (M1) by restraining the factor loadings across groups. While the fit for this model was good, the  $\chi^2$  difference test indicated that fit was significantly worse than M0,  $\chi^2_{\text{diff}}(19) = 68.75, p < .001$ .

Full metric invariance is not required for the examination of structural invariance as long as at least one indicator on each latent construct is invariant (Teo et al. 2009). Based on model modification indices, the invariance restraints of two indicators loading on the role ambiguity construct (RA2 and RA4) were identified as causing the greatest increase in  $\chi^2$ . The invariance restraints on these two items were removed and the model was respecified. The fit of the resulting partial metric invariance model (M2) was good, and the  $\chi^2$  difference test was not significant, which provided evidence of partial metric invariance. Scalar invariance (M3) was examined by adding the restraint of indicator intercept invariance to M2. As recommended by Byrne (1998), invariance restraints were not added for the intercepts of the variables that did not pass metric invariance (i.e., RA2 and RA4). The model fit was good, and the  $\chi^2$  difference test was not significant, which is evidence of scalar invariance.

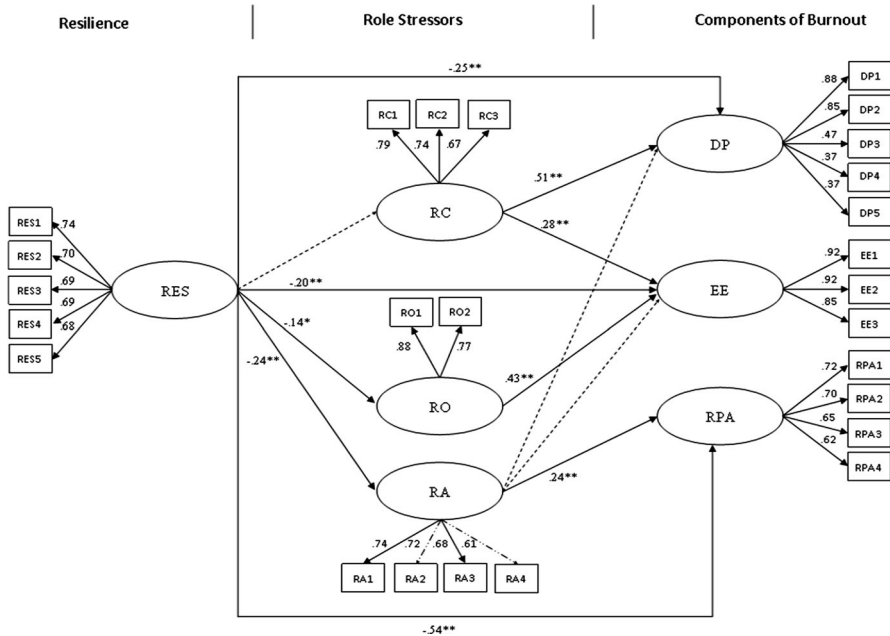
### 4.4.2 Structural invariance

Next, the invariance of relationships between latent constructs in the structural model were examined. This analysis examined whether or not elementary and secondary teachers experience common structural pathways in the same way (Hypothesis 4). Testing structural invariance began by specifying all relationships in

the structural model as invariant (M4). The model fit was good, and the  $\chi^2$  difference was not significant, so it was concluded that no further tests of invariance were necessary. This indicates that elementary and secondary teachers experience common pathways in the relationships among resilience, role stress, and burnout in similar ways. Figure 3 includes the model with invariant pathways represented by the common metric completely standardized solution.

### 5 Discussion

The purpose of this investigation was to evaluate a research-based conceptual model for understanding the relationships among resilience, role stress, and burnout in elementary and secondary teachers. The analytic approach was guided by four hypotheses which indicated that role stressors would positively predict the components of burnout (Hypothesis 1), resilience would reduce role stress (Hypothesis 2) and burnout (Hypothesis 3), and common pathways in elementary and secondary teacher models would be invariant (Hypothesis 4). Initial comparisons of the study variables indicated that, with the exception of depersonalization, elementary and secondary teachers experienced similar levels of role stress,



