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**Psychological Capital, Future-oriented Coping, and the Wellbeing of Secondary School Teachers in Germany**

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### **Abstract**

It is essential to understand how teachers cope with stress and how this affects their wellbeing as teachers work in very demanding environments. The study employed the transactional model of stress and coping as a theoretical framework to investigate the relationship between the Psychological Capital dimensions (self-efficacy, hope, resilience, optimism), future-oriented coping (proactive, preventive coping) and work-related wellbeing (job satisfaction, work engagement). An online survey was completed by 213 secondary school teachers in Germany. Multiple hierarchical regression analyses indicated that optimism and self-efficacy were significant predictors of proactive coping, and hope predicted preventive coping. Optimism, hope, and resilience had a significant impact on job satisfaction. Furthermore, hope, optimism, and proactive coping significantly predicted work engagement. Proactive coping mediated the relationship between teachers' self-efficacy and work engagement as well as between optimism and work engagement, whereas preventive coping was not a significant mediator. The results imply that developing PsyCap dimensions and proactive coping through interventions can be a valuable avenue to increase teacher wellbeing.

*Keywords:* Future-oriented coping, Psychological Capital, job satisfaction, work engagement, teachers, mediation

## FUTURE-ORIENTED COPING IN GERMAN TEACHERS

In Germany, like in many other parts of the world, teaching is characterised by increasing social, administrative, and emotional demands as well as a rise in non-teaching commitments (Antoniou & Mitsopoulou, 2016). As a result, there is increasing concern in research and practice on what impact this increase has on teachers' wellbeing and on the quality of teaching, with implications on societal development (Blossfeld et al., 2014; Scheuch et al., 2015). Understanding how teachers cope effectively with such stressful events, and which individual factors influence their ability to cope, are important in supporting their wellbeing (van Maele & van Houtte, 2012). Stemming from the positive psychology movement, future-oriented coping is defined as the individual's effort to manage potentially stressful situations before they occur to prevent stress from arising (Schwarzer & Knoll, 2003). Drawing on the transactional framework of stress and coping by Lazarus and Folkman (1984) as the conceptual framework of this study and taking a positive psychological approach focusing on positive human functioning, flourishing, and growth (Seligman & Csikszentmihalyi, 2002), the aim of the study was to examine the relationships between future-oriented coping, Psychological Capital (PsyCap) and well-being of teachers in Germany. More specifically, it tests the relationships between the PysCap (i.e., self-efficacy, hope, resilience, optimism) and well-being (i.e., job satisfaction and work engagement), and the role of future-oriented coping as a mediator in these relationships.

### **Transactional Model of Stress and Coping**

One of the most influential models within the stress and coping research is Lazarus and Folkman's (1984) transactional model of stress and coping which argues that stress is the outcome of the complex transaction between an individual and the environment. According to the model, the appraisal of a situation as stressful leads to coping, which refers to the cognitive and behavioural efforts to deal with demands. The two predominant coping strategies, problem-oriented coping and emotion-oriented coping, are considered reactive

strategies which deal with current or past stressors (Lazarus & Folkman, 1984). Focussing on reactive strategies, however, neglects the fact that the future entails numerous potential stressors, making future-oriented coping a promising research area (Drummond, 2014).

### **Future-oriented Coping**

Future-oriented coping consists of different kinds of coping behaviours, with proactive and preventive coping having received the most attention (Drummond & Brough, 2016). The advantages of this coping approach include the prevention of chronic stress by keeping the accumulation of stressors under control by targeting them at an early stage (Ouwehand et al., 2006). However, the research remains sparse, especially in highly stressful occupations such as teaching.

Preventive coping describes behaviours in which individuals try to anticipate uncertain events in the distant future and assemble resources to diminish detrimental, but vague outcomes of those events (e.g., job loss). Individuals prepare for these situations by employing general, defensive strategies such as saving money to lessen the impact in case the event occurs. Therefore, preventive coping is focused on managing risks and is motivated by threat appraisal (Schwarzer & Knoll, 2003). In contrast, proactive coping refers to an individual's attempt to acquire resources and employ purposeful strategies to deal with more certain future events that are likely to occur, such as performing specific training measures to increase the probability of a promotion (Drummond, 2014; Schwarzer & Knoll, 2003). Within this conceptualisation, proactive coping is understood as goal management, motivated by challenge appraisal, and aimed at enhancing individual resources to facilitate personal growth (Schwarzer & Knoll, 2003).

In a standardised, regulated German education system, teachers have limited influence on their work and the demands placed on them (van Ackeren et al., 2015). Instead, teachers

can modify the ways they cope with stressful events with preventive and proactive coping strategies that aim to deal with future events before stress occurs (Verešová & Malá, 2012).

### **Psychological Capital**

Individuals differ in their perceptions and reactions to stress. Lazarus and Folkman (1984) argued that coping is preceded and affected by both situational aspects, individual characteristics and resources. Indeed, personality traits and states influence how individuals cope with stress (Gailey & Probst, 2016). Thus far, only more stable personality traits (e.g., neuroticism) have been examined in terms of future-oriented coping. However, the inclusion of state-like components leads to a more holistic understanding of psychological mechanisms within the coping process (Bakker, 2015). Unlike trait-like personality dimensions, Psychological Capital is presumed to be a personal resource which is state-like, relatively malleable, and thus open to change through interventions. This positive psychological construct consists of four dimensions, namely self-efficacy, hope, resilience, and optimism (Luthans et al., 2007; Rabenu et al., 2017).

