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## Introduction

Advances in understanding and intervening in teacher stress and coping: The Coping-Competence-Context Theory<sup>☆, ☆ ☆</sup>Keith C. Herman<sup>\*</sup>, Wendy M. Reinke, Colleen L. Eddy

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## ABSTRACT

Teacher stress and burnout are associated with many adverse outcomes for teachers, students, and the educational system. This paper describes the Coping-Competence-Context (3C) Theory of Teacher Stress. The theory is based on empirical research on teacher stress and coping highlighted within this special issue and attempts to more explicitly highlight three critical inter-connected pathways to teacher stress development and intervention. The 3C model also highlights why teacher stress is important and should be the topic of future inquiry by showing clear links between teacher stress and adverse student and teacher outcomes. Lastly, this paper provides guidance for leverage points to intervene and describes a future research agenda in three domains: measurement, conceptual, and intervention issues and challenges.

Although abundant educational research has focused on promoting the social, behavioral, and academic outcomes of students, much less attention has been given to understanding and supporting the well-being of the adults principally charged with creating these outcomes, their teachers. This oversight is particularly glaring given that available theory and evidence suggests that teacher well-being intersects with their ability to provide effective learning and social environments for youth. Moreover, teaching ranks as one of the most stressful professions (Johnson et al., 2005). In fact, a recent study found that nearly all teachers reported high levels of occupational stress (Herman, Hickmon-Rosa, & Reinke, 2018). Additionally, prolonged teacher stress and poor coping contribute to professional burnout (Maslach, Schaufeli, & Leiter, 2001).

Teacher stress and burnout are associated with many negative outcomes for teachers, students, and the educational system. Stress impacts teachers' physical and mental health over time. Specifically, stress and burnout predict teacher depression (Shin, Noh, Jang, Park, & Lee, 2013). Stress also can lead to increased absenteeism and to teacher attrition, which are costly to the educational system. With as many as 40% of new teachers in the United States leaving the profession within the first five years of working, teacher stress and burnout are important areas to understand to prevent the costs of teacher attrition (Ingersoll, 2001).

Teacher stress can also have an impact on students in the classroom. A recent study found differences in a biological indicator of stress (salivary cortisol) in elementary school students in classrooms with teachers who reported higher symptoms of burnout (Oberle & Schonert-Reichl, 2016). Additionally, a separate study found teachers reporting higher stress and burnout along with low coping had students with higher levels of disruptive behaviors and lower academic achievement (Herman, Hickmon-Rosa, & Reinke, 2018).

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Given the high prevalence of teacher stress and the associated consequences of it, further research is needed to better understand, measure, and mitigate its harmful effects. The special section includes seven studies that advance the scientific understanding of teacher stress. The papers cover the full spectrum of knowledge development including (1) evaluating the technical adequacy of innovative measures of stress and coping (Eddy, Herman, & Reinke, 2019); (2) describing patterns of stress and coping in a sample of middle school teachers (Herman, Prewett, Eddy, Savala, & Reinke, 2020); (3) determining the interconnections between teacher-student relationships and teacher stress (Corbin, Alamos, Lowenstein, Downer, & Brown, 2019); (4) testing a theory linking stress mindset, stress, and burnout (Kim, Shin, Tsukayama, & Park, 2020); (5) specifying the relations between job demands and resources, stress and burnout, and effective classroom practices (Bottiani, Duran, Pas, & Bradshaw, 2019); and evaluating the impact of interventions to reduce teacher stress through (6) mindfulness (Jennings et al., 2019) and (7) classroom management training (Tolan, Elreda, Bradshaw, Downer, & Iaolong, 2020). The papers in this special section have implications for conceptualizing teacher stress and coping, associated student and teacher outcomes, and potential points of intervention.

