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Teachers' workplace well-being: Exploring a process model of goal orientation, coping behavior, engagement, and burnout

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ABSTRACT

The current research integrated components of the transactional model of stress and coping with self-worth and goal theories to examine a model where (a) teachers' goal orientation (as indicated by mastery and failure avoidance) was hypothesized to predict their teaching coping strategies (as indicated by problem- and emotion-focused coping) and (b) teaching coping was hypothesized to predict occupational well-being (as indicated by engagement and burnout). A longitudinal sample of 430 teachers took part in the research. With the structural equation model suggesting an acceptable fit to the data, findings generally supported hypotheses. Implications for theory and practice are discussed.

1. Introduction

Retaining qualified and experienced teachers is an important international concern (Organisation for Economic Cooperation and Development [OECD], 2002). In the United States of America, for example, turnover has been estimated to be as high as 46 percent of teachers in the first few years of teaching, not including internal turnover between schools, resulting in considerable supply and demand concerns (similar statistics are evident in Australia, the context of the current research; Manuel, 2003). There are many reasons for this attrition. One of the more prominent factors is the high levels of stress, burnout, and demands inherent in teaching (Jalongo & Heider, 2006). Indeed, research conducted in the UK with a random sample of over 17,000 individuals indicated that a greater number of teachers experienced high stress compared to every other occupational group in the sample (Smith, Brice, Collins, Matthews, & McNamara, 2000). Furthermore, estimates in the literature suggest that five to 20 percent of all teachers suffer from burnout (Schaufeli, Daamen, & Van Mierlo, 1994). As such, understanding the processes that underlie well-being in teaching is a centrally important issue for teacher education.

The current research utilizes a longitudinal sample of teachers to explore an integrative model of teacher well-being comprising elements of the transactional model of stress and coping, self-worth theory, and goal theory. The study examines three elements: (a) goal orientations which underlie the appraisal of threats to self-worth which emanate from the teaching environment, (b) coping behaviors resulting from these orientations, and (c) teacher burnout and engagement as negative and positive outcomes of this process (see Fig. 1). In doing so, the research seeks to highlight educational motivation constructs and processes which are influential in teachers' daily orientation to work and which may underlie their well-being.

In this research we focus on teacher well-being within Australia. This country is an important context for well-being research for several reasons. First, Pithers and Soden (1999) note that well-being experiences of Australian teachers are quite similar to those in the United States and the UK (two large centers of teacher well-being research; see also Byrne, 1999). Thus findings from Australia can often be generalized to wider Western contexts. Indeed rates of teaching distress in Australia (Howard & Johnson, 2004) are similar in level to other Western nations (e.g. Schaufeli et al., 1994). Second, recent Australian government commissioned reports such as the *Top of the Class* (Hartsuyker, 2007) and *An Ethic of Care* (Tasmanian Educational Leaders Institute, 2002) reflect growing awareness of the importance of teacher well-being as a serious public policy concern. This is consistent with the greater international attention paid to retaining qualified and experienced teachers as illustrated by the OECD commissioned *Attracting, Developing and Retaining Effective Teachers* report (OECD, 2002).

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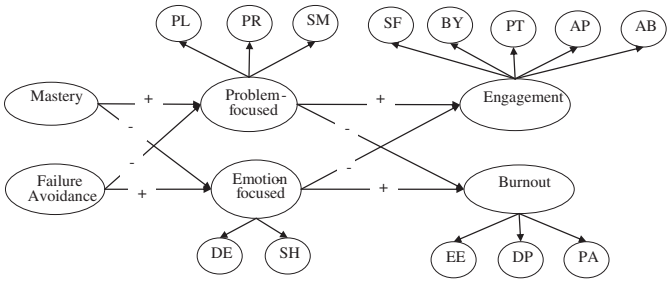

Fig. 1. Hypothesized process model of teacher well-being. + Hypothesized positive predictors; − hypothesized negative predictors. Problem-focused coping is a higher-order latent factor composed of PL = planning, PR = persistence, and SM = self-management. Emotion-focused coping is a higher-order latent factor composed of DE = disengagement and SH = self-handicapping. For well-being, engagement is a higher-order latent factor composed of SF = workplace satisfaction, BY = buoyancy, PT = participation, AP = career aspirations, AB = absenteeism. Burnout is a higher-order latent factor composed of EE = emotional exhaustion, DP = depersonalization, PA = personal accomplishment.

1.1. Process versus context research on teacher well-being

In the study of teacher well-being there is an important distinction to make between process research and context research. Context research focuses on the external causes of well-being and has been studied in extensive detail (see Vandenberg & Huberman, 1999). The findings from this research have been relatively consistent in both Australia and in other Western countries. The research indicates that the major sources of poor well-being include student motivation and behavioral problems, role conflict, time and workload, evaluative environments, and managing change (Howard & Johnson, 2004; Kyriacou, 2001). While extensive research has occurred on the context of teacher burnout, Vandenberg and Huberman (1999) suggest that a major research priority is the study of process variables such as teacher motivation and coping patterns which explain individual differences in teachers' response to these external stressors. While these process theories focus on individual differences, they are situated within the school and classroom context. Thus, while general organizational psychology models such as the transactional model of stress and coping are useful in understanding the processes behind teacher well-being, integrating this theory within the educational context is important. To achieve this aim, we integrate the transactional model of stress and coping with the more education focused self-worth and goal theories of motivation. We suggest that self-worth theory explains what teachers have at stake in the classroom (what the context of teaching places at risk for the teacher), while goal theory outlines individual differences in the orientations of different teachers to these stakes (the components of the teacher well-being process). Finally, the transactional model places the threat to self-worth inherent in the teaching profession with the individual differences in the response of individuals in the form of goal orientations into a clear process model of teacher well-being. This integration of theories is summarized in Fig. 2.

1.2. Transactional model of stress and coping

Given the various costs of poor well-being and burnout (and associated costs of attrition and absenteeism), it has become increasingly important to provide an account of the ways teachers appraise demands associated with well-being, and the impacts and effects of individual coping strategies in meeting appraised demands. Currently, much research is based on Lazarus and Folkman's (1984) transactional model of stress and coping, which is used to help understand the process by which threatening demands give rise to coping behaviors and, as a consequence,

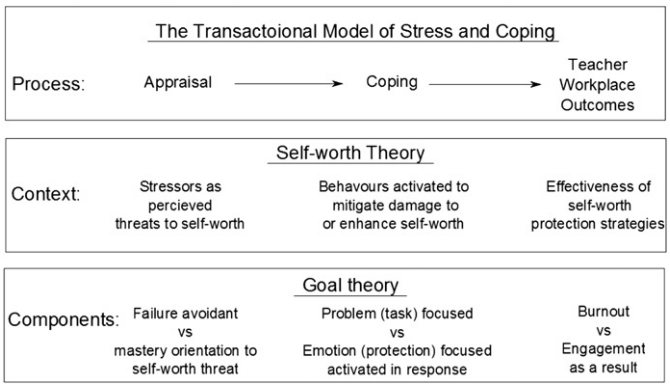

Fig. 2. The integrative model of teacher well-being.

