Primary School Teachers' Resilience: Association with Teacher Self-Efficacy, Burn- out and Stress

**Athena Daniilidou¹, Maria Platsidou², Sofia-Eleftheria
Gonida³**

¹ Department of Educational and Social Policy, University of Macedonia,
Thessaloniki

² Department of Educational and Social Policy, University of Macedonia,
Thessaloniki

³ Department of Psychology, Aristotle University of Thessaloniki, Thessaloniki

Greece

Correspondence: Athena Daniilidou, Egnatia 156, 54006, Thessaloniki, Greece
E-mail: adaniilidou@uom.edu.gr

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Abstract

Introduction. International literature indicates that self-efficacy and resilience are interrelated and they both predict teachers' burnout and stress. In order to better understand their intertwining relationship, the present study was conducted to test the hypothesis that resilience mediates the effect of efficacy beliefs to burnout and stress.

Method. Participants were 636 Greek primary education teachers. The Multidimensional Teacher Resilience Scale (MTRS; Mansfield & Wosnitza, 2015), the Maslach Burnout Inventory (Maslach & Jackson, 1986), the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) and the Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) were used to collect the data. All scales were adapted to Greek and tested for their psychometric properties.

Results. The results partially confirmed our hypothesis showing that three of the resilience subscales, Social-Professional Resilience, Adaptability and Motivational Resilience, partially mediated the relationship of self-efficacy with burnout and stress. Out of the four resilience subscales, Emotional Resilience was found to fully mediate in the above relationship and had the strongest predictive power over burnout and stress.

Discussion and Conclusion. The findings are discussed in light of recent evidence in the field and their implications for practice and future research are pointed out.

Keywords: Burnout, resilience, self-efficacy, stress, teachers.

Resumen

Introducción. La literatura internacional indica que la autoeficacia y la resiliencia están interrelacionadas y predicen el agotamiento y el estrés de los maestros de educación primaria. Para comprender mejor su relación entrelazada, el objetivo de este artículo fue probar la hipótesis de que la resiliencia media el efecto de la autoeficacia en el agotamiento y el estrés.

Método. Los participantes fueron 636 maestros de educación primaria de Grecia. La Multidimensional Teachers' Resilience Scale (MTRS; Mansfield & Wosnitza, 2015), el Maslach Burnout Inventory (Maslach & Jackson, 1986), la Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) y la Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983) se utilizaron para recopilar los datos. Todas las escalas se adaptaron al griego y se probaron por sus propiedades psicométricas.

Resultados. Los resultados confirmaron parcialmente nuestra hipótesis demostrando que tres de las subescalas de resiliencia (Resiliencia Social-Profesional, Adaptabilidad y Resiliencia Motivacional) mediaron parcialmente la relación de autoeficacia con el agotamiento y el estrés. De las cuatro subescalas de resiliencia, se descubrió que la Resiliencia Emocional medía completamente en la relación anterior y tenía el mayor capacidad de predicción sobre el agotamiento y el estrés.

Discusión y Conclusion: Los hallazgos del estudio se discuten a la luz de la evidencia reciente de la literatura internacional y se señalan sus implicaciones para la práctica y la investigación futura.

Palabras clave: Agotamiento, resiliencia, autoeficacia, estrés, maestros de educación primaria.

Introduction

The study of teachers' resilience and self-efficacy has directed the researchers' attention to "brighter" sides of human experience. Teachers' resilience has been described as a dynamic process in which their personal characteristics interact with contextual resources to define their responses in face of adverse events (Mansfield, Beltman, Price, & McConney, 2012). The conceptualizations of resilience as a process of successful adaptation in stressful life events (e.g., Gu, 2018; Rutter, 2007) have increasingly prevailed over those conceptualizing resilience as a personal trait (e.g., Kirkwood, Bond, May, & McKeith, 2010; Silk et al., 2007). However, all the approaches seem to agree that resilience presupposes the presence of threat and/or trauma and, thus, the positive adaptation in face of adversity (Gu, 2018). Perceived self-efficacy is defined as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance" (Bandura, 1986, p. 391). Self-efficacy beliefs affect how people feel, think and act (Bandura, 1997). Teachers' self-efficacy beliefs refer to their ability to cope with tasks related to their professional role (Caprara, Barbaranelli, Steca, & Malone, 2006) and affect valued students' outcomes (Skaalvik & Skaalvik, 2007; Wheatley, 2005).

Self-efficacy and resilience are both related to mental health symptoms at work, such as stress and burnout (Howard & Johnsnosn, 2004; Prati, Pietrantonio, & Cicognani, 2010; Wang, Hall, & Rahimi, 2015). Teachers' stress is defined as a response of negative, unpleasant emotions resulting from some aspects of their work (Kyriacou, 2001); teachers' burnout is illustrated as the physical, emotional and psychological exhaustion that begins when the teacher loses interest in teaching (Schwarzer & Greenglass, 1999). A number of studies has found that both self-efficacy and resilience negatively correlate to teachers' burnout and stress (Evers, Brouwers, Yu, & Tomic, 2002; Skaalvik & Skaalvik, 2010; Yu, Wang, Zhai, Dai, & Yang, 2015), but the way in which they are interrelated to predict burnout and stress has not been comprehensively explored. Thus, the present study aims at elucidating their intertwining relationships by testing the hypothesis that teachers' resilience mediates the effect of their self-efficacy on their levels of burnout and stress.