## 1. Prior theories relevant to teacher stress

### 1.1. Transactional theory of stress

The transactional theory of stress (Lazarus & Folkman, 1984) is the most influential theory for conceptualizing stress and coping processes across occupational contexts, including education. In this theory, stress is defined as the emotional, cognitive, and physiological experience when environmental demands exceed an individual's resources to adapt; coping is defined as an individual's attempt to manage those demands. The transactional theory defines two broad types of coping, emotion-focused strategies intended to reinterpret and understand the stressor differently and problem-focused strategies intended to interact differently with the stressor. Cognitive behaviorists may label these two coping approaches as cognitive coping (emotion-focused) and behavioral coping (problem-solving) strategies. A key element of the Lazarus and Folkman theory is the focus on how an individual appraises a stressor. Two types or levels of appraisals include primary and secondary. Primary appraisal, also referred to as “stakes” (Lazarus, 1990), refers to an individual's assessment of whether the event is a threat or challenge or simply benign. Secondary appraisals are reflections on how to respond to the event including consideration of various coping options. In the transactional theory, primary appraisals directly affect secondary appraisals which in turn directly affect coping strategies that are selected and enacted. Coping strategies lead to physiological and emotional reactions to stress which ultimately influence the long-term impacts of stress on the individual (Goh, Sawang, & Oei, 2010; Lazarus, 1990). In other words, secondary appraisals and coping strategies mediate the effects of stressors on the short- and long-term consequences of stress.

Other conceptualizations of the stress and coping relations have emphasized coping as a buffer, or moderator, rather than as a mediator of the stress-outcome relations. Most notable among these conceptualizations is the work of Cohen & Wills, 1985. They provided evidence showing the circumstances under which an individual receives social support acts as a buffer of stressful events on the resulting health consequences. A critical contribution to this conceptualization is the importance of how stress and coping are defined and measured. Cohen & Wills, 1985 argued that when studies evaluate more global aspects of stress and coping (for instance, life event scales and general approaches to coping), direct effects are more likely to be found and coping will mediate the effects of stress on outcomes. However, when more nuanced aspects of stress and coping are examined, in particular when the coping strategy is directly tied to the specific stressful event or encounter, then the coping strategy will likely buffer or moderate the effect of the stressful event on individual outcomes.