workplace well-being outcomes. This model has been effective in delineating the importance of meaning, appraisal, and coping in this process. However, Coyne and colleagues (Coyne & Gottlieb, 1996; Coyne & Racioppo, 2000) have suggested that this model suffers from a focus on the stress process as event-specific, which is largely incompatible with the considerable variance in outcomes associated with individual differences. Indeed, while some coping behaviors vary from situation to situation, given a specific context such as the day-to-day stressors of teaching, there is a tendency for individuals to draw from a "stable hierarchy of preferred coping strategies" (Frydenberg, 1997, p. 40). One approach to incorporating individual differences into a transactional approach to stress and burnout is to consider the role of underlying psychological variables and processes activated in response to the teaching context which may promote stable patterns of appraisal of threats and challenges and thus explain individuals' preference for particular coping strategies. In the current research we draw on self-worth theory and goal theory, to provide a motivational model of teacher well-being. Both models have been developed in education and delineate responses to the teaching context (Butler, 2007; Covington, 2000).

1.3. Self-worth and goal theory

Self-worth theory is proposed here as a theoretical framework that explains what is at risk for teachers in the school context. This theory suggests that a primary motivating drive is the need to maintain and promote self-worth (Covington & Beery, 1976). It further suggests that achievement domains (such as teaching) provide a basis upon which self-worth is evaluated and maintained, enhanced, or threatened. The theory has particular relevance for teachers. According to Kelchtermans (1996, 2005) and Zembylas (2003), teacher perceptions of self are in an ongoing state of vulnerability. This vulnerability is in part due to the social, moral, and professional realities of teaching and also the societal expectations surrounding what a 'good' teacher should be (Kelchtermans, 2005; Nias, 1999; Pines, 2000; Zembylas, 2003). Given that teachers invest self-worth in their teaching role, "any perceived attack on it is experienced as threatening and painful" (Nias, 1999, p. 225). Thus, various threatening factors will be appraised as stressful because they place aspects of teacher self-worth at risk (e.g., Friedman, 2000a; Kelchtermans, 1996, 2005; Pines, 2000). For instance, student misbehavior may place a teacher's self-efficacy at risk (Friedman, 2000a). Policy changes that encourage 'teaching to the test' can place a teacher's self-image at risk (Kelchtermans, 2005). Similarly, the introduction of teacher performance measures based on students' attainment places teachers' perceived level of success and competence at risk (Friedman, 2000b). Hence, the constant accountability,

student-related, and school-related pressures and challenges that teachers face represent persistent threats to teacher self-worth.

Teacher self-worth provides a contextualized perspective for what teachers are likely to appraise as stressful. This approach is consistent with the transactional model of stress and coping (e.g., Dewe, 1991, 1992; Troup & Dewe, 2002; see also Hobfoll, 1989) in which stressors are often associated with self-worth relevant appraisals such as a perceived threat to self-esteem, feeling embarrassed, losing the respect of important others, and appearing incompetent. Self-worth theory also provides a context for teacher coping behaviors which emerge in reaction to the appraisal of threats and challenges in the teaching domain (Covington, 1998, 2000; Covington & Beery, 1976).

Nias (1999) suggested that the desire to protect conceptions of self results in teachers going "to considerable lengths to protect their sense of individual identity" (p. 225). The characteristics of the length teachers are likely to go to, however is likely to vary across individuals. According to Covington (1992, 1998; see also Covington & Beery, 1976), one key factor that accounts for this variance is an individual's goal orientation; namely, the extent to which an individual characteristically responds with mastery or failure-avoidant orientations. Goal theory provides a set of teacher relevant components, which are activated in response to self-worth threat and on which the transactional process operates. In particular it highlights the important of mastery and failure avoidance orientations[1] and their association with preferential use of patterns of behavioral coping responses, which affect teachers' experience of engagement and burnout (Covington, 2000; see Fig. 2).

1.4. Mastery orientation and failure avoidance

Although goal theory has largely been developed in relation to students within the educational environment, Butler (2007) notes:

> school is an achievement arena not only for students but also for teachers who presumably strive to succeed at their job but who may differ in the ways they define success, in the goals they strive to attain, and, thus, in their personal achievement goal orientations for teaching. (p. 242)

Mastery and failure avoidance are two major goal orientations, which represent characteristic orientations toward self-worth threats (Seifert, 2004).

Mastery is an orientation to seek out challenges, define goals by internal self-set standards, and engage tasks for their intrinsic value (Ames, 1992; Butler, 2007; Martin, 2002; VandeWalle, 2001). A *mastery orientation* represents a focus on the task at hand and represents motivation drawn from the potential for development that may emerge from engaging in a task with effort and strategy (Ames, 1992; Martin, 2002; VandeWalle, 2001). While this learning and development focus forms the core of a mastery orientation, it is also associated with a number of central beliefs and cognitions that hold important implications for the stress process. In particular, a mastery orientation is associated with the beliefs that human attributes are not fixed or outside of the individual's control. Rather, they are amenable to effort, which leads to improvement, success, and/or competence (Dweck & Leggett, 1988; Seifert, 2004; VandeWalle, 2001). Thus, for mastery-oriented individuals, success and competence are seen as largely dependent on effort (Covington & Beery, 1976; VandeWalle, 2001) and obstacles are seen as neither permanent nor immutable (Covington & Beery, 1976; Dweck & Leggett, 1988). Thus, obstacles are appraised as being able to be overcome with increased or improved effort and/or strategy (Covington, 1992, 1998; Covington & Beery, 1976). Given the motivation for potential learning and development, mastery-oriented individuals tend to apply sustained attention to the task at hand rather than to the implications that the task has for 'self' and self-worth (Covington, 1992; Maehr, 2001).

A failure-avoidant individual is one who is primarily oriented toward reducing the chances of failure, maneuvering to adjust to the implications of failure for self-worth, and holding doubts about their capacity to meet task demands and overcome obstacles (Covington & Beery, 1976; Maehr, 2001). Failure avoidance emerges from a fear of failure (Martin & Marsh, 2003) that places the individual's focus on self and failure dynamics (Ames, 1992; Covington, 1998, 2000; Covington & Beery, 1976; Seifert, 2004). The orientation toward self means that failure avoidance is not only associated with a focus on the task but also on the implications that task has for self-worth, particularly where the task type and task difficulty is appraised as being indicative of the quality of a self relevant personal attribute (e.g., tasks that are seen as indicative of personal competence; Covington & Mueller, 2001; Maehr, 2001). This orientation does not just relate to avoiding failure but to avoiding the implications failure has for self-worth (Thompson, 2004). In particular, failure avoidance includes the attribution that failure, in the presence of significant personal investment indicates a personal failing or inadequate personal attributes (Thompson, 2004). This process is associated with self-doubt (or low and/or uncertain self-esteem) relating to whether personal attributes will be sufficient to meet the requirements of the situation (Martin & Marsh, 2003; Thompson, 2004).