Self-efficacy is an individual's belief in their abilities to accomplish challenging tasks and desired outcomes (Bandura, 1997). High self-efficacy is accompanied by a stronger belief in the ability to succeed in future tasks. This belief is essential for taking measures to accrue resources and attain specific outcomes (Stanojevic et al., 2014). Due to the urge to act to either attain goals or avoid risks, proactive and preventive coping entail an element of self-efficacy (Drummond, 2014). Research supports the link between dispositional self-efficacy and future-oriented coping, showing moderate to strong relationships between the constructs across occupations (Albion et al., 2005).

Hope is defined as the agency and will to achieve goals and directing pathways to pursue these. Individuals high in hope are active agents who use contingency planning to

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predict obstacles and attain desired outcomes (Snyder, 2002). While some scholars argue that individuals with high levels of hope may be more likely to view stressors as challenging (Snyder, 2002), others view hope as vital to deal with uncertain and less controllable situations (Folkman, 2010). Based on these findings, hope is deemed to facilitate both forms of proactive and preventive coping.

Resilience is the ‘capacity to rebound and “bounce back” from adversity, uncertainty, conflict, failure’ (Luthans, 2002, p. 702). To date, the relationship between resilience and coping has been widely discussed. Some researchers claim resilience to be a type of coping (Leipold & Greve 2009). Others suggest a hierarchical relationship between the two constructs with resilience being an outcome of successful coping (Leipold & Greve, 2009). Nevertheless, in line with the concept of PsyCap, resilience is deemed as a human capacity, thus a resource and predisposition of coping. Resilient individuals are supposed to have a higher capacity and emotional stability to cope with uncertain, ambiguous future events and are more flexible to changing demands (Tugade et al., 2004).

Finally, optimism is defined as the propensity to experience positive outcomes (Luthans et al., 2007). In terms of coping, Scheier and Carver (1993) claim that optimists are prone to act and plan to address potential problems which is essential for future-oriented coping (Gan et al., 2007; Stanojevic et al., 2014). Even though in preventive coping individuals aim to alleviate anticipated negative impacts, optimists are more likely to engage in actions instead of avoiding them and expect their effort to diminish or prevent potential harm (Drummond, 2014). The presumption of optimism being positively related to future-oriented coping is supported by studies showing positive correlations between dispositional optimism and coping (Sohl & Moyer, 2009; Stanojevic et al., 2014).

To the best of the authors' knowledge, no research has yet explored the PsyCap dimensions in the context of future-oriented coping among teachers. Understanding if and how the PsyCap dimensions affect teachers' coping and wellbeing could enable practical support for teachers through training interventions (Luthans et al., 2010).

### **Wellbeing among Teachers**

Work-related wellbeing consists of motivational, cognitive, affective, behavioural, and psychosomatic elements encompassing both positive and negative manifestations (Bakker & Schaufeli, 2008; van Horn et al., 2004). As most research on teachers' stress and coping research has focused on negative manifestations of wellbeing (e.g., stress and burnout), this study examines teachers' job satisfaction and work engagement to capture the positive manifestation of teachers' wellbeing (Bakker & Schaufeli, 2008).

Since high levels of job satisfaction are associated with better health, higher retention, higher performance and the quality of teaching, it is an important construct to both teachers and students (Faragher et al., 2005; Hassard et al., 2013). Numerous definitions of job satisfaction exist. Most include affective and cognitive evaluative elements regarding an individual's response to the job in general or to certain facets of the job (Judge et al., 2012; Spector, 1997). The present study takes a global approach as the teachers' overall satisfaction with the job is of interest.

For a more comprehensive understanding of how wellbeing is linked to outcomes such as job performance, researchers have started exploring other indicators of wellbeing (Bakker & Oerlemans, 2011). While job satisfaction consists of an affective and cognitive component, work engagement refers to an affective-motivational state and is regarded as a work-related, fulfilling, positive state characterised by vigour, dedication, and absorption (Bakker, Schaufeli, Leiter, & Taris, 2008). Various studies in the teaching context have



highlighted the positive impact of engagement. For instance, work engagement was positively related to self-assessed health and working ability in Finnish teachers and predicted classroom performance (Bakker & Bal, 2010; Hakanen et al., 2006).

Proactive and preventive coping are considered to have a positive relationship with both job satisfaction and work engagement as active measures are taken to influence the environment (Drummond, 2014). Previous research on reactive coping and proactive constructs demonstrate positive relationships with job satisfaction (Gardner & Fletcher, 2009; Li et al., 2010). Furthermore, the beneficial impact of proactive coping is seen in relation to work engagement in firefighters (Angelo & Chambel, 2012) and the beneficial effect of both proactive and preventive coping on work engagement in Chinese students (Gan et al., 2007). Similarly, a related form of coping – active professional coping (i.e., frontline employees actively reinforcing and utilising the professional power base to change a situation) was found to positively correlate with work engagement (van Loon et al., 2018). Contrary, other research found work engagement to mediate the impact of job resources on proactive behaviour, thereby suggesting a different relationship between the constructs (Salanova & Schaufeli, 2008). With researchers tending to investigate work-related wellbeing in relation to proactive behaviour and personality, little research has been conducted in this area with future-oriented coping (Drummond, 2014). Therefore, the relationships between both coping styles and work-related wellbeing in teachers warrants further evaluation.

### **Future-Oriented Coping as a Potential Mediator**

Previous research highlight the positive relationships between PsyCap, work engagement and job satisfaction (Cheung et al., 2011; Sweetman & Luthans, 2010). However, the mechanism that explains these relationships is not clear. Some research has identified proactive coping to be a personal resource within the expanded version of the job

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demands-resources (JD-R) model, and that it moderates the effects of challenge stressors on engagement and burnout (Searle & Lee, 2015). However, as argued by Drummond (2014), while coping may serve as one of many resources in the JD-R model it is not a coercive component. As this study's main focus is to explore future-oriented coping in more depth, the transactional model with coping as an essential element was considered more appropriate as an underlying theoretical framework. Furthermore, Lazarus and Folkman (1984) claimed that personal resources strongly influence how individuals cope with stress, with PsyCap found to be one such impacting personal resource for reactive coping (e.g., Rabenu et al., 2017). Therefore, in line with the transactional model, coping is supposed to mediate the effect between person characteristics and outcomes. Hence, the relationship between the PsyCap dimensions and wellbeing could be mediated by proactive and preventive coping.