### 1.2. Stress mindset theory

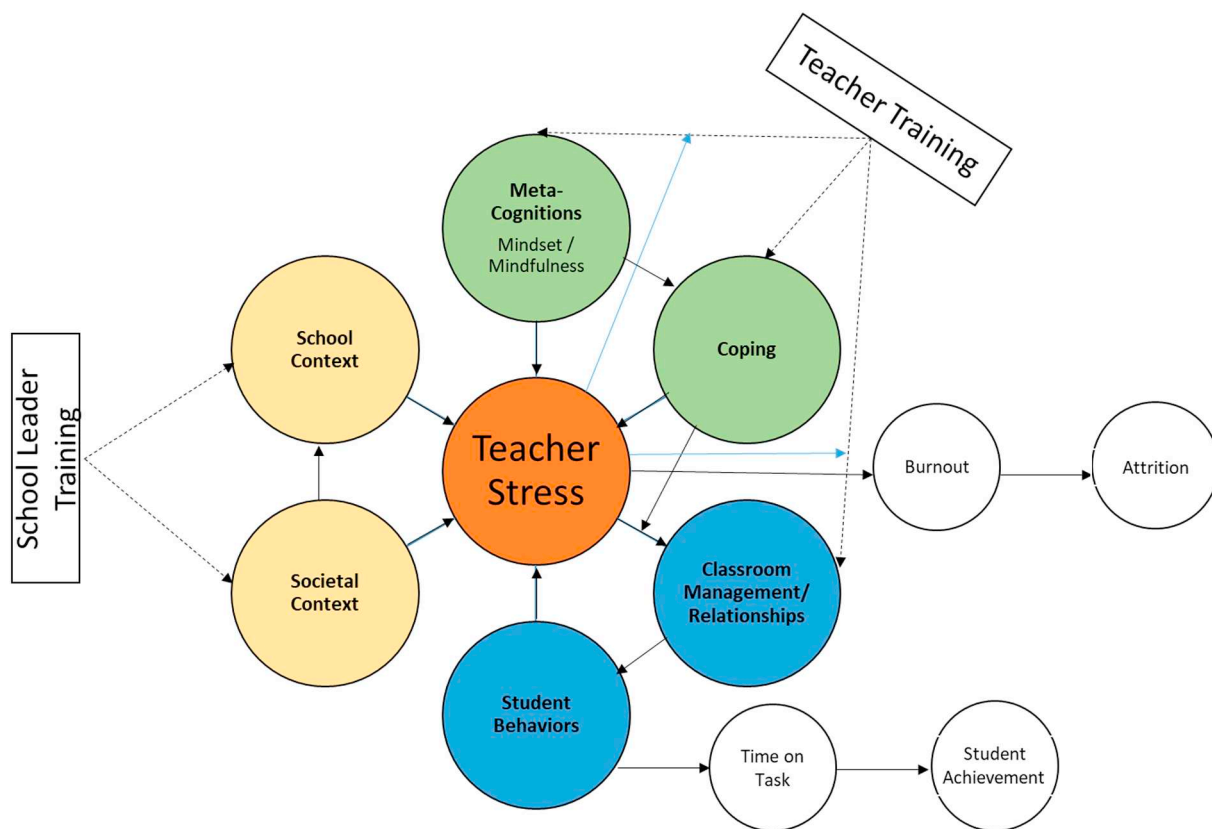
More recently, stress mindset theory offers a related but alternate pathway by which harmful stress effects may be mitigated (Crum, Akinola, Martin, & Fath, 2017; Crum, Salovey, & Achor, 2013). Based on Dweck's (2006, 2008) broader mindset work, stress mindset refers to an individual's orientation to stress related consequences, in particular, beliefs about whether stress enhances or debilitates individual health and well-being (Crum, Akinola, Martin, & Fath, 2017). Unlike coping strategies described in the transactional theory, stress mindset is not enacted in response to a specific stressor or an attempt to manage or reduce the stressor. Instead, stress mindset is a meta-cognitive attitude about stress that exists both in the presence and absence of stressors. Studies have shown that stress mindset predicts positive health consequences and that efficient interventions can manipulate individual mindsets to become more positive and thus more adaptive (Crum, Akinola, Martin, & Fath, 2017).

### 1.3. Prosocial classroom model

More specific to understanding teacher stress, Jennings & Greenberg, 2009 articulated the prosocial classroom model. This model highlights the central role of teacher social-emotional competence (SEC) in creating effective learning environments, supporting positive teacher-student relations and positive classroom climates, and ultimately impacting student learning and social-emotional development. In this model, two key premises are that high teacher SEC can reduce the harmful effects of teacher stress on teachers and students, and teacher SEC skills can be increased through training and support. In this sense, the prosocial classroom model identifies critical leverage points for intervening in teacher stress, namely the development and refinement of SEC skills such as mindfulness and other coping related strategies.

## 2. The Coping-Competence-Context (3C) Theory of Teacher Stress

The articles in the special section offer the possibility to build upon the valuable contributions of the transactional theory, stress



**Fig. 1.** Points of intervention and outcomes in the Coping, Competence, and Context (3Cs) Theory of Teacher Stress. Coping Pathway is depicted in green, Competence in blue, and Context in yellow. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

mindset theory, and the prosocial classroom model. We have integrated the findings from these studies with these influential approaches to create a new framework for guiding future research on the topic, the Coping-Competence-Context (3C) Theory of Teacher Stress (see Fig. 1). In this theory, we attempt to more explicitly highlight three critical interconnected pathways to teacher stress development and intervention.