1.5. Behavioral coping strategies

Coping strategies have traditionally been subsumed under two categories – problem-focused and emotion-focused (Cooper, Dewe, & O'Driscoll, 2001; Dewe, 1992; Frydenberg & Lewis, 2004; Lazarus, 1993). Problem-focused coping refers to strategies or behaviors, which seek to directly resolve challenges or threats. Emotion-focused coping refers to strategies directed toward re-interpreting or changing the meaning of threats and challenges (Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986; Lazarus, 1990, 1993). In general, research suggests that problem-focused coping behaviors tend to lead to more positive outcomes than emotion-focused coping behaviors (Frederikson & Dewe, 1996; Frydenberg & Lewis, 2004).

The theoretical and measurement work of Martin (2007, 2008, 2009) provides a particularly useful set of prototypical behaviors that are relevant to teachers work. The particular behaviors that Martin refers to as typical of proactive behaviors are planning, persistence, and self-management that reflect a problem-focused approach to dealing with setbacks and challenges. While not traditionally categorized as problem-focused coping (they are labeled in Martin's motivational model as adaptive behaviors), such behaviors can be seen as the direct outcome of a mastery orientation toward setbacks and, in particular, of the belief that failure reflects the appropriateness of effort levels, strategy choice or employment, rather than the quality of personal trait-like attributes (Martin, 2002). Martin's (2007) motivation framework

[1] In reference to self-worth threat, Covington's orientations of success and failure avoidance are the most pertinent to the theoretical background of this research (Seifert, 2004; Thompson, 2004). Although Covington's typology uses different terminologies, it shares central features with Dweck and Leggett's (1988) mastery (or learning) and performance (or social comparison) orientations (see Covington, 1998, 2000; Covington & Beery, 1976; Seifert, 2004). The similarities in these characteristics are derived from two sources. First, they are both linked to the more traditional approach/avoidance distinctions that emerged from the achievement motivation theories put forward by McClelland, Atkinson, Clerk, and Lowell (1953) (see Covington, 2000; Elliot & Covington, 2001 for a review). Second, both refer to a distinction between validation versus learning/improvement oriented goals (Seifert, 2004; VandeWalle, 1997).

also provides a useful representation of prototypical palliative behaviors relevant to teacher. These behaviors include behavioral disengagement (withdrawing and reducing effort) and self-handicapping (behaviors such as procrastination, distraction, last minute effort, and unrealistic goal setting that provide an 'alibi' in case of failure), which reflect a predominately short term avoidant and emotion-focused approach to coping with setbacks and challenges (Martin, 2002). From a self-worth perspective, these behaviors represent strategies frequently used by failure-avoidant individuals to cope with threats that are characteristic of self-worth relevant domains (Covington & Beery, 1976; Martin, 2002). These behaviors represented in Martin's (2007) model as adaptive and maladaptive behaviors are hypothesized in the current research to represent stereotypical problem-focused or emotion-focused that emerge as a response to teachers holding a mastery or failure-avoidant orientation respectively.

1.6. Workplace burnout and disengagement

Workplace burnout and engagement are outcomes of the appraisal and coping processes and are central components of teacher well-being (Maslach, Schaufeli, & Leiter, 2001; Schaufeli, Taris, & van Rhenen, 2008: Vandenberg & Huberman, 1999). In the current research, teacher burnout reflects a prolonged and occupational specific form of strain consisting of emotional exhaustion, depersonalization, and the absence of feelings of personal accomplishment (Byrne, 1991). Likewise, teacher engagement reflects a set of positive attitudes, behaviors, and emotions directed toward the workplace, which reflect the opposite pole of workplace well-being to burnout (Schaufeli et al., 2008). In the current research engagement is considered to be a multi-dimensional factor consisting of enjoyment of work, participation in the workplace, positive future career aspirations, buoyancy, and low absenteeism (see Parker & Martin, 2008). By exploring the role of burnout and engagement, the current research attempts to provide an overarching test of potential adaptive and maladaptive outcomes of teachers' failure-avoidant and mastery-oriented appraisal and coping patterns. The hypothesized links between the components of teacher well-being are discussed below and presented in Fig. 1.

1.7. Hypothesized links in the model

1.7.1. Mastery orientation, failure avoidance, and coping

Butler (2007) suggests that goal orientation effects teacher behavior, especially in relation to challenges or obstacles (see also Ames, 1992; Thompson & Musket, 2007). Mastery orientation is associated with seeing obstacles as malleable and, as such is associated the perception that demands are responsive to task-directed effort and/or strategy (Ames, 1992; Dweck & Leggett, 1988; Martin, 2002, 2007; VandeWalle, 2001). This approach predicts that mastery orientation is associated with behavioral response to threats and challenges such as forward planning, persistence, and self-management that are primarily focused on meeting task demands and resolving challenges or threats (Covington, 2000; Doron, Stephan, Boiché, & Le Scanff, 2009; Dweck & Leggett, 1988; Martin, 2002; Porath & Bateman, 2006). In contrast, failure avoidance is associated with a view of challenges and demands as persistent and unresponsive to effort. As such, coping behaviors tend to focus on attempting to avoid, deflect, or re-interpret the implications of demands for self-esteem and self-worth (Thompson, 2004). According to Covington (1998, 2000), failure-avoidant cognitions and beliefs suggest to such individuals that ego-defensive coping may be the best available option, despite its negative effects (Covington & Beery, 1976). As such, failure avoidance is hypothesized to be associated with behavioral responses to challenges and demands that are emotion-focused and avoidant such as self-handicapping and disengagement. Taken together, then, mastery orientation and failure avoidance can be hypothesized to predict coping behaviors in the workplace (Fig. 1). These coping behaviors also have implications for teacher engagement and burnout.

1.7.2. Coping, burnout, and engagement

Despite emotion-focused coping strategies associated with failure avoidance being utilized to protect self-esteem, research suggests they do not serve to protect individuals from repeated exposure to the persistent threats to self-worth inherent in many achievement contexts (Covington, 2000; Thompson, 2004). Indeed, such coping behaviors are likely to lead to an increase in strain and distress and, in particular, poorer engagement and higher burnout (Covington, 1998, 2000; Thompson, 2004). Research on coping suggests that that such behaviors are associated with lower satisfaction, poor aspirations, lower resilience/buoyancy, and less participation (Martin, 2002, 2007; Martin & Marsh, 2003; Parker & Martin, 2009, 2011). Thus, while such coping may be activated to reduce the threat to self-worth, the effect is likely to be short lived and lead to increased emotional exhaustion and depersonalization, lowered personal accomplishment, and lower engagement (Covington, 2000; Martin & Marsh, 2003).