Drummond (2014) found that both types of future-oriented coping were significant mediators and suggested that self-efficacy reduced strain and optimism increased engagement via an increase in proactive and preventive coping. Other researchers found that both preventive and proactive coping lessen the effects of stress on academic engagement with proactive coping being a stronger mediator (Gan et al., 2007). Drummond and Brough (2016) concluded that only proactive, but not preventive coping, was a significant mediator on strain. Proactive coping is presumed to be a stronger mediator due to its underlying motivation, allowing teachers to perceive potential stressful situations at school as challenges and opportunities for personal growth. In preventive coping, however, events are evaluated as threats which are associated with potential loss and higher levels of worry (Gan et al., 2007). Based on the findings and the theoretical assumptions, further studies exploring the effectiveness of the two types of coping are needed.

### Study Aims and Hypotheses

In order to advance a more comprehensive understanding about the construct of future-oriented coping and on the antecedents to positive work-related wellbeing among teachers, this study aims to examine the relationship between (i) the PsyCap dimensions and (ii) future-oriented coping with wellbeing in a sample of secondary school teachers in Germany. It also tests (iii) future-oriented coping as a potential mediator between PsyCap and wellbeing (Figure 1). More specifically, drawing on the transactional model of stress and coping (Lazarus & Folkman, 1984), this study hypothesises that:

**H1:** Self-efficacy, hope, resilience, and optimism are positively related to proactive coping.

**H2:** Self-efficacy, hope, resilience, and optimism are positively related to preventive coping.

**H3:** Self-efficacy, hope, resilience, optimism, proactive, and preventive coping are positively related to job satisfaction.

**H4:** Self-efficacy, hope, resilience, optimism, proactive, and preventive coping are positively related to work engagement.

**H5:** Proactive and preventive coping mediate the relationship between self-efficacy, hope, resilience, optimism and job satisfaction where proactive coping has a stronger indirect effect.

**H6:** Proactive and preventive coping mediate the relationship between self-efficacy, hope, resilience, optimism and work engagement where proactive coping has a stronger indirect effect.

[H5, H6: Mediating role of future-oriented coping]

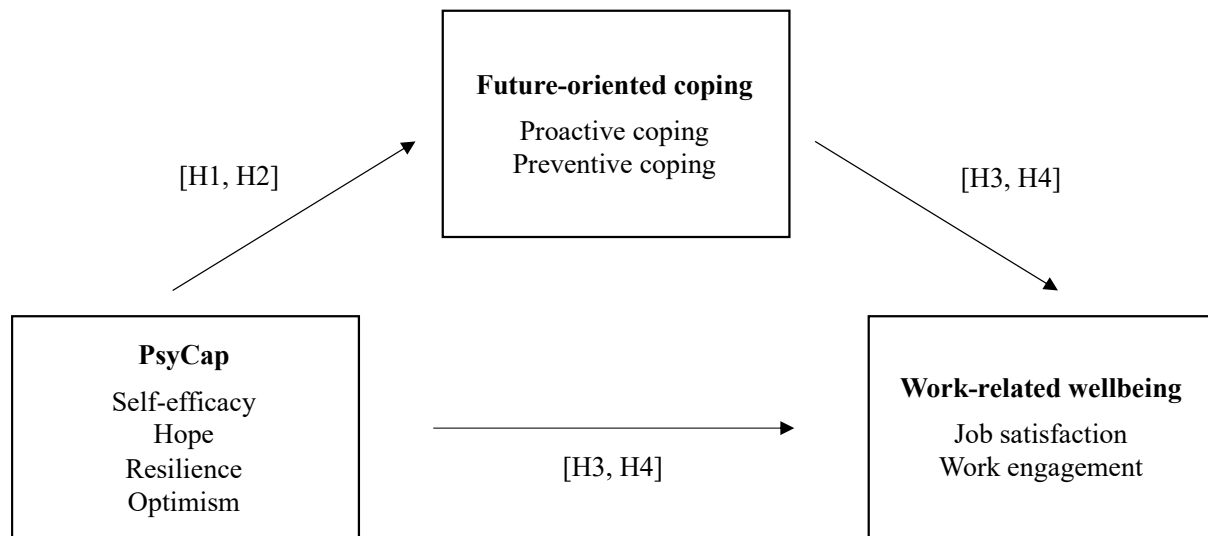


Figure 1. Variables to be tested in the project (simplified depiction).

## Methods

### Participants and Procedure

Teachers and schools, known to the researchers, were approached to complete the survey online and forward it to their colleagues. In order to be eligible for inclusion in the study, participants had to be secondary school teachers in North Rhine-Westphalia, Germany. Due to various reasons such as different emotional demands and different day-to-day class responsibilities, neither headteachers, teaching assistants, primary nor special school teachers were included (Antoniou & Mitsopoulou, 2016; Scheuch et al., 2015). Ethical approval was received from Birkbeck, University of London.

Participants received an introductory email with the link directing them to the survey on the web-based survey platform *Qualtrics*. Teachers took the survey voluntarily and were not remunerated. They also had to provide informed consent and had the right to withdraw. A total of nine cases were excluded owing to incomplete information resulting in a final sample

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of 213 participants. The sample consisted of 65% ( $n = 138$ ) female teachers. Age ranged from 27 to 64 years ( $M = 43.14$ ,  $SD = 11.23$ ) and the average teaching experience was 13.54 years ( $SD = 9.84$ ). Due to the nature of the snowballing sampling approach, no response rate could be calculated.