### 2.1. Coping

The Coping pathway includes teacher individual characteristics, including mindset, interpersonal qualities, and coping skills, that contribute directly to stress responses. We distinguish between meta-cognitive aspects of coping, including stress mindset and mindfulness, and coping strategies such as active problem-solving. In the 3C model, it is the metacognitive aspects of coping like stress mindset and meditation that precede and in part determine levels of stress. The direct effect of mindset on teacher stress is supported by the Kim et al. (2020) study which found that stress mindset predicted job stress and an indirect effect on teacher turnover at the end of the academic year. In other words, stress mindset does not moderate stress experience outcomes but instead directly influences individual perceptions of stress. Likewise, Jennings et al. (2019) examined the long-term effects of a mindfulness-based program for teachers and found improved observing and non-judgmental awareness as well as reduced psychological distress over nine months following the intervention. Stress mindset and mindfulness may be conceived of as appraisal processes whereby they influence the interpretation of stress events and experiences.

The Coping pathway also includes teachers' self-perceived coping skills and strategies. Prior theory and research suggest that coping skills moderate the effect of teacher stress on teacher behaviors and other outcomes. Additionally, coping can have direct effects on stress levels as well (Chan, 1998; Kyriacou, 2001). In the transactional theory of stress, stress levels should not be studied in isolation without consideration of coping (Lazarus, 1990). The Herman et al. (2020) paper supported this theory by finding that high teacher stress alone did not predict many adverse teacher and student outcomes; instead, only teachers who reported both high levels of stress and low levels of coping experienced negative outcomes along with students in their classrooms. These findings are also consistent with a moderation coping pathway where stress only has negative outcomes for a subset of teachers, those who report lower coping levels. The paper by Eddy et al. (2019) also found that single-item measures of stress and coping were significant predictors of prolonged stress and burnout, and the coping item had the strongest association. We retained a direct link between coping and stress in the 3C model as

well, given prior research suggesting that coping also can directly influence self-perceived stress levels.

## 2.2. Competence

The Competence pathway describes the link between stress and classroom practices, particularly teacher classroom management skills. In this pathway, stress directly affects teacher practices including their interaction patterns with students (e.g., use of reprimands and praise) which in turn directly effect student behaviors (e.g., disruptive behaviors) which also directly effect teacher stress levels. This process is similar to the “burnout cascade” hypothesis described by Jennings & Greenberg, 2009 suggesting that teacher stress can increase harsh and reactive behavioral management strategies escalating student disruptive behaviors, resulting in further increases in teacher stress and creating a cycle of stress, ineffective classroom management, and challenging student behaviors. In a sample of elementary school teachers, Reinke, Herman, and Stormont (2013) found that teachers who reported higher levels of burnout were observed to use more harsh reprimands and less praise, whereas teachers reporting higher levels of efficacy in classroom management used more proactive classroom management strategies. The stress-classroom management pathway is supported by the Herman et al. (2020) paper which found that teacher stress and coping profiles predicted the use of reprimands later in the school year. Additionally, the 3C model notes that stress moderates the effects of classroom practices on student behaviors. The Tolan, Elreda, Bradshaw, Downer, & Iaolong, 2020 paper supports this link in that teachers with high levels of stress and classrooms with more student disruptions were most likely to benefit from an intervention to support classroom management practices. Bottiani et al. (2019) also found that observed student disruptive behaviors were associated with increased teacher reported stress and burnout.

## 2.3. Context

Finally, the Context pathway highlights school and system policies and practices that contribute to teacher stress. School level practices, including administrative support, and systemic policies, such as standardized testing, influence contextual stressors that impact teacher stress, burnout, and attrition (Ryan et al., 2017). Studies have found that the variance in teacher stress can be accounted for by school level variation; for example in the present issue, Kim et al. (2020) found that 18% of the variance in teacher job stress was explained by the school context. The Bottiani et al. (2019) paper highlights building level factors linked to teacher stress levels including perceived affiliation and resources and these factors are in turn linked to observed classroom practices. This paper helps connect the various pathways in the model and thus in some ways is an exemplar for future studies to consider evaluating the three pathways simultaneously to understand precipitants and outcomes of teacher stress.