Problem-focused coping behaviors associated with mastery such as planning, persistence, and self-management (Dweck & Leggett, 1988; Martin, 2002), however, tend to build self-worth attributes such as self-efficacy and competence (e.g., Covington & Beery, 1976; Covington & Roberts, 1994; VandeWalle, Brown, Cron, & Slocum, 1999). These coping behaviors provide a means for successfully overcoming obstacles and adapting to achievement contexts as they allow individuals to gain success more often and to improve self-worth attributes. Although self-worth threats are unlikely to dissipate completely from the teaching workplace, the use of problem-focused coping does support mastery-defined success and the maintenance and development of self-worth (Covington & Beery, 1976). Taken together, the outcome of mastery-related problem-focused behaviors is likely to be negatively associated with burnout and associated with greater enjoyment of work, participation in the workplace, positive future career aspirations and buoyancy, and lower absenteeism over time (Dweck & Leggett, 1988; Martin, 2002). This hypothesized link is indicated in Fig. 1.

1.8. Current study

To explore teacher well-being, the current research tests an integrative model informed by the transactional model of stress and coping, self-worth theory, and goal theory (see Fig. 2). This model comprises three core elements: (a) teachers goal orientations which underlie the appraisal of threatening obstacles, (b) coping strategies emanating from these orientations, and (c) teacher well-being emanating from the relevant coping strategy. It is hypothesized that mastery will positively and failure avoidance negatively predict problem-focused coping, which is hypothesized to predict higher engagement and lower burnout. In contrast, it is expected that mastery will negatively and failure avoidance positively predict emotion-focused coping behaviors, which are hypothesized to positively predict burnout and negatively predict engagement (Fig. 1).

2. Methodology

2.1. Participants

Participants were school personnel with teaching duties (hereafter referred to as teachers) from schools in the non-government

education sector in Australia. Schools were within the very large Australian Catholic education sector or associated with Independent Schools of Australia. In most cases, data were collected by the researcher during staff meetings or professional development meetings at the school and, as such, response rates were close to 100 percent of teachers present on the day of testing. A total of 430 teachers participated in the research at both time points. Sixty-seven percent (67%) of the sample was female ($N = 287$), the average age was 40 ($SD = 11$), and the average years of experience was 15 ($SD = 11$). There was representation of key school-type factors with 62 percent ($N = 265$) of participants teaching secondary classes, 34 percent ($N = 147$) teaching primary classes and the remainder teaching across both primary and secondary classes. Sixteen percent ($N = 69$) of the sample was part-time, working less than 35 hours a week.

2.2. Materials

2.2.1. Teacher engagement

Teacher engagement was measured through scales assessing work satisfaction (e.g., "I enjoy my work"), workplace buoyancy (e.g., "I am good at dealing with setbacks at work [e.g., poor performance, negative feedback]"), participation (e.g., "I participate when we discuss things at work"), and positive career aspirations (hereafter career aspirations) (e.g., "I'm happy to stay on in this line of work"). These scales were comprised of four items each and rated on a scale of *strongly disagree* (1) to *strongly agree* (7). In the present study, these demonstrated sound reliability with Cronbach's alphas ranging from an average of .83 (Time 1 $\alpha = .82$; Time 2 $\alpha = .83$) for buoyancy to .92 (Time 1 $\alpha = .92$; Time 2 $\alpha = .92$) for enjoyment of work. These scales have elsewhere been shown to reflect robust construct validity (Martin, 2007; Martin & Marsh, 2008; Parker & Martin, 2009, 2011). A single absenteeism item ("How many sick days have you taken off work in the last three months") was also included.

2.2.2. Maslach Burnout Inventory (MBI)

Although there are several instruments that can be used to measure burnout (Schaufeli & Enzmann, 1998), the Maslach Burnout Inventory (MBI) is the most commonly administered measure (Maslach et al., 2001; Schaufeli & Enzmann, 1998). The MBI is built on a strong theoretical base and provides a multi-dimensional perspective on burnout which has been well supported and validated in previous research with teachers (e.g., Byrne, 1991). The Third Edition MBI was used in this research as a measure of burnout consisting of 22 items measuring three factors (Maslach, Jackson, & Leiter, 1996). Nine items measure emotional exhaustion (e.g., "I feel used up at the end of the day"), five items measure depersonalization (e.g., "I worry that this job is hardening me emotionally"), and eight items measure personal accomplishment (e.g., "I have accomplished many worthwhile things in this job"). Byrne (1991, 1999; see also Maslach et al., 1996) has confirmed the construct validity of this measure with a diverse group of teaching professionals. Participants respond on a 7-point scale with poles of *never* (0) and *every day* (6) measuring the frequency with which respondents experienced what was indicated in each statement. Previous reliabilities have been good, ranging from .71 to .90 (Maslach et al., 1996). Similar levels of reliability were found in the present research with Cronbach's alpha ranging from an average of .77 (Time 1 $\alpha = .75$; Time 2 $\alpha = .78$) for depersonalization to .91 (Time 1 $\alpha = .90$; Time 2 $\alpha = .92$) for emotional exhaustion.

2.2.3. Mastery orientation, failure avoidance, problem- and emotion-focused coping

Mastery orientation, failure avoidance and problem- and emotion-focused coping were assessed using subscales from the Motivation and Engagement Scale-Work (MES-W), a measure of motivation relevant constructs which has shown strong construct validity in teaching populations (Martin, 2008, 2009; Parker & Martin, 2009). The MES-W is a 44-item scale designed to measure factors identified as important cognitions and behaviors in performance domains from a variety of psycho-educational perspectives (Martin, 2008). This instrument was particularly useful for this research as it includes scales on goal orientation (e.g., mastery and failure avoidance) and various adaptive and maladaptive behaviors that represent the typical strategies individuals use to cope with workplace challenges. To align with more common workplace coping parlance (e.g., Lazarus & Folkman, 1984), these are referred to as problem- and emotion-focused coping respectively. Thus, the current research utilized the MES-W in order to measure failure avoidance (e.g., "Often the main reason I try at work is because I don't want people to think that I'm incompetent") and mastery orientation (e.g., "I feel very pleased with myself when I learn new things in my work").

The MES-W was also used to access self-reported differences in the use of (a) problem-focused coping which consisted of the first order factors of persistence (e.g., "I'll keep trying at difficult things in work until I've figured them out"), planning (e.g., "I usually stick to a work timetable or work plan") and self-management (e.g., "When I prepare for work tasks, I usually try to find a place where I can prepare well") and (b) emotion-focused coping which included the first order factors of behavioral disengagement (e.g., "I've pretty much given up being involved in things at work") and self-handicapping (e.g., "I sometimes put preparation/projects at work off until the last moment so I have an excuse if I don't do so well"). All items are measured on a 7-point scale of Strongly disagree (1) and Strongly agree (7). Both goal orientation and the problem- and emotion-focused coping have shown strong construct and predictive validity within the MES-W framework and high levels of internal consistency (Martin, 2007, 2009). In the current research Cronbach's alpha indicated that mastery (Time 1 $\alpha = .79$; Time 2 $\alpha = .84$) and failure avoidance (Time 1 $\alpha = .88$; Time 2 $\alpha = .90$) displayed high levels of internal consistency. Likewise, internal consistency estimates for coping behaviors were high, ranging from an average of .76 (Time 1 $\alpha = .76$; Time 2 $\alpha = .76$) for planning to .83 (Time 1 $\alpha = .81$; Time 2 $\alpha = .84$) for disengagement at Time 2.