### **Measures**

#### ***Psychological Capital***

The German version of the Psychological Capital Questionnaire (PCQ) was used to measure the four dimensions: self-efficacy, hope, resilience, and optimism (Luthans et al., 2007). It consists of 24 items with six items for each subscale (e.g., self-efficacy: ‘I feel confident analyzing a long-term problem to find a solution’). Participants indicated their response on a six-point Likert scale (1 = *strongly disagree*, 6 = *strongly agree*).

#### ***Future-oriented Coping***

Future-oriented coping was measured by the subscales proactive (17 items) and preventive coping (10 items) of the German version of the Proactive Coping Inventory (PCI) (Schwarzer et al., 2000). A four-point Likert scale was employed (1 = *not at all true*, 4 = *completely true*). Example item (proactive coping): ‘After attaining a goal, I look for another, more challenging one.’

#### ***Job Satisfaction***

The short version of the German questionnaire ‘Allgemeine Berufszufriedenheit bei Lehrern’ was used to measure teachers’ global job satisfaction (Merz, 1980). Participants rated six items (e.g. ‘I am very satisfied with my job.’) on a four-point Likert scale (1 = *strongly disagree*, 4 = *strongly agree*).

#### ***Work Engagement***

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To measure the teachers' level of work engagement, the German short version of the Utrecht Work Engagement Scale was employed (UWES-9; Schaufeli et al., 2006). It consists of nine items assessing overall work engagement and its three subdimensions vigour, dedication and absorption. Responses were recorded on a seven-point Likert scale (0 = *never*, 6 = *always*). Example item (dedication): 'My job inspires me.'

### **Analysis**

A cross-sectional correlational design was adopted for this study. Statistical analyses were carried out using SPSS version 25. Descriptive statistics and bivariate parametric two-way correlations were computed. Internal consistencies of the scales were assessed by calculating Cronbach's alpha coefficients. Hierarchical multiple regression analyses tested the postulated relationships with significance set at 95% confidence interval level. Parallel mediation was conducted using SPSS and PROCESS version 3.3, model 4 to test the indirect effects of the two variables allowing a comparison of their relative impact. The bootstrapping method (Preacher & Hayes, 2004) was selected, enabling the computing of bootstrap samples and confidence intervals to estimate the indirect effect. This method was chosen as in bootstrapped mediation no assumption is made about sampling distribution allowing to better account for irregularities, thereby increasing the likelihood of providing more accurate inferences (Field, 2018). Total, direct, and indirect effects were obtained on the basis of 5,000 bootstrapped samples and intervals with 95% level of confidence.

The study data was drawn from self-reported measures, raising the potential for common method bias. To minimise this, participants were encouraged to be honest and assured that there are no right or wrong answers. Furthermore, Harman's single-factor test showed one factor only accounted for 22% of the variance, concluding that common method variance was not a large concern (Podsakoff et al., 2003).

## **Results**

### **Descriptive Results**

Descriptive statistics and Cronbach's alpha values for all scales were calculated indicating acceptable levels of internal consistency (Table 1). Kolmogorov-Smirnov tests, histograms, boxplots, skewness, and kurtosis values were examined to evaluate the distribution of the variables and confirmed the appropriateness of running parametric procedures. Pearson product-moment correlation was employed to calculate bivariate two-tailed correlations. Among the included measures, all variables were significantly correlated in the expected, positive direction, but preventive coping was neither significantly related to resilience nor optimism (Table 1).

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Table 1

*Means, standard deviations, correlations, and reliability coefficients among study variables*

	<i>M</i>	<i>SD</i>	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
1. Age	43.14	11.23	-														
2. Gender			.04	-													
3. Working experience			.90***	-.01	-												
4. Gymnasium vs. Gesamtschule			.01	.08	.01	-											
5. Gymnasium vs. Realschule			.11	-.14*	.07	-.16*	-										
6. Gymnasium vs. Hauptschule			.00	-.04	.04	-.11	-.13	-									
7. Gymnasium vs. Berufskolleg			.09	.06	.03	-.22**	-.27***	-.18**	-								
8. PsyCap - Self-efficacy	32.03	3.04	-.01	.16*	.05	-.04	-.01	-.03	-.06	(.79)							
9. PsyCap - Hope	28.36	3.66	-.05	.02	.02	-.06	-.11	-.07	.11	.51***	(.78)						
10. PsyCap - Resilience	27.05	3.80	-.10	.02	-.09	-.03	-.01	-.15*	.06	.46***	.56***	(.72)					
11. PsyCap - Optimism	26.31	4.08	-.09	-.05	-.08	.01	-.07	-.15*	.11	.32***	.50***	.61***	(.70)				
12. Proactive Coping	50.71	6.04	-.19**	-.04	-.15*	-.04	-.10	-.02	.06	.49***	.46***	.46***	.49***	(.82)			
13. Preventive Coping	28.34	4.55	.00	.14*	.07	-.05	-.07	.06	.02	.17*	.27***	.13	.11	.30***	(.80)		
14. Job satisfaction	27.93	6.32	-.06	.00	.02	-.17*	-.06	-.10	.15*	.19**	.42***	.43***	.50***	.29***	.14*	(.91)	
15. Work engagement	35.79	7.22	-.11	.02	-.09	-.10	-.14*	.00	.14*	.41***	.60***	.49***	.56***	.60***	.27***	.60***	(.90)

*Note.* Internal reliability coefficients (Cronbach's  $\alpha$ ) shown in parentheses along the diagonal.

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ .



### **Multiple Regression**

In preliminary analyses, the assumptions for multiple regression, namely normality of residuals, homoscedasticity, linearity, independent errors as well as no multicollinearity, were tested and found to be met for all variables. Hierarchical multiple regression analyses were run to control for the socio-demographic variables (gender, age, years of working experience, school type) by including them in step 1. As both gender and school type are categorical variables, these were dummy coded (0 = male, 1 = female). For school type, the dummy coding approach suggested by Field (2018) was followed. Four dummy variables were created with Gymnasium as the baseline against which the other groups are compared. In step 2, the predictor variables of interest were entered. The results in relation to the hypotheses are summarised in Table 2, and are described in more detail below.

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Table 2

*Summary of the results*

Hypotheses	Result
<b>H1:</b> Self-efficacy, hope, resilience, and optimism are positively related to proactive coping.	Partially supported. Self-efficacy and optimism positively related to proactive coping.
<b>H2:</b> Self-efficacy, hope, resilience, and optimism are positively related to preventive coping.	Partially supported. Hope positively related to preventive coping.
<b>H3:</b> Self-efficacy, hope, resilience, optimism, proactive, and preventive coping are positively related to job satisfaction.	Partially supported. Optimism, hope, and resilience positively related to job satisfaction.
<b>H4:</b> Self-efficacy, hope, resilience, optimism, proactive, and preventive coping are positively related to work engagement.	Partially supported. Proactive coping, hope, and optimism positively related to work engagement.
<b>H5:</b> Proactive and preventive coping mediate the relationship between self-efficacy, hope, resilience, optimism and job satisfaction where proactive coping has a stronger indirect effect.	Rejected. Neither proactive nor preventive coping mediate the relationship between any of the PsyCap measures and job satisfaction.
<b>H6:</b> Proactive and preventive coping mediate the relationship between self-efficacy, hope, resilience, optimism and work engagement where proactive coping has a stronger indirect effect.	Partially supported. Proactive coping mediates the relationship between self-efficacy and work engagement as well as between optimism and work engagement.

***Predictors of Future-oriented Coping and Teacher Wellbeing***

For proactive coping, after controlling for the socio-demographic variables in step 1, including the PsyCap dimensions in step 2 led to a significant increase in the explained variance:  $\Delta R^2 = .36$ ,  $F(11, 201) = 12.74$ ,  $p < .001$ . Self-efficacy ( $\beta = .33$ ,  $p < .001$ ) and optimism ( $\beta = .26$ ,  $p < .001$ ) predicted proactive coping ( $\beta = .33$ ,  $p < .001$ ) while hope and resilience were not significant predictors (Table 3).

The PsyCap dimensions accounted for a small but significant increase in the explained variance in preventive coping in step 2,  $\Delta R^2 = .06$ ,  $F(11, 201) = 2.27$ ,  $p = .013$ , after controlling for the demographic variables in step 1. Hope significantly predicted preventive coping ( $\beta = .24$ ,  $p = .008$ ), whereas self-efficacy, resilience, and optimism did not (Table 3).

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Table 3

*Summary of hierarchical regression analyses for variables predicting proactive and preventive coping*

Steps/Predictors	Proactive coping			Preventive coping		
	<i>b</i>	<i>SE b</i>	$\beta$	<i>b</i>	<i>SE b</i>	$\beta$
Step 1						
Constant	56.42	2.67		32.56	2.01	
Gender	0.52	0.88	.04	-1.53	0.66	-.16*
Age	-0.16	0.09	-.29	-0.12	0.64	-.30
Years of working experience	0.07	0.10	.12	0.16	0.72	.34*
Gesamtschule <sup>a</sup>	-0.86	1.40	-.05	-0.86	1.05	-.06
Realschule <sup>a</sup>	-1.38	1.25	-.09	-0.50	0.94	-.04
Hauptschule <sup>a</sup>	-0.82	1.60	-.04	0.67	1.21	.04
Berufskolleg <sup>a</sup>	0.59	1.05	.04	0.07	0.79	.01
R <sup>2</sup>			.06			.05
Step 2						
Constant	13.33	4.63		22.37	4.29	
Gender	1.12	0.72	.09	-1.47	0.66	-.16*
Age	-0.06	0.07	-.11	-0.09	0.06	-.21
Years of working experience	-0.03	0.08	-.04	0.12	0.07	.25
Gesamtschule <sup>a</sup>	-0.20	1.12	-.01	-0.63	1.04	-.04
Realschule <sup>a</sup>	-0.88	1.00	-.05	-0.22	0.93	-.02
Hauptschule <sup>a</sup>	0.94	1.29	.04	1.06	1.20	.06
Berufskolleg <sup>a</sup>	0.49	0.85	.04	-0.12	0.79	-.01
PsyCap - Self-efficacy	0.66	0.13	.33***	0.01	0.12	.01
PsyCap - Hope	0.18	0.12	.11	0.30	0.11	.24**
PsyCap - Resilience	0.11	0.12	.07	-0.01	0.11	-.01
PsyCap - Optimism	0.39	0.11	.26***	0.02	0.10	.02
$\Delta R^2$			.36***			.06*

*Note.* *b* = unstandardised coefficient, *SE B* = standard error,  $\beta$  = standardised coefficient.

<sup>a</sup> compared to Gymnasium.

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

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For job satisfaction, following controlling for the socio-demographic variables in step 1, adding the predictors in step 2 yielded a significant increase to the total explained variance:  $\Delta R^2 = .26$ ,  $F(13, 199) = 8.39$ ,  $p < .001$ . Optimism was most strongly associated with job satisfaction ( $\beta = .34$ ,  $p < .001$ ), followed by hope ( $\beta = .17$ ,  $p = .037$ ) and resilience ( $\beta = .16$ ,  $p = .046$ ). Self-efficacy, proactive, and preventive coping were not related to job satisfaction (Table 4).