The 3C model also highlights why teacher stress is important and should be the topic of future inquiry by showing clear links between teacher stress and adverse student and teacher outcomes. In particular, the Competence pathway shows the way that teacher stress can contribute to student disruptive and off-task behavior and in turn academic underachievement. Each pathway is also linked to teacher outcomes including teacher burnout and attrition (Kim et al., 2020).

## 2.4. Targets for intervention

Finally, the 3C model clearly identifies points of intervention that can be targeted to avert these negative outcomes. In particular, teacher training in coping, stress mindset, and SEC, as well as classroom management skills including teacher student-relationships, are leverage points in altering the Coping and Competence pathways. The Jennings and Tolan papers highlight teacher interventions intended to modify the Coping and Competence pathways, respectively, and provide evidence in support of these links. Jennings et al. (2019) found support for direct links between mindfulness training and improvements in teacher meta-cognitive skills, emotional regulation, and health benefits. They also found that initial levels of teacher stress moderated some of these effects such that teachers with higher baseline stress were more likely to benefit from the Cultivating Awareness and Resilience in Education (CARE) intervention. Tolan, Elreda, Bradshaw, Downer, & Iaolong, 2020 also found moderation effects of baseline teacher distress on student outcomes in response to an integrated classroom management intervention. Teachers with higher levels of baseline stress and more student disruptive behaviors were more likely to have improvements in student behavior and achievement. The article by Corbin et al. (2019) found teacher-student relationships, which are critical to classroom management and strongly linked to student outcomes, were also protective for reducing teachers' experience of burnout. Additionally, principal and other school leadership trainings are potential levers in altering the Context pathways including building level policies, practices, and relationships.

Each path in the 3C theory is a testable link that can be verified and refined with future studies. Additionally, this theory highlights connections between each pathway and the teacher and student consequences of teacher stress.

## 2.5. Areas for further research

In addition to specifying interconnections between stress, interventions, and outcomes, the special section highlights areas of needed future research. We delineate the following research agenda in three domains: measurement, conceptual, and intervention issues and challenges.

First, future research is needed to define optimal measurement strategies and link these strategies to the guiding theories of teacher stress. For instance, more research is needed to specify the relative strengths and limitations of using global versus more nuanced ratings of teacher stress. In this special section, two papers (Eddy et al., 2019; Herman et al., 2020) emphasize the potential

utility and promise of using single-item global ratings of stress and coping to identify the consequences of teacher stress, teachers who may benefit from intervention, and responsiveness to stress interventions. However, as noted by Cohen & Wills, 1985, global ratings are more likely to highlight coping as a mediator of stress outcomes, whereas more nuanced measures that evaluate specific coping strategies in relation to specific stressors may reveal buffering effects. Moreover, future research will need to determine the optimal frequency of administering stress and coping measures. Recent studies using ecological momentary time sampling or ecological momentary assessment (EMA) have suggested the promise of collecting stress indicators repeatedly during the day and over time (McIntyre et al., 2016). For instance, McIntyre, McIntyre, Barr, Francis, and Durand (2017) used EMA with teachers to examine stress levels over time and found that stress varied based on the time of day, day of the week, and time of year. Finally, more work is needed to use physiological indicators of stress, again both as a tool to understand stress consequences and to evaluate responsiveness to intervention. These tools will need to be unobtrusive and fit within the context of classrooms to be functional indicators of stress. Technological advances are making such tools increasingly accessible such as the use of watches to monitor physiological indicators including heart rate, blood pressure, and skin conductivity.