2.3. Statistical analyses

Structural equation modeling (SEM) provided an integrative method of analysis as all parameters could be simultaneously modeled (including structural, measurement, and error paths).[2] Given that several of the major factors were represented by numerous components (e.g. problem-focused coping consisted of three component factors), multi-collinearity was a potential concern. In order to account for this and yet maintain the advantages offered by multiple indicators, we represented problem- and emotion-focused coping, burnout, and engagement by higher-order latent factors. The model fitted to the data consisted of the

[2] Given the teacher sample reflected a multi-level structure (teachers nested within schools), it was important to explore whether it was justified to conduct SEM at the individual teacher level (rather than the school level). A series of baseline variance components models, or intercept-only models (Hox, 1998) using MLwiN (Rasbash, Browne, Healy, Cameron, & Charlton, 2005), were used to explore the variance explained at the teacher and school levels. Results suggested that the vast majority of variance in the central constructs was accounted for at the individual level with the school level only accounting for a significant amount of variance in two constructs and only at Time 1 (explaining 6% [$p < .05$] of the variance in Time 1 personal accomplishment and 7% of the variance in Time 1 absenteeism [$p < .05$]). Such results suggest analysis at the individual level was justified.

hypothesized processes (Fig. 1) at Time 1, which was simultaneously modeled at Time 2 controlling for the prior variance of counterpart Time 1 factors (Martin & Marsh, 2008; Rosel & Plewis, 2008). In accordance with Byrne (2003), uniquenesses (or measurement error) across time waves were correlated in order to account for error stability across time. Likewise, factor loadings were constrained to be equal over time indicating longitudinal measurement invariance (Raykov, 2004).

This approach provided several important types of information relating to the validity of the hypothesized process model. First, it provided an opportunity to explore whether the model was stable and reflected similar effects at both Times 1 and 2. Second, it provided a strong test of the model at Time 2 to explore whether the hypothesized parameters at Time 2 explained variance in the central constructs over and above that which was predicted by prior variance in the constructs at Time 1 (Rosel & Plewis, 2008). Third, such an approach allowed the researcher to explore whether any significant longitudinal paths were present (see Ferrer & McArdle, 2003). Research using longitudinal data often focuses on the use of theoretically relevant cross-lagged paths, controlled for autoregression effects, in order to infer causality (Duncan, Duncan, & Strycker, 2006). The current research, however, specified a process model consisting of goal orientations predicting coping behaviors, which in turn predicted engagement and burnout. Such process models are not well suited to cross-lagged approaches using only two time waves. As such the approach taken to longitudinal data aimed to (a) explore the consistency of the model at two time points, (b) provide a rigorous test of the central research model at Time 2 where hypothesized paths were controlled for autoregression effects of Time 1 variables, and (c) provide an opportunity for tentative exploration of longitudinal paths that were consistent with the hypothesized model. Thus, while longitudinal data are used here, and autoregression effects are controlled for in the Time 2 model, causality cannot be inferred from the results. Rather, the aim of this research is to provide a rigorous exploration of whether the associations between goal orientations, coping behaviors, and engagement and burnout are consistent with the hypothesized model.

These longitudinal paths from Time 1 to Time 2 variables were explored and introduced into the final model on the basis of modification indices using numerous criteria. First, any additional parameters suggested by modification indices were to be sufficiently large (i.e., a modification index greater than 7.88; Jöreskog & Sörbom, 1993). Second, additional parameters suggested by modification indices were to be from Time 1 to Time 2 constructs only. This excluded cross-sectional modification paths and paths from Time 2 factors to Time 1 factors. Third, additional parameters suggested by modification indices were to be substantively meaningful. Finally, a conservative alpha level of $p < .01$ was set for the inclusion of additional paths. It is important to note that where modification indices are typically used with the intention of increasing model fit, in the current research they were used as a tentative approach to identifying the strongest hypothesized longitudinal relationships between constructs that may help guide further research.

Maximum likelihood was used to estimate the confirmatory factor analysis (CFA) and structural equation models (SEM) with several fit indices used to evaluate the model. These indices were the root mean square error of approximation (RMSEA), comparative fit index (CFI), non-normed fit index (NNFI), and the chi-square value. For RMSEA, values at or less than .08 were taken to reflect a reasonable fit (Schumacker & Lomax, 1996). The NNFI and CFI varied along a continuum of 0–1 in which values at or greater than .90 were considered to be a satisfactory fit (McDonald & Marsh, 1990).While the CFI does not take into account model parsimony, the RMSEA and the NNFI penalize models for a lack of parsimony.

2.3.1. Missing data

Of the 778 teachers who took part in the research at Time 1, 430 (55%) also completed the survey at Time 2. These 430 teachers from 25 schools formed the basis of the current research. While, this dropout is large, it is not unsurprising given that there are considerable problems in teacher retention, both in the industry at large as well as internal movement between schools. Nevertheless, selectivity effects were explored with a series of invariance tests between those that were present at both Time 1 and Time 2 and those who dropped out of the study after Time 1. Results, reported in Table 1, indicated that there was little difference in fit between a model (model 1) in which all parameters were free to vary between the continuing and dropout sample and models 2 though 6 in which the measurement structure and means of the key variables were progressively held invariant across these two groups (see Table 1). This indicated limited selectivity effects. In relation to missing data for the longitudinal sample, missingness was small (1.9% of the total data at Time 1 and 2.1% of total data at Time 2). In this case the EM (expectation maximization) algorithm approach to imputation was implemented. EM is particularly useful as it estimates missing values with all the available information rather than a subset of the available information (see Allison, 2003).

3. Results

3.1. Measurement properties

Before testing the hypothesized model, variables across Times 1 and 2 were submitted to confirmatory factor analysis (CFA) in order to ensure that the factors displayed adequate cross-sectional and longitudinal construct validity. Preliminary psychometrics indicated all variables had acceptable levels of internal consistency and generally indicated that variables were within the limits on skewness and kurtosis indicated by West, Finch, and Curran (1995) to be appropriate for latent modeling (see Table 2). In the CFA model, item residuals were correlated across time and item factor loadings were constrained across time. Such a model provides a strong test of the validity of the measurement components of the central hypothesized model. The CFA provided a satisfactory fit to the data ($\chi^2 = 25{,}862$, df = 8683, RMSEA = .06, CFI = .91, NNFI = .91). Moreover, this model fitted the data as well as the model in which factor loadings were free to vary over time ($\chi^2 = 25{,}587$, df = 8622, RMSEA = .06, CFI = .91, NNFI = 91), indicating measurement invariance over time and validity for the higher-order factors used in this research. Importantly, relationships between variables were consistent over time and reflected the hypothesized relationships (see Table 3). Likewise, the four higher-order factors of problem-focused coping (average factor loadings; Time 1 = .76; Time 2 = .81), emotion-focused coping (average factor loadings; Time 1 = .72; Time 2 = .72), burnout (average factor loadings; Time 1 = .74; Time 2 = .74), and engagement (average factor loadings;

Table 1
Selectivity effects between continuers and discontinuers.