Dimensions of teachers' resilience

Although challenges (such as burnout, stress, and attrition) in the teaching profession have been widely examined (e.g., Antoniou, Polychroni, & Vlachakis, 2006; Cooper & Trav-

ers, 2012; Gaikhorst, Beishuizen, Roosenboom, & Volman, 2017; Platsidou & Agaliotis, 2008; Ryan et al., 2017; Vlachou, Didaskalou, & Kontofryou, 2015), the protective factors that support teachers in coping with these difficulties have not been studied in the same extend (e.g., Gu & Day, 2007; Hong, 2012). Mansfield et al. (2012) classified the protective resilience factors along four dimensions which portrait the characteristics of a resilient teacher: *Professional resilience* refers to the teaching skills that help the teacher overcome the adversities and challenges that arise within the school environment (Mansfield et al., 2012). Such job-related factors that can be strong protectors of teachers' resilience include the use of different teaching practices (Klusmann, Kunter, Trautwein, Lüdtke, & Baumert, 2008; Mansfield et al., 2012), the acquaintance with the students and the response to their needs (Kaldi, 2009), the commitment to continuing professional development (Patterson, Collins, & Abbott, 2004; Sumsion, 2004) and the use of coping strategies to address challenging situations in the classroom (Sharplin, O'Neill, & Chapman, 2011). *Emotional resilience* refers to the emotional responses to daily teaching experiences, emotional management and coping with stress (Mansfield et al., 2012); it includes the personal attributes, characteristics and/or strategies teachers employ in front of adversities, such as the ability to manage their emotions and not take things personally (Mansfield et al., 2012), having a sense of humor (Mansfield et al., 2012), being emotionally intelligent (Chan, Lau, Nie, Lim, & Hogan, 2008), enjoying teaching and having a feeling of personal fulfillment (Howard & Johnson, 2004; Mansfield et al., 2012). The *motivational resilience* dimension includes factors related to teachers' motivation in terms of focusing on continuous improvement and learning, persistence and perseverance (Mansfield et al., 2012), deliberate career decision making (Sumsion, 2004) and setting realistic expectations and goals (Mansfield et al., 2012; Tait, 2008). Finally, *social resilience* includes strong interpersonal skills that facilitate the development of social support networks (Mansfield et al., 2012), such as mentoring for young teachers (Smith & Ingersoll, 2004) and successfully interacting and collaborating with colleagues, family and friends (Botou, Mylonakou-Keke, Kalouri, & Tsergas, 2017; Yates, Pelphrey, & Smith, 2008). This classification of the protective resilience factors into four dimensions is not fixed and there is considerable overlap of dimensions in some aspects (Mansfield et al., 2012). Protective factors of resilience may fit in more than one dimensions; for example, teachers' commitment in continuous professional development can be ascribed to both the motivational and the professional resilience dimension.

Resilience and self-efficacy

The concepts of resilience and self-efficacy are closely related. Individuals with high levels of perceived self-efficacy tend to conceptualize problems as challenges rather than as threats; they adapt in and manage difficult situations with flexibility. Thus, self-efficacy beliefs play an important role in the development and maintenance of resilience (Benight & Cieslak, 2011); namely, by activating affective, motivational, and behavioral mechanisms in demanding situations, self-efficacy beliefs can promote resilience (Schwarzer & Warner, 2013). For this reason, self-efficacy has sometimes been conceptualized as a component of resilience (Rutter, 1987; Werner, 1982). However, self-efficacy is conceptually and functionally distinct from resilience. Tait (2008) suggests that, although both resilience and self-efficacy can result in high performance, they differ in the ways they impact action. That is, “highly resilient individuals are reactive to stressful situations, highly efficacious individuals are proactive” (Tait, 2008, p. 59). Resilience refers mainly to coping adaptively with challenging stressors, while self-efficacy beliefs not only affect human behavior in highly stressful situations, but they also enhance the individuals' motivation and their pursue of challenging goals in life (Schwarzer & Warner, 2013). Resilience requires that one must be exposed to stressors or adverse situations, whereas self-efficacy can be present even if the individual has not experienced challenges or traumas (Schwarzer & Warner, 2013).

Studies have linked teachers' self-efficacy beliefs to a series of important education-related outcomes, including enhanced student achievement (Muijs & Reynolds, 2002), learning motivation (Schunk & Zimmerman, 2012), management skills (Aloe, Amo, & Shanahan, 2014) and reduced teacher stress (Klassen & Chiu, 2010). In this context, self-efficacy beliefs are essential for effective coping and development of resilience. Teachers' self-efficacy beliefs are positively related to their attempt to invest in teaching and to maintain their persistence against failures, when things do not go as expected (Pendergast, Garvis, & Keogh, 2011; Yost, 2006). Specifically, in the teaching profession, research has shown that self-efficacy positively affects resilience (e.g., Gibbs, 2009; Li & Nishikawa, 2012), as teachers with higher self-efficacy beliefs tend to be more resilient when dealing with challenges in their workplace (Raath & Hay, 2016). Teachers who perceive themselves as efficient in their job are more likely to retain their enthusiasm and persistence and to have higher resilience levels, as a result of their stronger self-efficacy beliefs (Gibbs, 2009; Tschannen-Moran & Woolfolk Hoy, 2007).

Finally, the predictive role of teachers' self-efficacy in resilience has been explored in few studies. For example, self-efficacy was found to predict resilience in a sample of Malaysian teachers (Ngui & Lay, 2020) as well as in graduate trainee teachers in Singapore (Ee & Chang, 2010). Peixoto, Wosnitza, Pipa, Morgan, and Cefai (2018) found that two dimensions of self-efficacy (teaching and behavior management) were the stronger predictors of teachers' resilience.

Resilience and self-efficacy in relation to stress and burnout

The effects of job-related stress on teachers can be physical, psychological and behavioral (Montgomery & Rupp, 2005; Steinhardt, Smith Jaggars, Faulk, & Gloria, 2011). Stress can also influence their professional commitment and their intention to resign (Klassen & Chiu, 2011). Obviously, resilience is negatively associated with stress (Howard & Johnson, 2004; Kyriacou, 2011). A resilient teacher experiences lower levels of job-related stress and is more likely to successfully cope with stressful situations. Richards, Levesque-Bristol, Templin, and Graber (2016) suggest that teachers' resilience can predict their resistance to stress.