An additional 50% of the variance in work engagement was explained by the inclusion of the predictor variables in step 2, and this change in  $R^2$  was statistically significant,  $F(13, 199) = 18.36$ ,  $p < .001$ , after controlling for the socio-demographics in step 1. Proactive coping was found to be strongly related to work engagement ( $\beta = .30$ ,  $p < .001$ ). Also, hope ( $\beta = .30$ ,  $p < .001$ ), and optimism ( $\beta = .24$ ,  $p < .001$ ) were positively related to work engagement. Self-efficacy, resilience, and preventive coping were not associated with work engagement (Table 4).

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Table 4

*Summary of hierarchical regression analyses for variables predicting job satisfaction and work engagement*

Steps/Predictors	Job satisfaction			Work engagement		
	<i>b</i>	<i>SE b</i>	$\beta$	<i>b</i>	<i>SE b</i>	$\beta$
Step 1						
Constant	35.28	2.74		39.84	3.20	
Gender	-0.28	0.90	-.02	-0.25	1.05	-.02
Age	-0.24	0.09	-.43**	0.10	0.10	-.15
Years of working experience	0.27	0.10	.41**	0.04	0.12	.05
Gesamtschule <sup>a</sup>	-3.39	1.44	-.17	-2.11	1.68	-.09
Realschule <sup>a</sup>	-0.95	1.28	-.06	-2.18	1.49	-.11
Hauptschule <sup>a</sup>	-2.84	1.65	-.12	-0.12	1.92	-.01
Berufskolleg <sup>a</sup>	1.36	1.08	.10	1.54	1.26	.10
R <sup>2</sup>			.09**			.05
Step 2						
Constant	11.27	5.47		-16.93	5.24	
Gender	-0.73	0.81	-.06	-0.37	0.77	-.02
Age	-0.19	0.08	-.34*	0.06	0.07	.10
Years of working experience	0.24	0.09	.38**	-0.09	0.08	-.12
Gesamtschule <sup>a</sup>	-3.23	1.24	-.16	-1.25	1.18	-.06
Realschule <sup>a</sup>	-0.28	1.10	-.02	-0.80	1.06	-.04
Hauptschule <sup>a</sup>	-0.98	1.43	-.04	1.87	1.37	.07
Berufskolleg <sup>a</sup>	0.56	0.94	.04	0.63	0.90	.04
PsyCap - Self-efficacy	-0.25	0.16	-.12	0.03	0.15	.01
PsyCap - Hope	0.28	0.14	.17*	0.59	0.13	.30***
PsyCap - Resilience	0.27	0.14	.16*	0.06	0.13	.03
PsyCap - Optimism	0.53	0.12	.34***	0.42	0.12	.24***
Proactive coping	0.01	0.08	.01	0.36	0.08	.30***
Preventive coping	0.03	0.09	.02	0.10	0.08	.06
$\Delta R^2$			.26***			.50***

*Note.* *b* = unstandardised coefficient, *SE b* = standard error,  $\beta$  = standardised coefficient.

<sup>a</sup> compared to Gymnasium.

\*  $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$ .

*The Mediating Effect of Future-oriented Coping*

Indirect effects were tested using the PROCESS model (Hayes, 2018), with only one predictor variable can be included at a time. As the PsyCap dimensions load onto the higher-order construct and are intercorrelated, they were controlled for along with the control variables in the multiple regressions that had a predictive effect. As required for parallel mediation, proactive and preventive coping are correlated but are theoretically not expected to influence each other causally. For a mediating effect to exist, the confidence intervals must not include zero (Field, 2018). In accordance with Hayes (2018), unstandardised coefficients are reported.

No indirect effects were observed for job satisfaction as an outcome. Controlling for the socio-demographics and the respective PsyCap variables, there was no significant indirect effect of self-efficacy:  $b = .01$  ( $SE = .06$ ), 95 % CI, [-.11, .12], hope:  $b = .01$  ( $SE = .02$ ), 95 % CI, [-.05, .04], resilience:  $b = .01$  ( $SE = .01$ ), 95 % CI, [-.02, .04] or optimism:  $b = .01$  ( $SE = .04$ ), 95 % CI, [-.07, .08] on job satisfaction through proactive coping. Moreover, the indirect effects of self-efficacy:  $b = .01$  ( $SE = .01$ ), 95 % CI, [-.03, .03], hope:  $b = .01$  ( $SE = .03$ ), 95 % CI, [-.04, .08], resilience:  $b = -.01$  ( $SE = .01$ ), 95 % CI, [-.03, .02] or optimism:  $b = .01$  ( $SE = .01$ ), 95 % CI, [-.02, .02] on job satisfaction through preventive coping was non-significant (Supplemental online material).

In terms of work engagement, controlling for the socio-demographics and the respective PsyCap variables, there was a significant indirect effect of self-efficacy on work engagement through proactive coping,  $b = .24$  ( $SE = .07$ ), 95% CI's [.11, .38]. Higher self-efficacy was related to more proactive coping, which in turn predicted higher work engagement. Furthermore, a significant indirect effect of optimism on work engagement through proactive coping,  $b = .15$  ( $SE = .06$ ), 95% CI's [.05, .28] was found. Higher

optimism was related to higher proactive coping, which in turn predicted higher work engagement. No significant indirect effect of hope:  $b = .08$  ( $SE = .04$ ), 95 % CI, [-.01, .16] and resilience:  $b = .04$  ( $SE = .05$ ), 95 % CI, [-.05, .15] on work engagement through proactive coping was demonstrated. Finally, the indirect effect of self-efficacy:  $b = .01$  ( $SE = .02$ ), 95 % CI, [-.04, .04], hope:  $b = .03$  ( $SE = .03$ ), 95 % CI, [-.01, .11], resilience:  $b = -.01$  ( $SE = .02$ ), 95 % CI, [-.03, .03] or optimism:  $b = .01$  ( $SE = .01$ ), 95 % CI, [-.03, .03] on work engagement through preventive coping was non-significant (Supplemental online material).