	χ^2	df	RMSEA	CFI	NNFI
Model 1 FS invariant	7614	4150	.05	.97	.96
Model 2 FS + FL invariant	7677	4204	.05	.97	.96
Model 3 FS + FL + UN invariant	7857	4270	.05	.97	.96
Model 4 FS + FL + FC invariant	7802	4287	.05	.97	.96
Model 5 FS + FL + UN + FC invariant	7976	4353	.05	.96	.96
Model 6 Mean-level invariant	7978	4403	.05	.97	.97

Note. FS = factor structure, FL = factor loadings, UN = uniquenesses, FC = factor correlations.

Table 2
Psychometric results for Time 1 and Time 2 data.

	Means		SD		Skew		Kurtosis		Internal consistency	
	T1	T2	T1	T2	T1	T2	T1	T2	T1	T2
Mastery	6.16	6.15	.68	.75	−1.43	−1.70	4.09	6.29	.79	.84
Failure avoidance	3.62	3.52	1.51	1.57	.15	.24	−.89	−1.05	.88	.90
Persistence	5.79	5.76	.80	.81	−1.06	−1.07	2.19	2.25	.81	.81
Planning	5.57	5.50	.85	.87	−.73	−.94	.61	1.83	.76	.76
Self-management	5.61	5.54	.95	.98	−.85	−.85	.61	.74	.81	.82
Disengagement	1.81	1.84	.92	.97	1.75	1.70	3.52	3.37	.81	.84
Self-handicapping	2.01	2.03	.91	.93	1.11	1.16	1.48	1.52	.77	.79
Personal accomplishment	4.61	4.42	.81	.78	−.67	−.44	.39	−.08	.81	.78
Emotional exhaustion	2.52	2.46	1.22	1.27	.26	.45	−.51	−.29	.90	.92
Depersonalization	1.04	1.02	1.03	1.07	1.24	1.48	1.23	2.08	.75	.78
Buoyancy	4.70	4.66	1.14	1.20	−.54	−.46	−.02	−.31	.82	.83
Career aspirations	5.53	5.56	1.19	1.10	−1.17	−1.20	1.30	1.78	.88	.86
Participation	5.50	5.45	1.01	1.04	−1.07	−.93	1.92	1.39	.88	.89
Enjoyment	5.77	5.75	1.02	1.01	−1.40	−1.52	2.77	3.58	.92	.92
Absenteeism	1.49	1.85	2.09	2.25	2.18	1.76	5.33	3.38	NA	NA

Note. T1 = first time wave; T2 = second time wave.

Time 1 = .69; Time 2 = .65) all displayed high average factor loadings at both time points indicating good construct validity.

3.2. Hypothesized model

With CFA results supporting the construct validity of the hypothesized measurement structure, longitudinal analysis turned to directly examining the proposed process model. This occurred by way of two procedures. The first simultaneously tested the hypothesized process model at Time 1 and Time 2 with the Time 2 model controlled for prior variance. This model provided a particularly important test of hypotheses as it explored whether the model was consistent across time and whether the proposed process model predicted variance in the central constructs at Time 2 over and above prior variance explained by Time 1 counterparts. The second procedure used modification indices to identify non-hypothesized longitudinal effects between Time 1 and Time 2 constructs controlling for cross-sectional paths and prior variance.

Given the complexity of this structural model, the fit indices indicated an acceptable fit to the data ($\chi^2 = 26{,}143$, df = 8721, RMSEA = .06, CFI = .91, NNFI = .91). Exploration of modification paths indicated two longitudinal paths that met the criteria for inclusion resulting in a final full structural model which provided an acceptable fit to the data ($\chi^2 = 26{,}105$, df = 8719, RMSEA = .06, CFI = .91, NNFI = .91) and a significantly better fit than the previous model (χ^2 [3] = 38, $p < .001$). These paths were Time 1 engagement to Time 2 failure avoidance ($\beta = -.14$, $p < .001$) and Time 1 burnout to Time 2 emotion-focused coping ($\beta = .37$, $p < .001$). Fig. 3 shows the final model with all significant hypothesized and modified paths represented.

Results across the two time waves were generally consistent in that most of the significant parameters at Time 1 were also significant at Time 2, even after controlling for prior variance. Goal orientation proved to be a strong predictor of both problem- and emotion-focused coping. In particular, mastery was a strong positive predictor of problem-focused coping at both time waves (Time 1: $\beta = .40$, $p < .001$; Time 2: $\beta = .48$, $p < .001$). Mastery was also a significant negative predictor of emotion-focused coping (Time 1: $\beta = -.47$, $p < .001$; Time 2: $\beta = -.14$, $p < .05$), however, this effect was attenuated somewhat at Time 2 after controlling for prior variance in problem- and emotion-focused coping. Failure avoidance proved to be a strong predictor of emotion-focused coping at both time waves with higher levels of failure avoidance predicting significantly higher levels of emotion-focused coping (Time 1: $\beta = .34$, $p < .001$; Time 2: $\beta = .13$, $p < .001$). Failure avoidance was also a significant predictor of problem-focused coping (Time 1:

Table 3
Correlation matrix – latent HCFA.

Time 1							Time 2					
	Mast	FA	Prob	Emot	Eng	Burn	Mast	FA	Prob	Emot	Eng	Burn
Time 1												
Mast	–											
FA	.16	–										
Prob	.40	−.12	–									
Emot	−.45	.32	−.50	–								
Eng	.32	−.26	.30	−.70	–							
Burn	−.16	.40	−.34	.64	−.87	–						
Time 2												
Mast	.58	.10	.29	−.11	.20	−.10	–					
FA	.03	.62	.09	.28	−.28	.42	.00	–				
Prob	.39	−.10	.74	−.30	.16	−.17	.63	−.13	–			
Emot	−.18	−.39	−.39	.90	−.65	.77	−.28	.46	−.30	–		
Eng	.19	.26	.18	−.43	.71	−.71	.28	−.32	.21	−.83	–	
Burn	−.09	.39	−.20	.38	−.61	.95	−.22	.46	−.25	.88	−.87	–

Note. Fit: $\chi^2 = 25{,}587$, df = 8622, RMSEA = .06, CFI = .91, NNFI = .91. Mast = mastery, FA = failure avoidance, Prob = problem-focused coping, Emot = emotion-focused coping, Eng = teacher engagement, Burn = teacher burnout.