As expected, resilience is also negatively related to burnout. Teachers' burnout is illustrated as the physical, emotional and psychological exhaustion that begins when the teacher loses interest in teaching (Schwarzer & Greenglass, 1999). Burned out teachers impair their work performance, their teaching ability and the academic achievements of their students (Blandford & Grundy, 2000). According to the Maslach and Jackson's (1986) model of burnout, teachers who experience *emotional exhaustion* report they feel overextended and exhausted by their work; those who reached *depersonalization* or *cynicism* may experience negative, uncaring attitudes toward their students and colleagues; finally, *lack of personal accomplishment* leave teachers with a feeling of reduced effectiveness, negative evaluations of their performance and achievement in the job. Both resilience and burnout result from stressful situations and studies in the teaching profession have shown they are negatively related (e.g., Mansfield, Beltman, Broadley, & Weatherby-Fell, 2016; Polat & Iskender, 2018). Protective factors of resilience (such as optimism and social support) help teachers experience lower levels of burnout (Beltman, Mansfield, & Price, 2011; Cefai & Cavioni, 2014; Mansfield et al., 2012) and avoid the debilitating and painful experiences associated with stress and burnout (Howard & Johnson, 2004; Lo, 2014; Mansfield et al., 2012).

Similar to resilience, self-efficacy is also strongly related to perceived stress (Betoret, 2006; Collie, Shapka, & Perry, 2012; Klassen & Chiu, 2010; Schwarzer & Hallum, 2008; Skaalvik & Skaalvik, 2007). Teachers' self-efficacy strengthens their motivation to find ways to handle the problems as they arise. Teachers with stronger self-efficacy beliefs perceive the actual demands of teaching as less threatening than those who have doubts about their professional efficiency (Maslach, 2017; Skaalvik & Skaalvik, 2016). Klassen and Chiu (2010) found that teachers with high levels of classroom stress had low levels of self-efficacy in instructional strategies and student engagement; furthermore, teachers' self-efficacy beliefs mediated the links between work and classroom stress on job satisfaction.

The relation of teachers' self-efficacy and burnout has been extensively studied (Avanzi et al., 2013; Savas, Bozgeyik, & Eser, 2014; Skaalvik & Skaalvik, 2007). Self-efficacy was found to positively associate with personal accomplishment and negatively associate with teachers' feelings of depersonalization and emotional exhaustion (Devos, Bouckenooghe, Engels, Hotton, & Aelterman, 2007; Evers, Brouwers, & Tomic, 2002; Schwarzer, Schmitz, & Tang, 2000). In addition, studies have shown that self-efficacy is a significant predictor of teachers' burnout (Brouwers & Tomic, 2000; Salanova, Peiro, & Schaufeli, 2002; Skaalvik & Skaalvik, 2017).

So far, the research regarding the relationships between self-efficacy, resilience, burnout and stress has indicated that they are closely linked. In the teaching profession, it has been found that self-efficacy beliefs can predict resilience (Ee & Chang, 2010; Peixoto et al., 2018) and both of them can predict stress and burnout (Richards, Levesque-Bristol, Templin & Graber, 2016; Skaalvik & Skaalvik, 2017). Previous studies have focused mainly on the total resilience score rather than examining the resilience dimensions in association with self-efficacy, stress and burnout. Moreover, research examining a model including all four variables is limited; specifically, the predictive role of teachers' resilience dimensions in the relationship of self-efficacy to stress and burnout has not been tested and, thus, it merits further investigation.

Aim and hypotheses of the study

Given the challenges of the teaching profession, any progress regarding how to support teachers strengthen themselves against the potential job-related threats is valuable. Thus, it is important to deepen our understanding of the role of self-efficacy beliefs and resilience in

preventing or mitigating teachers' potential stress and burnout. To this end, the present study aimed to test a model describing how self-efficacy and resilience dimensions intertwine to predict stress and burnout of primary school teachers. Based on the literature summarized above, we hypothesized that teachers' self-efficacy would predict their resilience dimensions (Hypothesis 1), as well as their stress (Hypothesis 2a) and burnout. Specifically, we hypothesized that self-efficacy would positively predict personal accomplishment and negatively predict emotional exhaustion and depersonalization (Hypothesis 2b). Resilience dimensions were expected to predict stress and the three burnout dimensions (Hypothesis 3). Finally, we hypothesized that the resilience dimensions would mediate the relationship between teachers' self-efficacy beliefs and their stress and burnout dimensions (Hypothesis 4).

Method

Participants

A total of 636 primary school teachers participated in the study. Their age ranged from 24 to 61 years with a mean of 42.95 ($SD = 9.70$). The sample consisted of 196 men (30.8%) and 440 women (69.2%), which roughly corresponds to the proportion of male and female teachers in the Greek public primary schools (The World Bank, 2016). The majority of the teachers were either married or involved in a steady relationship ($n = 482$, 75.7%) and 154 were single, divorced or widowed (24.3%). Their teaching experience ranged from 1 to 37 years with a mean of 17.41 ($SD = 9.27$). Out of them, 323 teachers (61.3%) held a bachelor degree, 75 teachers (14.2%) a second bachelor degree, 120 teachers (22.8%) a master's degree, and 9 held a doctorate degree (1.7%).

Instruments

Multidimensional Teacher Resilience Scale (MTRS)

In the international literature there are very few scales specifically designed to assess resilience of teachers. Out of the limited options and based on its satisfactory psychometric properties, we opted for the Multidimensional Teacher Resilience Scale (MTRS) which was developed by Mansfield and Wosnitza (2015) and translated into Greek (back and forth translation) by the authors. It consists of 26 statements which assess the four dimensions of teachers' resilience described by Mansfield et al. (2012): professional (6 statements, e.g., *At school I can be flexible when situations change*), emotional (4 statements, e.g., *When I feel upset or angry at school I can manage to stay calm*), social resilience (6 statements, e.g., *When I am*

unsure of something I seek help from colleagues) and motives (10 statements, e.g., *At school I focus on building my strengths more than focusing on my limitations*). Participants were asked to evaluate their agreement with each statement using a 5-point Likert scale ranging from 1 (absolutely disagree) to 5 (absolutely agree).