**Fig. 3** Final invariant model. Only pathways found to be significant across elementary and secondary groups were tested for invariance; dashed arrows represent relationships that were significant for secondary, but not elementary teachers; broken arrows represent non-invariant items in the measurement model;  $\chi^2(624) = 1165.81, p < .001$ ; CFI = .96; NNFI = .96; SRMR = .08; RMSEA = .06; RES resilience, RC role conflict, RA role ambiguity, RO role overload, EE emotional exhaustion, DP depersonalization, RPA reduced personal accomplishment, \* $p < .05$ , \*\* $p < .01$

burnout, and resilience. Prior research, while inconclusive, has reported differences among teachers across school levels (Yavuz 2009; Gold et al. 1991). The shifting policy landscape surrounding education has introduced stressors related to high stakes testing and teacher accountability across all grade levels (Montgomery and Rupp 2005; Valli et al. 2007), and it is possible that all teachers now experience similar levels of role stress and burnout.

As predicted in Hypothesis 1, role stress positively predicted burnout. Not all of the facets of burnout were predicted by each type of role stress, but each facet was predicted by at least one role stressor. These findings mirror those reported previously in which role stressors each predicted some, but not all, facets of burnout (Byrne 1991; Ventura et al. 2015). In reference to Hypothesis 2, teachers who feel higher levels of resilience may be better able to navigate the sociopolitical landscape of the schools in which they work and derive less stress from interactions with role-sets (Richards et al. 2013; Richards 2015). While additional research will be necessary to more completely explore the mechanism whereby more resilient teachers perceive lower role stress, one explanation is that these teachers perceive higher levels of role consensus (Turner 2001; Biddle 1986). This could manifest itself in a stronger sense of community that may lead teachers to have greater confidence in their abilities to meet expectations (Richards et al. 2013). In relation to Hypothesis 3, resilience reduced the perception of burnout directly as well as indirectly as mediated through the reduction in perceived role stress. It appears as if teachers who develop higher levels of resilience feel less emotionally drained, derive a greater sense of satisfaction from their work, and are able to interact positively with others.

In considering Hypothesis 4, our findings are similar to those of Byrne (1991). When separate SEM analyses were conducted for elementary and secondary teachers, there were inconsistencies in significant model pathways. For elementary teachers, resilience did not significantly reduce role conflict, and role ambiguity did not predict depersonalization or emotional exhaustion. Despite specific differences found in the pattern of structural relationship between the elementary and secondary teachers, the general pattern of hypothesized relationships in the conceptual framework was similar for both groups. Resilience reduced role stressors and the components of burnout, and role stressors positively predicted the components of burnout. Invariance analyses, therefore, confirmed that the common pathways in the conceptual framework between the two groups were invariant, indicating that resilience reduces role stressors and burnout similarly across groups.

## 5.1 Implications for research and practice

Education has long been characterized as an emotionally draining profession (Day et al. 2007; Ryan 1970), and may be even more challenging given the introduction of recent government mandates and high stakes testing (Montgomery and Rupp 2005). The stress involved in teaching has implications for both teacher recruitment and retention (Ingersoll and Smith 2004) as well as teacher effectiveness. Teachers who perceive high levels of role stress and burnout, but remain in the profession, are less likely to feel satisfied with their work and committed to the organizational role

(Nagar 2012), and do not teach at the same level of quality (Olivier and Venter 2003). The results of this study indicate that teacher resilience can help teachers in elementary and secondary settings avoid negative consequences associated with workplace stressors. When conceptualizing resilience as a dynamic process rather than a static construct, researchers can begin to explore the social, cultural, and contextual factors that influence teachers' ability to develop resiliency (Pearce and Morrison 2011).

Research generally supports the notion that certain elements of the work environment may help build resiliency, while others threaten teachers' ability to be resilient (Yonezawa et al. 2011; Sammons et al. 2007). Factors that support the development of teacher resilience include adequate time to accomplish work, professional development opportunities, adequate equipment and materials, caring collegial relationships, high expectations, and opportunities for shared decision making (Benard 2003; Mansfield et al. 2012). Thus, school policies could be developed to aid teachers in the development of resilience so they are better able to meet the challenges of the workplace and manage role stress and burnout. Such interventions should connect teachers with strong support structures and assistance as they work through challenges. By building this resiliency in teachers, these programs may reduce perceptions of role stressors and burnout while raising feelings of personal accomplishment. In the long term, the types of programs could translate to reductions in teacher attrition (Ingersoll and Smith 2004) and increases in teacher effectiveness (Olivier and Venter 2003).