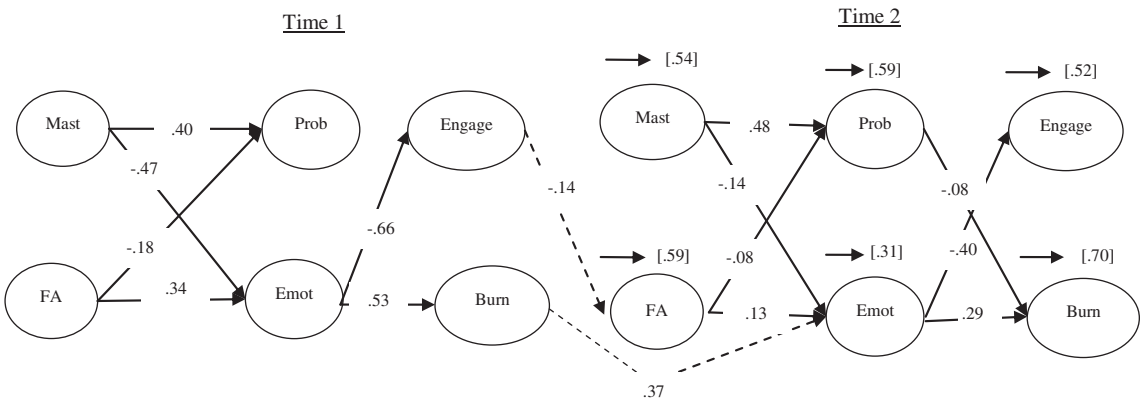

Fig. 3. The modified longitudinal latent model (standardized parameter estimates, β). Fit: $\chi^2 = 26{,}105$, df = 8719, RMSEA = .06, CFI = .91, NNFI = .91; indices in [brackets] = prior variance, — represents hypothesized paths, ---- represents modification paths. All paths included in the model are significant at $p < .05$; non-significant paths were estimated but not included in the figure. Mast = mastery, FA = failure avoidance, Prob = problem-focused coping, Emot = emotion-focused coping, Engage = teacher engagement, Burn = teacher burnout.

$\beta = -.18$, $p < .001$; Time 2: $\beta = -.08$, $p < .05$). Emotion-focused coping was a strong predictor of teacher engagement (Time 1: $\beta = -.66$, $p < .001$; Time 2: $\beta = -.40$, $p < .001$) and teacher burnout (Time 1: $\beta = .53$, $p < .001$; Time 2: $\beta = .29$, $p < .001$). Notably, however, the Time 2 results controlled for prior variance in burnout and engagement and as such effects were smaller at Time 2. Problem-focused coping only negatively predicted teacher burnout at Time 2 ($\beta = -.08$, $p < .05$) and did not predict problem-focused coping at either time wave.

4. Discussion

The current study tested a model which integrated components of the transactional model of stress and coping, self-worth, and goal theory to provide an account of teacher well-being. Results suggested that (a) teachers' goal orientations were strong and consistent predictors of their coping strategies, (b) emotion-focused coping was a consistent and strong predictor of teachers' burnout and engagement, (c) problem-focused coping was a relatively weak and inconsistent predictor of teachers' well-being, and (d) some evidence was present that indicated recursive paths between teachers' well-being and goal orientation and coping. The research adopted a use-inspired approach to testing substantive and methodological questions and thus provided several important yields for theory and application in relation to teacher engagement, teacher well-being, and potentially, teacher education and professional development.

4.1. A well-being model for teachers

The transactional model of stress and coping underlies much of the research on workplace well-being in the organizational literature. However, this model is a general model that is applicable to most occupations. In the current research we aimed to integrate self-worth and goal theory into the transactional model to provide a model of well-being that is most specifically applicable to teachers. Both self-worth and goal theories have a long history in educational settings. While the majority of research on these theories has focused on students, they have been applied and extrapolated to teachers (Butler, 2007; Covington & Beery, 1976). As Butler (2007) suggests, as teachers set achievement oriented classrooms for students, principals may do the same for teachers' workplaces. Moreover, from a self-worth perspective, teachers are often required by school and community norms and policies to implement a clear achievement and competition oriented structure in the classroom (see Covington, 2000 for a review). Covington and Beery (1976) suggested that this often results in a lack of student effort and task-directed motivation, and misbehavior; all of which places increasing pressure on teachers' self-worth, resulting in a maladaptive self-worth cycle for both teachers and students.

Although considerable research has focused on the impact of achievement classroom structures on student well-being (see Ames, 1992), little research has considered what impact these structures may have on teachers. The surprising strength with which failure-avoidant strategies, which are mainly activated in response to achievement oriented environments (Covington & Beery, 1976), predicted more negative well-being in the current research (even at Time 2 when the model was controlled for Time 1 variables) indicates that the effect of achievement oriented classrooms on teachers' well-being is a potentially fertile area for future research.

4.2. Goal orientation and appraisal

Butler (2007) noted that the assumption in much of educational research has been that students' behaviors and outcomes depend on the nature of their goal orientation. Furthermore, Butler noted that this assumption is also likely to hold for teachers in the same environment. This hypothesis was supported in the current research where teachers' goal orientation was a consistently strong to moderate predictor of the types of coping behavior they reported using. The findings in this research are consistent with the hypothesis that mastery and failure avoidance represent underlying patterns in the way teachers typically appraise the self-worth threats inherent in the school context. Furthermore, the consistency, direction, and strength of the findings suggested that particular behavioral and emotional responses are associated with specific and distinct patterns in appraisal (Frederikson & Dewe, 1996; Lazarus, 1990). In the current research a strong association was found between failure avoidance, emotion-focused coping, greater burnout, and lower engagement. From a self-worth and goal theory perspective, these findings can be explained as a natural outcome of failure avoidance/emotion-focused coping patterns. These patterns result in poorer well-being due to a greater likelihood of failure, poorer adaptation to the achievement environment, self-reinforcement of emotion-focused coping, and the inadequacy of coping strategies associated with failure avoidance in protecting self-worth over time (Covington, 1992, 2000).

Importantly, the longitudinal paths observed from burnout and engagement to failure avoidance and emotion-focused coping provide avenues of hope in suggesting a spiral of positive benefits is possible where reduction in burnout triggers less failure avoidance and maladaptive coping strategies, thus promoting further well-being.