Teachers' Sense of Efficacy Scale (TSES)

To assess teachers' self-efficacy beliefs the short version of Teachers' Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001) was used. The scale was adapted to Greek by Tsigilis, Grammatikopoulos and Koustelios (2007). The TSES includes 12 items (e.g., *How much can you do to motivate students who show low interest in school work?*) that assess general self-efficacy by extracting a total score (Duffin, French, & Patrick, 2012; Fives & Buehl, 2010). Participants were asked to provide their answers on a 9-level Likert scale ranging from 1 (not at all) to 9 (to a very large extent).

The TSES is considered a valid instrument for evaluating the self-efficacy of in-service teachers (Tschannen-Moran, & Woolfolk-Hoy, 2001, 2007). In the Greek version of the scale, reliability was found to range from $\alpha = .82$ to $\alpha = .85$ for the three subscales (Bikos, Tsigilis, & Grammatikopoulos, 2011) and $\alpha = .97$ for the total scale (Tsigilis et al., 2007).

Maslach Burnout Inventory (MBI)

The Maslach Burnout Inventory (MBI) teachers' edition (MBI-ED; Maslach & Jackson, 1986) was used to measure the burnout of Greek teachers (translated into Greek by Kokkinos, 2006). It consists of 22 statements evaluating three dimensions of professional burnout: emotional exhaustion (9 statements, e.g., *I feel fatigued when getting up in the morning*), depersonalization (5 statements, e.g., *I don't really care what happens to some of my students*) and personal achievement (8 statements, e.g., *I feel I'm positively influencing other people's lives through my work*). Participants are asked to assess how frequently they experience the feelings described in the statements using a 7-point Likert-type scale, ranging from 0 (never happens to me) to 6 (happens every day).

The Greek version of the MBI has been widely used (e.g., Antoniou, Ploumpi, & Ntalla, 2013; Platsidou & Agaliotis, 2008) mainly because it exhibits a consistent factorial structure and high reliability in the Greek context. The internal consistency of the three subscales ranged from $\alpha = .76$ to $\alpha = .90$ (Platsidou & Daniilidou, 2016).

Perceived Stress Scale (PSS)

The Perceived Stress Scale (PSS) was developed by Cohen, Kamarck and Mermelstein (1983) to assess the extent to which respondents find their lives unpredictable, uncontrollable and challenging. The scale has been adapted to Greek by Andreou et al. (2011). The 10-item version of the scale which was used in the present study includes six statements with negative and four statements with positive meaning. Participants assess how often they experience the feelings described in the statements (e.g., *In the last month, how often have you been able to control irritations in your life?*) using a 5-level Likert scale ranging from 1 (never) to 5 (very often). After reversing the values in the items with the positive meaning, a total score is extracted to indicate individuals' perceived stress. In a previous study (Andreou et al., 2011), the reliability of the Greek version of the scale was found satisfactory ($\alpha = .82$).

Procedure

After obtaining permission from the Greek Ministry of Education, Research and Religious Affairs, teachers were invited to participate voluntarily in the study in two ways: (a) with the permission of the school principal, the questionnaires were handed out to them in their schools; (b) the questionnaires were sent to the teachers via e-mail, using the Typeform web application which ensures their anonymity. A total of 636 questionnaires, 234 (36.8%) in paper form and 402 (63.2%) in electronic form, were obtained within four months of data collection.

Data Analysis

Since the MTRS is used for the first time in a Greek sample, its factorial validity needs to be tested. To this end, a confirmatory factor analysis (CFA) was performed using the AMOS (version 19) statistical software. CFA was also used to verify the factorial structure of the MBI. Reliability was estimated for all the scales of the study (and their subscales, wherever available) with the Cronbach α . Finally, a path model was constructed to check the hypothesized predicting relationships. For establishing mediation, the indirect effects of the statistically significant resilience subscales were tested using the Bootstrap estimation procedure (Preacher & Hayes, 2004) in AMOS (a bootstrap sample of 2000 was specified).

Results

Factorial validity and reliability of the MTRS and the MBI

The factorial validity of the Multidimension Teachers' Resilience Scale was checked by performing a confirmatory factor analysis. It must be noted that an exploratory factor analysis proceeded which revealed a four-factor solution that partially matched the inner structure of the original scale proposed by Mansfield and Wosnitza (2015). Specifically, the first factor, *Motivational Resilience*, included the same items as the original version, only fewer in number; it refers to the factors that help teachers maintain their motivation and commitment at teaching. The *Social-Professional Resilience* factor included four items of the original Social Resilience subscale and two items of the original Professional Resilience subscale; this factor refers to the interaction between teachers and their colleagues and/or their ability to form new relationships in the school environment. The third factor, *Emotional Resilience*, retained the five items as in the original scale; it describes the teachers' personal characteristics that help maintain their emotional stability when facing difficult situations at school. Finally, the fourth factor, *Adaptability*, included two items of the original Professional Resilience subscale and refers to the ability of the teacher to be flexible and adaptable to the new conditions and/or challenges that arise at the workplace.

This factor solution was checked via CFA. The initial model did not have an adequate fit to the data ($\chi^2/183 = 3.934$, $p < .005$, $CFI = .889$, $GFI = .892$, $SRMR = .057$, $CI90\% = .063-.073$, $RMSEA = 0.68$). One proposed way to improve the model is to allow the residuals of specific variables correlate, if these correlations are supported by the relevant theory (Anderson & Gerbing, 1988). Therefore, in the model we run next, correlations between the following items were allowed: 5-6, 12-15 and 22-23. This model (presented in Table I) fit the data well, thus confirming the four-factor structure of the MTRS proposed earlier ($\chi^2/178 = 2.564$, $p < .005$, $CFI = .935$, $GFI = .927$, $SRMR = .046$, $CI90\% = .047-.058$, $RMSEA = 0.53$). In this model, most of the factors representing resilience dimensions were significantly inter-correlated. Results revealed satisfactory reliability indices for motivational resilience ($\alpha = .85$), emotional resilience, ($\alpha = .82$), social-professional resilience ($\alpha = .79$) and adaptability ($\alpha = .82$).