### Discussion

The study aimed to explore the of the relationships that future-oriented coping has with PsyCap, job satisfaction and work engagement in a sample of secondary school teachers in Germany. The findings suggest that the PsyCap dimensions are strongly associated with proactive coping, and to a lesser extent of preventive coping. Furthermore, proactive coping was the strongest predictor of work engagement, whereas neither forms of future-oriented coping predicted job satisfaction. Testing for mediation, proactive coping mediated the relationship between self-efficacy as well as optimism with work engagement while preventive coping was not found to be a mediator.

This study contributes to theory, research, and practice by expanding the current understanding of the construct of future-oriented coping by including state-like concepts which are open to development through interventions. Thus far, only more stable personality traits have been examined in terms of future-oriented coping (e.g., Albion et al., 2005; Drummond, 2014; Sohl & Moyer, 2009). Furthermore, we explored German teachers who are particularly exposed to stress and extend extant research that has been carried out in student samples or occupations facing different stressors which limits the generalisability of



those studies (e.g., Drummond, 2014; Gan et al., 2007; Griva & Anagnostopoulos, 2010; Stanojevic et al., 2014).

### **PsyCap and Future-oriented Coping**

The results indicate a positive relationship between self-efficacy, optimism, and proactive coping, but not preventive coping. These findings are both coherent and contrary to previous research, emphasising the complexity of the coping research. Prior studies demonstrated dispositional optimism and self-efficacy to be positively related to proactive and less strongly to preventive coping (Drummond, 2014; Gan et al., 2007). Congruent with the current findings, Ouwehand et al. (2006) did not observe that optimism or self-efficacy predicted preventive coping, which they explained by the fact that the situations in their study were not controllable for the participants. By definition, proactive coping refers to more certain future events, whereas preventive coping rather applies to uncertain events associated with a subtle awareness that something may occur (Schwarzer & Knoll, 2003). This suggests that self-efficacy and optimism are accompanied by a stronger belief in the ability to achieve goals as well as a belief to experience positive outcomes, but for this, the events need to be somewhat certain and controllable (Lopes & Cunha, 2008). Furthermore, the findings imply that teachers high in optimism and self-efficacy are more likely to manage and pursue challenging goals which is a central characteristic of proactive coping (Schwarzer & Knoll, 2003).

Hope was positively associated with preventive coping. This is aligned with previous research on reactive coping assuming that hope is a key concept for coping with uncertain, less controllable situations (Folkman, 2010; Lewis & Kliewer, 1995). Resilience was not linked to either preventive or proactive coping. Adequate resilience resources may be sufficient to deal with stress at school, making the use of coping less important. Therefore,

resilience may have a direct, or different indirect effect on teachers' wellbeing. Further ambiguity around this relationship is compounded by an argument that resilience may be considered an outcome of coping rather than an antecedent to it (Leipold & Greve, 2009). As such, further research, particularly longitudinal designs, is needed to unpack the relationship between resilience and coping.

The study examines state-like characteristics (i.e., PsyCap dimensions) and dispositional future-oriented coping. Prior studies have examined dispositional traits and dispositional future-oriented coping. Thus, the distinct measurement of the antecedents could explain the divergent findings because dispositional coping might be more similar to personality traits than states (Carver & Connor-Smith, 2010; Drummond, 2014). Future research should examine the influences of both personality traits and state-like characteristics to determine and compare their effects.

### **PsyCap and Future-oriented Coping as Predictors of Teacher Wellbeing**

Given the existing research linking the PsyCap dimensions to work-related wellbeing (Cheung et al., 2011; Sweetman & Luthans, 2010), we focus our discussion on the less commonly examined link between future-oriented coping and wellbeing. Except for self-efficacy on job satisfaction, the effects of the PsyCap dimensions were in the expected, positive direction.

Optimism, hope, and resilience showed a positive link to job satisfaction. Interestingly, both types of future-oriented coping were not significant predictors when accounting for the other variables in the multiple regression. The results thereby challenge existing research demonstrating that reactive coping and proactive constructs positively affect job satisfaction (Li et al., 2010). The non-significant results may be explained by the use of the global measurement for job satisfaction, which among teachers are perhaps more related

to extrinsic factors and intrinsic rewards (Rudow, 1994). This means that despite experiencing stress, teachers still obtain satisfaction from daily classroom activities such as interactions with students and observing their progress (Klassen & Chiu, 2010). Moreover, future-oriented coping behaviours such as assembling resources may not be relevant to how satisfied teachers are with their job as satisfaction is more related to affective satiation than activation (Bakker & Oerlemans, 2011; Drummond, 2014).

Consistent with previous studies, higher levels of hope, optimism, and increased proactive coping were found to be associated with higher work engagement, with proactive coping having the strongest association (Drummond, 2014; Gan et al., 2007). Preventive coping, however, was not a significant predictor. Similar findings were observed in Zambianchi and Bitti (2013) among emerging adults. A possible explanation might be the shared variance with proactive coping and the differences in their underlying motivation (Schwarzer & Knoll, 2003; Sohl & Moyer, 2009). Work engagement is higher when individuals face challenges and have enough resources to cope with them (Bakker & Oerlemans, 2011). By building up resources to achieve challenging future goals for personal growth through proactive coping, teachers can become more dedicated, absorbed, and full of vigour. Although preventive coping also includes the assembly of resources, the emphasis is placed on the identification and management of work aspects that may become potential risks (Gan et al., 2007). These results indicate that proactive coping is an important factor related to work engagement and provide support for the distinctiveness of proactive and preventive coping.