4.3. Unexpected findings

The integrative model hypothesized that problem-focused coping behavior patterns would be associated with positive well-being due to the greater likelihood of this pattern resulting in successful resolution of obstacles, a reduction in the threat assessment of demands, and reduced attention to the implications of teaching tasks for self-worth (Covington, 1998; Covington & Roberts, 1994; Maehr, 2001; Martin, 2002). This relationship, however, was only significant at Time 2, only predicted burnout, and was weaker than expected. While it is beyond the scope of this study to test empirically, we offer several possible explanations for future research. One explanation is that problem-focused coping of the type used in this research is effective in predicting performance and achievement outcomes but may have limited or only indirect effects on well-being. Indeed, this can be supported by previous research where problem-focused coping strategies were found to be moderately to strongly related to objective performance and achievement data but were more weakly associated with well-being outcomes (VandeWalle et al., 1999; VandeWalle, Cron, & Slocum, 2001). Second the nature of teaching requires a relatively high minimum standard of problem-focused coping, which failure-avoidant teachers must engage in regardless of the fear or stress this induces. Thus, teachers are often required to submit lesson plans and class management plans to supervisors. Indeed, professional development certification in some states of Australia requires evidence of planning skill development in order to obtain professional competence standing (NSW Institute of Teachers, 2009). It is possible, then, that the weak and inconsistent effects of problem-focused coping on well-being may be due to failure-avoidant individuals being required to engage in at least a minimum amount of planning and self-management despite finding such strategies potentially distressing (see Covington & Beery, 1976).

4.4. Applied implications

The current research presented pathways to well-being as a process where goal orientation predicted coping behaviors which, in turn, predicted well-being. The findings largely supported this multi-stage model and indicated that a process perspective on well-being was feasible. The efficacy of this model in predicting significant variance in engagement and well-being supports Cooper, Dewe, and O'Driscoll (2003) who called for well-being interventions to be based on strong theoretical frameworks. Cooper et al. (2003) pointed to the utility of transactional models of stress and coping in developing interventions that consider appraisal and coping as important targets of intervention. In particular, a theory-based approach suggests not only a focus on coping, but also on the cognitions that give rise to coping and the context in which it occurs (Dewe & Trenberth, 2004). From a motivation perspective, goal orientation is not only important in predicting how teachers will appraise demands and the choice of coping behaviors they will use in response (as found in this research), but also affects the way they are likely to perceive intervention efforts and feedback, with avoidant individuals often viewing such efforts more negatively and as less valuable (VandeWalle, 2001). Indeed, Butler (2007; see also Butler & Shibaz, 2008) has noted that avoidant oriented teachers are less likely to engage in help seeking behaviors.

As such, differences in goal orientation are an important consideration for intervention efforts. The strength and consistency of the effect of goal orientation in predicting coping behavior suggests the possibility that intervention can target these orientations and the cognitions and beliefs associated with them rather than simply promoting 'adaptive' coping behavior (Ames, 1992; VandeWalle, 2001; VandeWalle et al., 1999). A relatively new approach, which focuses on promoting mastery cognitions but also takes into account real-world performance requirement of teaching is that proposed under Martin's personal bests (PBs) framework (for recent research see Martin, 2006; Martin & Liem, 2010).

Findings also hold applied implications for coping interventions. One of the unexpected findings in this research was the weaker effects of problem-focused coping in comparison to the effects of emotion-focused coping on engagement and burnout. An initial interpretation of such a result suggests that applied interventions should seek to reduce emotion-focused coping and limit resources devoted to promoting problem-focused coping. However, this may be problematic for two reasons. First, the effectiveness of problem-focused coping may depend on whether it is activated due to the requirements of the job or due to the goal orientation of the individual (see Covington, 1998, 2000). As such, a focus on both problem- and emotion-focused coping may be important in intervention that simultaneously targets the use of effective behavior strategies and the motivation which underlies them. Second, research by Martin (2001, 2003) and VandeWalle et al. (1999, 2001) has suggested that the problem-focused behaviors used in this research are consistently related to achievement and performance. Taken together, advocating the use of particular coping strategies may have limitations if both the goal orientation of the teacher who is expected to implement the strategies and the wider school context are not taken into account.

Interventions specifically targeting coping and goal orientations, however, may be difficult for practical reasons where teachers are often time poor. Nevertheless, as teaching becomes increasingly professionalized, professional development and in-services attendance are increasingly mandatory (see NSWIT, 2009 for example requirements). These professional development requirements provide a potentially useful forum in which theory and practice associated with healthy coping and teacher goal orientations can be more realistically discussed with busy teachers. From a self-worth and failure avoidance perspective, professional development programs could focus on helping teachers view their vocation as an integration of several different domains, each of which potentially conflict (Friedman, 2004). Friedman suggested expectations should be based upon an acknowledgment that the variety of skills and domains in which teachers operate means that conflict and lack of role clarity are inherent in teaching rather than indicative of a teacher's personal efficacy and other self-worth relevant attributes. Taken together, this requires programs which teach teachers to continually revaluate their professional identity to ensure that expectations about what it means to be a 'good' teacher are realistic and achievable (Friedman, 2004).

4.5. Limitations and directions for future research

The current research has explored a detailed and expansive model of teacher well-being. Although the research was underpinned by a number of strengths, inevitably there are limitations to consider when interpreting findings and which hold implications for future research. In particular, a number of commentators, particularly in stress research, have discussed the limitations of a focus on self-report data (Dewe & Trenberth, 2004; Lazarus, 2000;

Schmitt, 1994). Motivation theorists (e.g., Pintrich, 2003) have also provided criticism of self-report measures. In both cases, the critic has focused on method bias, or more specifically, the extent to which substantive information is obscured by methodological confounds (Pintrich, 2003; Schmitt, 1994). Nevertheless, self-report data can be appropriate, particularly when constructs of interest are intra-psychic in nature as they are in the case of this research (Crockett, Schulenberg, & Petersen, 1987; Howard, 1994). Further, self-report offers anonymity and privacy in a research context, which is likely to be important in research on teacher well-being. Thus, while physiological stress may be inappropriately measured by self-report data where objective tests are possible, burnout and job satisfaction are logical candidates for questionnaire based methods given they focus on the inner psychological processes of the individual. While this suggests that self-report research is valid, there is a need to expand research to include other methods where this is appropriate (Dewe & Trenberth, 2004). One such approach is the use of experimental methods such as those described by Dweck and Leggett (1988) to assess real time cognitions of individuals differing in goal orientation. Further, although the current research included a number of constructs which resulted in the testing of a complex model of teacher well-being, several sets of additional measures may be useful for extending this research in the future, including achievement and job performance measures. Underlying the central multi-stage process model of well-being tested in this research was the notion that the teaching context is a self-worth relevant domain and therefore holds persistent threats to teacher identity. Future research should focus more specifically on the teaching context and how self-worth is placed at risk in this context. This may include quasi-experimental manipulation of the self-worth structure of a teaching workplace and exploring how this affects goal orientation, coping behaviors, and well-being (see Covington & Beery, 1976 for examples).

5. Conclusion

The present research aimed to integrate three literatures – the transactional model of stress and coping, self-worth theory, and goal theory – to elucidate and test a model of teacher well-being. These included a means of integrating the transactional model of stress and coping with the more educational specific self-worth and goal theories to predict teacher burnout and engagement. Taken together, the findings of the present investigation hold substantive and methodological implications for those exploring issues relevant to coping and well-being in teachers, and applied implications for those who are responsible for teachers' well-being and engagement in the workplace.

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