Table 1. *Confirmatory factor analysis of the MTRS*

Items	Factors				E	R ²
	Motivational Resilience (F1)	Social - Professional Resilience (F2)	Emotional Resilience (F3)	Adaptability (F4)		
MTRS12 ^{1*}	.752				.186	.565
MTRS18 ^{1*}	.711				.227	.505
MTRS17 ^{1*}	.690				.365	.476
MTRS15 ^{1*}	.679				.443	.461
MTRS16 ^{1*}	.642				.225	.412
MTRS20 ^{1*}	.636				.204	.404
MTRS14 ^{1*}	.545				.417	.386
MTRS4 ^{2*}	.541				.449	.293
MTRS24 ^{4*}		.681			.300	.464
MTRS26 ^{4*}		.666			.332	.444
MTRS22 ^{4*}		.647			.392	.419
MTRS23 ^{4*}		.636			.376	.404
MTRS25 ^{4*}		.538			.509	.289
MTRS21 ^{4*}		.420			.483	.176
MTRS9 ^{3*}			.778		.235	.606
MTRS7 ^{3*}			.547		.522	.299
MTRS8 ^{3*}			.634		.455	.402
MTRS6 ^{3*}			.530		.822	.281
MTRS5 ^{3*}			.338		.798	.114
MTRS2 ^{2*}				.859	.165	.739
MTRS1 ^{2*}				.817	.234	.668
Correlations						
	F1 – F2		.682**			
	F1 - F3		.669**			
	F1 – F4		.586**			
	F2 – F3		.694**			
	F2 – F4		.611**			
	F3 – F4		.624**			

Notes: $p < .00$

* The index designates the factor each item was loaded on in the original scale: 1: motives, 2: professional, 3: emotional, 4: social resilience.

The Maslach Burnout Inventory has been used to test Greek teachers in many studies and almost all of them have confirmed the three-factor solution of the original version (e.g., Platsidou & Agaliotis, 2008; Platsidou & Daniilidou, 2016). Not surprisingly, the model applied on the present data (which is presented in Table II) fits the data well ($\chi^2/198 = 3.214$, $p < .005$, $CFI = .935$, $GFI = .911$, $SRMR = .059$, $CI_{90\%} = .054-.064$, $RMSEA = 0.52$) and complies perfectly to the factorial structure and content proposed by Maslach and Jackson (1986). Reliability of the three subscales was satisfactory ($\alpha = .90$ for emotional exhaustion, $\alpha = .77$ for depersonalization and $\alpha = .87$ for personal accomplishment).

Table 2. *Confirmatory factor analysis of the MBI*

Items	Factors			E	R ²
	Emotional Exhaustion (F1)	Personal Accom- plishment (F2)	Depersonaliza- tion (F3)		
MBI4	.860			.351	.739
MBI2	.777			.411	.604
MBI1	.729			.501	.531
MBI8	.822			.365	.676
MBI3	.755			.478	.570
MBI7	.732			.564	.535
MBI5	.723			.458	.523
MBI9	.681			.695	.464
MBI6	.409			.782	.167
MBI15		.662		.487	.439
MBI14		.767		.368	.588
MBI12		.624		.563	.390
MBI11		.633		.547	.401
MBI13		.769		.396	.595
MBI17		.717		.452	.515
MBI10		.527		.721	.278
MBI16		.664		.568	.440
MBI19			.640	.689	.410
MBI20			.661	.701	.436
MBI18			.566	.694	.320
MBI21			.644	.652	.415
MBI22			.593	.721	.352
Correlations					
F1 – F2	-.465**				
F2 – F3	-.547**				
F1 – F3	.549**				

Note: $p < .00$

Finally, since we used only the total scores for assessing teachers' self-efficacy and stress just the reliability indexes of the Teachers' Sense of Efficacy Scale and the Perceived Stress Scale were estimated. Results showed that the reliability of both the Teachers' Sense of Efficacy Scale ($\alpha = .86$) and the Perceived Stress Scale ($\alpha = .81$) was satisfactory.

Self-efficacy predicts burnout and stress: The mediational role of resilience

To test our hypotheses, a path model was built including nine variables: one for teachers' self-efficacy beliefs, four for the dimensions of resilience (emotional resilience, motivational resilience, social-professional resilience and adaptability), three for the dimensions of burnout (emotional exhaustion, reduced personal accomplishment and depersonalization), and one for perceived stress. The initial model tested had a barely adequate fit to the data ($\chi^2/860 = 2.826$, $p < .005$, CFI = .897, GFI = .841, SRMR = .075, CI90% = .051-.056, RMSEA = 0.54). Following the suggestions for improving the model (Kline, 2011), the non-statistically significant paths were removed from the model and the residuals among the dimensions of resilience and among the dimensions of burnout were allowed to correlate. The final model, which is presented in Figure I, fitted the data well ($\chi^2/861 = 2.328$, $p < .005$, CFI = .921, GFI = .890, SRMR = .058, CI90% = .043-.048, RMSEA = 0.46).