### **The Mediating Role of Future-oriented Coping**

Higher optimism and self-efficacy in teachers were associated with higher proactive coping, which in turn was positively related to work engagement. Optimism and self-efficacy

are associated with a belief in success and the ability to attain challenging goals which can increase the likelihood of engaging in proactive coping behaviours. These behaviours facilitate resource accumulation which ultimately leads to higher work engagement (Angelo & Chambel, 2014).

Preventive coping was not found to be a significant mediator. In previous research, both proactive and preventive coping had an indirect effect on the relationship between personality and work engagement, with proactive coping being a stronger mediator (Drummond, 2014; Gan et al., 2007). Yet, in these studies, separate mediation analyses for proactive and preventive coping were run, which could have influenced the results because of the shared variance with proactive coping. Parallel mediation allows for more stringent relationship testing, and where this was done, only proactive, but not preventive coping, had an indirect effect on the relationship between personality and psychological strain in undergraduate students (Drummond & Brough, 2016). This is congruent with our findings and might again be explained by the differences in the underlying motivation of the two types of coping (Sohl & Moyer, 2009). The results imply that proactive coping is more effective in teachers in Germany in mediating the effects of self-efficacy and optimism on work engagement.

Optimism, hope, and resilience directly accounted for the variance in job satisfaction, but these relationships were not mediated through future-oriented coping. Significant direct relationships between these variables and job satisfaction have been reported (e.g., Cheung et al., 2011). The findings may be explained by the fact that job satisfaction is less related to active behaviours which are inherent in future-oriented coping (Bakker & Oerlemans, 2011). Finally, hope demonstrated a stronger direct link to work engagement than the effect through future-oriented coping. This is congruent with Ouweneel and colleagues (2012) who claimed

that state-like hope might directly motivate teachers to get engaged with their work as both constructs entail a motivational component.

### **Limitations and Directions for Future Research**

Some limitations should be considered when interpreting the results. First, a correlational, cross-sectional design was adopted. Although the results of prior studies indicate a likely direction of the tested relationships, this study cannot confirm causality. A longitudinal study testing the variables of interest at different time points would be a valuable endeavour for future research to support the causality claims (Field, 2018). Secondly, the study used the transactional model (Lazarus & Folkman, 1984) as a theoretical framework. The study did, however, not measure the reciprocal, dynamic stress appraisal and coping process which would require the assessment of situational, environmental, and dispositional aspects as they occur in the moment and context (Drummond, 2014). Third, unobserved confounders can be responsible for the mediator-outcome association, thus the effects can only be suggestive of mediation as the study design does not allow for any causal claims to be made (Field, 2018). Additionally, while 213 participants should be considered sufficient for single mediation (Fritz & MacKinnon, 2007), much ambiguity exists regarding the determination of the sample size for mediation analysis. Prior research investigating future-oriented coping as a mediator found medium effects with 100 participants (Drummond, 2014). According to Fritz and MacKinnon (2007) who equip researchers with guidelines to conduct mediation with .8 statistical power, 162 participants are thus required for this study. Although this study exceeded this sample size, more participants might have been preferable for parallel mediation and investigating the variables with a larger sample size could help to detect effects with more power.

Fourth, the results of the present study are based on secondary school teachers from North Rhine-Westphalia which limits the generalisability of the findings. In Germany, each federal state regulates the school system itself. Since the coping process also depends on the environment, researchers argue that teachers' wellbeing may be influenced by the school system (Blossfeld et al., 2014; Fiorilli et al., 2015). Thus, it would be of interest to compare different federal states to explore the impact of the school system and working conditions. Finally, all data consisted of self-reported measures collected at a single time point, therefore, despite the Harmon's single factor test reported in the Method section, common method bias remains a possibility (Podsakoff et al., 2003). Finally, this study took a positive psychological approach and thus only explored job satisfaction and work engagement as indicators of teacher wellbeing. Future research could also include a negative indicator to compare and contrast the findings more holistically.

### **Practical Recommendations**

Based on the potentially beneficial influence of the PsyCap dimensions and proactive coping, training interventions could be implemented to support the wellbeing of teachers. There is consistent research showing that the PsyCap dimensions can be trained through short training workshops (2-3 hours) that create noticeable and stable changes (Luthans et al., 2006). For instance, self-efficacy can be promoted by encouraging teachers to set themselves challenging, realistic goals. Once achieved, it increases their confidence in their abilities and affects future behaviour (Luthans et al., 2010). Similarly, although assessed as a disposition, there is evidence that interventions can improve proactive coping competencies which can result in long-term benefits (Bode et al., 2007; Griva & Anagnostopoulos, 2010). For example, previous programmes included education and raising awareness of proactive coping as well as identifying its benefits (Griva & Anagnostopoulos, 2010). Nevertheless, it is

important to note that improving working environments and reducing issues at source are imperative in supporting worker wellbeing (Cox et al., 2000), and PsyCap and coping training should instead form part of a multilevel intervention approach.

### **Conclusion**

By investigating future-oriented coping to understand how secondary school teachers in Germany cope with potential future stressors, this study advanced current knowledge about the construct in a highly stressful occupation. The study combined state-like PsyCap dimensions and dispositional coping, contributing to our understanding of the complex field of coping. While the study design does not allow for any claims for causality, the findings suggest that the PsyCap dimensions, specifically optimism and self-efficacy, are important antecedents of proactive coping, but less so for preventive coping. Moreover, proactive coping was the strongest predictor of work engagement. This leads to the conclusion that proactive coping may be more effective than preventive coping in the German teaching context. Practically, boosting PsyCap and proactive coping seems a promising avenue to increase the work-related wellbeing of teachers which does not only benefit them on the individual level but also impacts the quality of teaching and thus societal development.

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