Second, future research will need to continue to refine our conceptual understanding of teacher stress. For instance, as stress mindset theory makes clear, stress by itself is not problematic and in fact, can be beneficial. Additionally, as demonstrated in the Eddy et al. (2019) study, improving coping alone may be helpful for teachers and students, even in the absence of stress level improvements. However, there are likely stressors, in type, intensity, and number experienced simultaneously, that can exceed the capacity to cope. More work is needed to specify these thresholds.

More studies are also needed to understand the interplay between the three pathways to teacher stress specified in the 3C theory. Most studies evaluate a single pathway, attempting to improve teacher coping, competence, or context. Rarely do studies attempt to manipulate all pathways, thus, the potential benefit of targeting all three is currently unknown. It may be that the benefits of targeting a single pathway may be suppressed by persistent challenges experienced by teachers in the other pathways. For instance, anecdotally, in our studies evaluating the effects of a classroom management intervention (the Competence pathway), we have observed principals revise proactive classroom management plans to be more punitive (Context pathway) and thus likely reduced the benefit of the intervention. Likewise, it may be the case that targeting all three pathways may have a synergistic and beneficial effect on teachers and students. For instance, interventions that simultaneously increase teacher coping and classroom management skills while training school leaders in the same skills so they can coach and support the teachers' efforts in learning those skills may yield robust benefits across all three pathways and in turn, teacher and student outcomes.

Further research can also unpack the interplay between variables within each pathway. For instance, mindfulness may be construed as a metacognitive strategy (like mindset) that exists separate from specific stressors and can also be conceptualized as an active part of the stress appraisal process (Garland, Gaylord, & Park, 2009). Similarly, the Competence pathway includes many complimentary skill sets including classroom management, teacher-student interaction patterns, and relationships. Unpacking each of these elements and determining their unique and combined benefits would be helpful.

Additionally, more research is needed to establish the links between teacher stress and coping and teacher and student mental health and well-being, exclusionary discipline practices, and student achievement. Teachers have an immediate and direct impact on their students and are at the forefront of responding to systemic problems including racism, poverty, and community trauma. Teacher stress and coping may prove to be a central hub of understanding national education and public health priorities including the achievement gap, school to prison pipeline, and health disparities.

Finally, this special issue highlights advances and the need for further improvements in the area of interventions. First, there is a need for more portable and efficient interventions to support teacher stress, coping, and competence. This includes efficient systems for identifying teachers most in need and/or most likely to benefit from intervention and optimizing dose and access based on need. While full-day professional development training and ongoing coaching could be a helpful support for teachers, overly intensive interventions may not be necessary, feasible, or likely to be widely disseminated. Instead, interventions that can be accessed in brief doses with prompts and supports embedded in the natural environment are most likely to have the reach and impact needed to improve the population health of teachers. Stress mindset interventions may provide a model in this regard in that they are typically very brief, easy to administer, and impactful. Likewise, bibliotherapy with web-based supports is an empirically supported and efficient strategy for intervening with a wide range of health conditions (including depression, anxiety, and stress) with other audiences and can be extended to teachers (Herman & Reinke, 2015).

A critical need for intervention development is in the Context domain. Here research is needed both to identify methods that school, district, and community contexts can use to foster effective coping and to implement and evaluate the effects of these methods, both in isolation and in combination with interventions targeting the other two pathways to teacher stress (Coping and Competence). As an example, Bottiani et al. (2019) examined teacher stress and burnout while simultaneously considering contextual factors, including institutional support, peer affiliation, and student demographics. They found that student disruptive behaviors and low student socio-economic status were associated with higher teacher stress and burnout; however, when accounting for personal resources of self-efficacy, as well as peer and institutional support, the association between student demands and resulting stress and burnout were reduced. Their findings suggest that contextual school-wide interventions to improve teacher self-efficacy and competence, as well as increasing organizational health can help to mitigate the demands of teaching that can lead to teacher stress and burnout. Supporting teachers with contextual resources and strategies while also improving their coping and competence to respond to the complex demands of teaching can lead to more positive school environments that foster teacher and student growth and well-being.

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