Figure 1. *The path model of resilience, burnout, self-efficacy and stress*

Regarding the first hypothesis, our results confirmed that teachers' self-efficacy predicted the dimensions of resilience. Specifically, self-efficacy significantly predicted *Motivational Resilience* ($\beta=.548, t=16.501, p<.01$), *Social-Professional Resilience* ($\beta=.455, t=12.868, p<.01$), *Emotional Resilience* ($\beta=.372, t=10.101, p<.01$) and *Adaptability* ($\beta=.441, t=12.355, p<.01$). The second hypothesis was also confirmed showing that *self-efficacy* significantly predicted *Emotional Exhaustion* ($\beta=-.273, t=-7.136, p<.01$), *Personal Accomplishment* ($\beta=.546, t=16.426, p<.01$), *Depersonalization* ($\beta=-.252, t=-6.546, p<.01$) and *Stress* ($\beta=-.374, t=-10.169, p<.01$). The third hypothesis was confirmed in the most part, as it was found that in most cases the resilience dimensions predicted the three burnout dimensions and stress. Specifically, *Motivational Resilience* significantly predicted *Personal Accomplishment* ($\beta=.853, t=15.268, p<.01$), *Social-Professional Resilience* predicted *Emotional Exhaustion* ($\beta=-.615, t=-7.191, p<.01$) and *Depersonalization* ($\beta=-.337, t=-5.126, p<.01$), *Emotional Resilience* predicted *Emotional Exhaustion*, ($\beta=-.786, t=-11.356, p<.01$), *Personal Accomplishment* ($\beta=.551, t=11.817, p<.01$), *Depersonalization* ($\beta=-.371, t=-6.697, p<.01$), and *Stress* ($\beta=-.514, t=-13.917, p<.01$), and *Adaptability* predicted *Emotional Exhaustion* ($\beta=-.397, t=-6.264, p<.01$) and *Depersonalization* ($\beta=-.236, t=-4.885, p<.01$). Among the four dimensions of resilience, Emotional Resilience was found to have the greatest predictive power, as it was the only one predicting all three dimensions of burnout as well as stress.

Finally, we tested the fourth hypothesis, that the dimensions of resilience would mediate the prediction of burnout and stress by the self-efficacy beliefs. The mediating effects of solely the statistically significant paths of resilience were tested using the bootstrap procedure. Table III displays the direct effects from self-efficacy to burnout and stress, the estimates when the resilience subscales mediate in the above relationship, and the mediation effects as well as the resulting outcomes. The results described above partially confirmed our hypothesis regarding the mediating role of resilience. Three of the resilience subscales, *Social-Professional Resilience*, *Adaptability* and *Motivational Resilience*, partially mediated the associations of self-efficacy with burnout and stress. *Emotional Resilience* was found to fully mediate in the above relationship.

Table 3. *The mediating role of the resilience dimensions on the prediction of burnout dimensions and stress from self-efficacy*

Relations	Direct without me- diation	Direct with mediators the di- mensions of resilience	Indirect effect/ Type of mediation
1. Self-Efficacy → Emotional Exhaustion	$\beta = -.273^{**}$ ($p < .001$)	Emotional: $\beta = -.044$ ($p > .05$) Social-Professional: $\beta = -.157^{**}$ ($p < .001$) Adaptability: $\beta = -.136^{**}$ ($p < .001$)	Full mediation Partial mediation Partial mediation
2. Self-efficacy → Personal Accomplishment	$\beta = .546^{**}$ ($p < .001$)	Motivational: $\beta = .380^{**}$ ($p < .001$) Emotional: $\beta = .307^{**}$ ($p < .001$)	Partial mediation Partial mediation
3. Self-efficacy → Depersonalization	$\beta = -.252^{**}$ ($p < .001$)	Emotional: $\beta = -.053$ ($p > .05$) Social-Professional: $\beta = -.151^{*}$ ($p < .05$) Adaptability: $\beta = -.127^{*}$ ($p < .05$)	Full mediation Partial mediation Partial mediation
4. Self-efficacy → Stress	$\beta = -.373^{**}$ ($p < .001$)	Emotional: $\beta = -.080$ ($p < .05$)	Full mediation

Note: * = $p < .05$, ** = $p < .001$

Discussion

The aim of the present study was to elucidate the intertwining relationships between resilience, self-efficacy, burnout and stress by testing a model in which teachers' resilience mediates the effect of self-efficacy on burnout and stress. Teachers' self-efficacy was found to predict their resilience as well as their burnout and stress. In addition, it was confirmed that resilience predicts burnout and stress. Finally, three of the resilience subscales, *Social-Professional Resilience*, *Adaptability* and *Motivational Resilience*, partially mediated the associations of self-efficacy with burnout and stress while *Emotional Resilience* was found to fully mediate in the above relationships.

Before discussing the results of the study, a short comment is merit for the MTRS which was used for the first time in a Greek sample; it was selected because it was the only tool -at that time- addressing teachers' resilience. The factorial structure found in our study partially resembled the structure of the Mansfield and Wosnitza's (2015) original scale. Two of the dimensions were the same in content (Motivational and Emotional resilience) while the other two (Social-Professional Resilience and Adaptability) differed. Apparently, variation in the cultural and the educational settings between the Greek and the Australian context, where Mansfield and Wosnitza (2015) tested their scale, could be responsible for the discrepancy between the Greek and the original version of the MTRS. Although further research is required to confirm the good psychometric properties of the MTRS-Greek in other educational contexts (e.g., of secondary, special or higher education), the current study has shown that the Greek version of MTRS can be used to reliably and validly assess the protective resilience factors of Greek primary school teachers.

Self-efficacy and resilience predict stress and burnout

Results confirmed our first hypothesis, according to which teachers' self-efficacy was expected to predict all four dimensions of resilience. In agreement to previous studies (e.g., Benight & Cieslak, 2011; Ee & Chang, 2010; Peixoto et al., 2018), this finding highlights the importance of teachers' self-efficacy beliefs for the development of their resilience. Self-efficacy is regarded as a core self-sustaining variable (Bandura, 1999) that sets the foundation for building the ability to overcome challenges and, thus, to develop resilience. The positive effects of self-efficacy beliefs on coping with various stressors and being proactive and prepared to deal with potential challenges make the construct of self-efficacy valuable for re-

search on resilience (Schwarzer & Warner, 2013). Specifically, for teacher resilience, Mansfield et al. (2012) consider self-efficacy as a protecting factor as well as a part of the individuals' repertoire of psychological strengths, which allow them to successfully cope with change. In the teaching profession, having control over stressors and maintaining positive emotions in face of adversities require having strong self-efficacy beliefs. Gu and Day (2007, p. 1312) suggest that "teachers' sustained effort and perseverance in the face of difficulty will strengthen their sense of efficacy and result in a stronger sense of resilience", implying that teachers' self-efficacy consistently interacts with their resilience qualities.