While the results of this study have implications for inservice teachers and the individuals who work with them, there is also an important message for the preparation of preservice teachers. Many teacher education programs prepare their students in the content and with the skills required to teach; however, it is likely that fewer seek to develop resiliency among aspiring educators. Teacher education programs should help aspiring teachers understand the full complement of teachers' responsibilities, including non-teaching tasks such as completing paperwork, participating on committees, and supervising students in extracurricular activities (Kelchtermans and Ballet 2002). Preparation for the realities of school life may help novice teachers develop a more complete understanding of life in schools (Richards et al. 2013), which may foster resilience. The promotion of resilience during teacher preparation programming may also help novice teachers better manage role stressors and burnout, and thus decrease the likelihood they will become ineffective and transition out of teaching prematurely (Olivier and Venter 2003). Induction assistance programming should then support the transition into the school context (Smith and Ingersoll 2004). By increasing the emphasis on building resilience in teacher education and fostering school cultures that nurture continued teacher development, resilience can be fostered in both novice and veteran teachers.

## 5.2 Limitations and future directions

While the current investigation provides important insight into the relationships among resilience, role stressors, and the facets of burnout, there are several limitations that should be noted. First, the population sampled was predominately

female, White, and skewed toward having more years of teaching experience. While these characteristics are fairly representative of the teaching profession generally, and specifically within three school districts from which participants were sampled, results may be less applicable to younger teachers, teachers of color, and teachers with fewer years of experience. Similarly, the sample was gathered from three contiguous school districts, so the results may not reflect the experiences of teachers from other parts of the United States, such as in large urban centers, or those teaching internationally. The cross-sectional nature of the study is also a limitation. Since teachers' perceptions of resilience, role stressors, and the facets of burnout, are likely to change over time, more robust findings could be produced through a longitudinal design that tracked teachers across the school year to account for regular fluctuations in the variables (Carson et al. 2010). In order to reduce the influence of particularly stressful times of the school year, participants in this study completed the survey during the middle of the spring semester. Results may have differed if they had been surveyed during high stress times, such as the beginning of the year or end of a semester.

Building upon the work in this study, future researchers should examine the impact of variables other than teaching level, such as ethnicity, gender, and subject affiliation, on the relationship among resilience, role stress, and burnout. Researchers should also examine the impact of resilience on variables such as teacher satisfaction and retention, and student achievement. These investigations would help researchers and practitioners more completely understand the outcomes of resilience, as well as the consequences of having low resiliency. Longitudinal research could account for fluctuations in stress, burnout, and resilience over the course of a school year. Future researchers should also use a variety of qualitative and quantitative methodologies—including mixed methods—to more completely understand the implications of teacher resilience and the way in which it develops in relation to factors such as role stress and burnout. Quantitative methods can help to document the relationships among variables and differences among groups, whereas qualitative methods can aid in interpreting those relationships and understanding teachers' lived experiences in schools.

## 6 Conclusion

Like many other human service professions, teaching can be stressful (Day et al. 2007). Teachers who encounter stress are more likely to experience burnout (Byrne 1991; Alarcon 2011) and/or leave the teaching profession prematurely (Nagar 2012; Smith and Ingersoll 2004). However, resilience may better equip teachers to cope with the stressors they experience and reduce feelings of burnout. Based on the results of this study, steps should be taken to promote teacher resilience by supporting teachers and helping them to feel like members of a community within the school. By working together, key stakeholders can create an environment that helps teachers cope with the stress they encounter in their work. As noted by Day et al. (2007) “teachers matter...They matter to the education and achievement of their students and, more and more, to their personal and social

wellbeing...although some students learn despite their teachers, most learn because of them—not just because of what or how they teach, but because of who they are as people” (p. 1).

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