Results also confirmed our second hypothesis, according to which self-efficacy was expected to predict job-related burnout and general stress. Previous studies have also found that low teacher self-efficacy may result in high stress levels (Betoret, 2006; Klassen & Chiu, 2010) and/or feelings of burnout (Schwarzer & Hallum, 2008) and that self-efficacy as a strong predictor of teachers' burnout (Brouwers & Tomic, 2000; Salanova et al., 2002; Skaalvik & Skaalvik, 2017) and stress (Klassen & Chiu, 2010; Schwarzer & Hallum, 2008).

The third hypothesis, according to which teachers' resilience was expected to predict their burnout and stress, was partially confirmed, as most of the resilience subscales were found to predict certain burnout dimensions and one to predict stress. *Emotional Resilience* predicted all the dependent variables and presented the greatest predictive power compared to the other subscales. This dimension includes personal characteristics such as optimism, emotions management and sense of humor. Similarly, in their model of emotional resilience, Garrosa and Moreno – Jimenez (2013) include hardiness, optimism and emotional competence. They propose that individuals with emotional resilience are more capable of handling stressors and challenges (Garrosa & Moreno – Jimenez, 2013). In this context, Day and Hong (2016) suggest that the teaching profession requires the capacity of emotional resilience for managing everyday challenges and work stressors. Being emotionally competent facilitates teachers' resilience in the face of stress (Cefai & Cavioni, 2014) and burnout (Jennings, 2011). Previous studies have found that emotional characteristics such as optimism, humor, positive attitude and managing emotions can be helpful in sustaining teachers' commitment in their job, as well as in stress management and burnout avoidance (e.g., Beltman et al., 2011; Evans-Palmer, 2010; Gu & Day, 2013; Tait, 2008).

Social-professional Resilience was found to predict two out of the three burnout dimensions, *Emotional Exhaustion* and *Depersonalization*. It includes interpersonal skills that facilitate the development of social support networks, as well as teaching skills that help teachers overcome the adversities and challenges that arise within the school environment. Results showed that the teachers who are socially competent and are supported by their colleagues, when dealing with a stressful situation, are less likely to experience emotional exhaustion and depersonalization (Brouwers, Tomic, & Boluijt, 2011; Kinman, Wray, & Strange, 2011). It is well known that the negative social working environment is linked to occupational stress and burnout (Kinman et al., 2011), whereas social support can reduce burnout and job-related stress (Tait, 2008). Previous studies have showed that teachers assessed the social resilience subscale, in particular the informal professional networks, as one of the most important factors that help them adapt and overcome challenges (Papatraianou & Le Cornu, 2014; Sammons, Kington, Gu, Stobart, & Smees, 2007). Schaufeli and Bakker (2004) suggested that lack of peer support leads teachers to emotional exhaustion and depersonalization. The findings of the present study comply with the aforementioned research findings as far as predicting burnout. It must be noted that *Social – Professional Resilience* predicts the negative outcomes of burnout (*Emotional Exhaustion* and *Depersonalization*) but not the positive ones (*Personal Accomplishment*). Halbesleben (2006) proposed that work-related social support, because of its more direct relationship to work demands, is more closely associated with the dimension of emotional exhaustion. Kinman et al. (2011) found that the workplace social support predicted all three dimensions of burnout, but the indexes/predictive values for emotional exhaustion and depersonalization were higher compared to personal accomplishment.

Adaptability was found to significantly predict *Emotional Exhaustion* and *Depersonalization*, although the loadings were rather low. As a resilience subscale, adaptability refers to the individual's positive behavior and capacity to adjust to stress and changes in the work environment (Savickas & Porfeli, 2012). Career adaptability is a resource enabling individuals to cope with challenges and transitions in stressful and uncertain times. Other studies showed that adaptability positively correlates to professional wellbeing (Collie & Martin, 2017), while teachers with higher levels of burnout are less flexible to changes (Capel, 2006). In the current study, it seems that adaptability contributes, to a small degree, in preventing teachers from getting emotional exhausted and avoiding depersonalization, but it was not related to personal accomplishment or stress. Although few studies have found that *Adaptability* subscales pre-

dict personal accomplishment (e.g., Pishghadam, Zabihi, & Shayesteh, 2014), the current study suggests that there are other resilience dimensions that enhance teachers' sense of personal accomplishment.

One of these is the *Motivational Resilience* subscale. Earlier findings indicated that the motivational aspects of resilience (such as persistence, confidence, maintaining personal motivation) affect teachers' stress and burnout (Fernet, Guay, Senécal, & Austin, 2012; Fernet, Lavigne, Vallerand, & Austin, 2014; Parker, Martin, Colmar, & Liem, 2012; Pearson & Moomaw, 2006). Beltman et al. (2011) argue that strong intrinsic motivation such as their sense of vocation can be a significant protective factor that sustains teachers in face of challenges and stressors. In the current study, however, *Motivational Resilience* was found to predict only *Personal Accomplishment*, out of the three burnout dimensions, and not stress. It seems that the resilience characteristics summed in this dimension set the foundation of the sense of achievement but are not related to stress prevention.

Finally, except from the dimension of *Emotional Resilience* no other dimension of resilience have been found to predict stress. This may be attributed to the fact that the scale used to evaluate teachers' stress (the PSS) does not assess job stress in face of classroom demands; rather it measures how stressful are appraised various situations in one's life.

Resilience as a mediator

Our last hypothesis concerned the mediating role of the resilience subscales in the prediction of burnout and stress by self-efficacy. Results partially confirmed this hypothesis, as they revealed that the resilience subscales are holding a significant role in mediating the relationship of self-efficacy to burnout in the Greek teachers. The added value of including resilience as a new variable to the equation contributes to a better understanding of how self-efficacy affects burnout and stress.

Specifically, *Adaptability*, *Social-Professional Resilience* and *Motivational Resilience* were significant mediators in the prediction of specific dimensions of burnout by self-efficacy beliefs. These three dimensions of resilience mediate only part of the effect of self-efficacy on burnout, that is, self-efficacy has some residual direct effect even after *Adaptability*, *Social-Professional Resilience* and *Motivational Resilience* are introduced into the model. In contrast, *Emotional Resilience* were found to fully mediate in the relationship of self-efficacy to

Emotional Exhaustion, *Depersonalization* and *Stress* and partially mediate in the prediction of Personal Accomplishment by self-efficacy beliefs. In other words, the power of teachers' self-efficacy in predicting emotional exhaustion, depersonalization and stress is strengthened by resilience.

Previous studies have shown that the higher the teachers' self-efficacy beliefs the less likely is for them to experience depersonalization, emotional exhaustion and reduced personal accomplishment (e.g., Brouwers & Tomic, 2000; Salanova et al., 2002; Skaalvik & Skaalvik, 2017); obviously, this is attributed to their positive beliefs about their professional qualities and strengths and their expectations of success. Our study revealed that certain dimensions of resilience add to the predictive effect of self-efficacy on burnout and stress. Our results suggest that teachers with high self-efficacy beliefs who are able to develop their *Social-Professional Resilience* and *Adaptability* are more likely to buffer emotional exhaustion and depersonalization; their mediation, though, does not affect teachers' sense of personal accomplishment or stress. In other words, teachers' social skills along with the presence of support networks and their adaptation skills contribute to mitigate the risks of emotional exhaustion and depersonalization. These two dimensions are context related. *Social – Professional Resilience* refers to teachers' social skills and to the relationships with their colleagues, while *Adaptability* refers to the ability of being flexible in the face of changes in the school environment. It seems that the dimensions of resilience that are being affected by external factors add to the prediction of the negative consequences of burnout, a finding that seems to agree with previous studies (Capel, 2006; Halbesleben, 2006; Kinman et al., 2011).

On the other hand, the sense of personal accomplishment seems to strengthen by the enhancement of *Motivational Resilience* which mediates the positive association between the former and self-efficacy. Studies have found that teachers' autonomous and intrinsic motivation positively correlates with and predicts personal accomplishment (e.g., Fernet et al., 2012; Roth, Assor, Kanat-Maymon, & Kaplan, 2007; Van den Berghe et al., 2014). It can be assumed that intrinsic motivation shares some of the characteristics of motivational resilience (e.g., maintaining personal motivation, confidence, persistence). In this context, the present study proposes that self-efficacious teachers with these motivational characteristics perceive their engagement in various tasks and challenges as meaningful and, thus, they are more likely to achieve a stronger sense of personal accomplishment.

Finally, *Emotional Resilience* was found to have the stronger mediation role among the resilience dimensions; specifically, it was revealed that self-efficacious teachers who are able to manage their emotions are less likely to experience emotional exhaustion, depersonalization and they have a stronger sense of personal accomplishment. Interestingly, *Emotional Resilience* was the only resilience subscale found to mediate the relationship of self-efficacy to stress. The strong mediation role of *Emotional Resilience* can be explained by its nature and content; it is a core dimension of resilience whereas *Motivational Resilience* and *Adaptability* refer to more specialized aspects of resilience. In other words, *Emotional Resilience* includes the majority of teachers' personal characteristics (e.g., sense of humor, emotional intelligence, optimism, patience), which are important resilience protective factors contributing to the prediction of burnout and stress (Evans-Palmer, 2010; Gu & Day, 2013; Mansfield et al., 2011; Tait, 2008).

Limitations, implications and future research

The main limitation of this study is that it was based on cross-sectional data which restrain the determination of causality (Bryman, 2017). Future longitudinal research would be useful to test causal relationships among the variables under examination. In addition, there are limitations regarding the tools that have been used. A general life stress measurement was used (the PSS) instead of one addressed specifically to teachers' job-related stress. We acknowledge that maybe a scale measuring teachers' job stress, coping skills and/or classroom demands would be more relevant. Moreover, teachers' self-efficacy was assessed using a measure (TSES) that, according to some researchers (e.g., Klassen & Chiu, 2011; Skaalvik & Skaalvik, 2007), is not multidimensional. Theories of self-efficacy suggest that teachers' self-efficacy should be measured in terms of specific beliefs that fluctuate across tasks, domains, and different contexts. Bandura (1997) suggested that undifferentiated self-efficacy scales usually have poor predictive validity, as these scales are not distinctly linked to what they seek to predict. Using a more complex and multidimensional measure might allow for the detection of unique self-efficacy dimensions that may have different patterns of effects on the outcomes (Skaalvik & Skaalvik, 2007).

The findings of the study could have important implications for teachers' initial and continuing education and their professional development. The increased attrition rates noted internationally in the teaching profession (Craig, 2017) suggest that is urgent to find ways to mitigate teachers' maladaptive coping of stress and protect them from burnout. The findings of

the present study suggest that educational programs and interventions for teachers should address, among others, to building resilience protective factors. It is important for teachers to strengthen and continuously enrich their repertoire of ways to cope with job-related stressors and challenges. The enhancement of protective resilience factors (emotional, social-professional, motivational and adaptation-related) should constitute a significant part of relevant educational programs and/or interventions.

Finally, the finding regarding the mediating role of social-professional resilience and adaptability-related resilience emphasize the need to offer professional- as well as peer-counseling and support to teachers, especially the novice ones. Learning by colleagues has been assessed by early-time teachers as a very important source of support (McCormack, Gore, & Thomas, 2006) that boosts their incentives, pleasure and enthusiasm to maintain their commitment to the profession and consolidate a sense of self-confidence (Le Cornu, 2013).

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