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# Coping strategies as moderators in the relationship between role overload and burnout

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The moderating effect coping strategies have on the relationship between role overload and burnout was investigated in a sample of 222 professional engineers in the construction industry. A four-factor model of coping strategies, based on the Ways of Coping Questionnaire (WCQ) revised scale, was identified to consist of rational problem solving, resigned distancing, seeking support/ventilation and passive wishful thinking. The results revealed that only rational problem solving significantly moderated the relationship between role overload and all three dimensions of burnout, i.e. emotional exhaustion, cynicism and reduced professional efficacy; whereas the moderating effect of resigned distancing and seeking support/ventilation was significant only on emotional exhaustion and cynicism respectively. Passive wishful thinking failed to demonstrate a significant moderating effect on any of the burnout dimensions at all. The importance and methods of incorporating effective coping strategies as a successful intervention for managing burnout at individual, organizational and institutional levels are discussed.

**Keywords:** Burnout, coping, moderating effect, role overload.

## Introduction

The nature of the construction industry is demanding and professionals engaged in the industry are constantly exposed to inherent job stressors in their work environment (Djebarni, 1996; Dainty *et al.*, 1999; Law and Fox, 2004). Among various job stressors identified in the industry, role overload has been widely demonstrated to be one of the major constituents of job stressors (Davidson and Sutherland, 1992; Love and Edwards, 2005; Ng *et al.*, 2005). As explained by Lingard (2003), construction companies operate in highly competitive environments with relatively low profit margins, completing projects within tight schedules and budgetary control. With the threat of considerable liquidated damages for delay in completion, work hours are hence long and often also irregular.

The construction industry, specific to Hong Kong, has been particularly stressful in the recent decade due to a decline of 46% in gross domestic product and an

increment of 4.5 times in unemployment within the industry during the period from 1997 to 2005 (Census and Statistic Department, 2007). Inevitably, such macroeconomic factors have impinged on the issues of unemployment and job insecurity among construction professionals. Construction companies have tended to lay off large numbers of professional staff in an attempt to reduce costs and maintain a competitive edge; as a result, those who remain are subjected to high levels of role overload.

Construction engineers are hypothesized as being under particularly high levels of stress (Lingard, 2003; Townsend *et al.*, 2007) due to the demanding nature of their job. Engineers typically have a variety of different responsibilities, including the design, manufacture, construction, operation and maintenance of the particular products or services with which their organizations are concerned, with due consideration to safety, reliability and environmental factors, as well as financial, economic, commercial and statutory limitations (HKIE, 2007). In conjunction with these numerous responsibilities, they also have exceptionally long working hours, commonly 10 hours a day five days

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a week, often extended to 12 hours or more a day six days a week once they are on-site without any reflection of this overtime in their pay packet (Townsend *et al.*, 2007). Because of the multidimensional nature of the scope of work, construction engineers are also nowadays more often requested to carry out the role of others, such as architects and surveyors. Bacharach *et al.* (1991) suggest that conflict between professional standards and tight deadlines and/or budget constraints is strongly associated with severe 'life and death' consequences and this increases the engineers' level of stress. High levels of stress over a prolonged period of time can lead to chronic exhaustion, health problems and, ultimately, burnout (Westman and Eden, 1997).

### The role overload–burnout relationship

The most widely referred definition of burnout among general occupations conceptualizes the phenomenon as 'a syndrome of emotional exhaustion, cynicism and reduced professional efficacy' (Maslach *et al.*, 1996). Research suggests that burnout contributed to by job stressors is associated with a negative outcome in both individuals and organizations. At an individual level, burnout has been associated with mental and physical health problems, for example, psychological distress, anxiety, depression, reduced self-esteem (Maslach *et al.*, 2001), headaches, sleep disturbances and substance abuse (Burke and Greenglass, 1986). At an organization level, burnout is also consistently linked to negative attitudes towards work, which include low levels of motivation, job satisfaction and organizational commitment, but high levels of job uncertainty (Schaufeli and Enzmann, 1998; Maslach *et al.*, 2001). These in turn induce counter-productive work behaviour, such as reduced productivity, absenteeism and staff turnover and hence lower the overall effectiveness of the organization itself (Wright and Bonett, 1997). Furthermore, some research suggests that burnout is contagious, spreading to affect the colleagues of those who experience it and even resulting in negative spillover into one's home life (Westman and Eden, 1997). From this standpoint, burnout is not only an individual well-being issue but could also influence socio-economic factors.

The original concept of burnout suggests that the experience was tied to demands of work and associated with a lack of resources (Maslach and Jackson, 1984); whereas role overload has been widely viewed as one of the major constituents of job stressors (Glass, 1990; Harris and Bladen, 1994; Jamal, 2005). Burnout has therefore become one of the most commonly investigated consequences of role overload (Sweeney and

Summers, 2002; Jamal, 2005). Perceived role overload comprises qualitative and quantitative overload. Individuals experiencing qualitative overload feel they lack the basic skills or talents necessary to complete the task effectively; whereas quantitative overload refers to the individual's perception that the work cannot be done in the allotted time (Kahn, 1978). Role overload experienced by employees is often found within organizations with resource scarcity and the continual threat of cutbacks, culminating in burnout becoming more prevalent. This is the exact situation construction organizations in Hong Kong faced during the recent recession. In this context, it is perhaps not surprising to find construction professionals reporting significantly higher levels of burnout than other occupations (Yip and Rowlinson, 2006). In view of the negative implications burnout has on individuals and organizations, it is therefore important to devise intervention strategies to minimize the burnout phenomenon, together with its negative attributes.

### Coping strategies as moderators

Coping is defined as the cognitive and behavioural efforts used to manage specific external order and/or internal demands appraised as taxing or exceeding the resources of the individual (Folkman and Lazarus, 1988). There is a growing understanding that coping strategies, which have been regarded as a psychological intervention in the stressor–strain relationship, play an important role in influencing the tangible and intangible outcomes of the stressor (Heaney *et al.*, 1995; Tidd and Friedman, 2002; Lowe and Bennett, 2003). With reference to the moderator model suggested by Baron and Kenny (1986, p. 1174)—'in general terms, a moderator is a qualitative or quantitative variable that affects the direction and/or strength of the relation between an independent or predictor variable and a dependent or criterion variable'—it is reasonable to suggest that coping strategies may have a moderating effect on the relationship between the stressor and its consequential strain (Lazarus and Folkman, 1984; Spector, 1998; Tidd and Friedman, 2002). Considering that role overload may be regarded as a form of stressor, and burnout is one relevant stress reaction (i.e. strain), coping strategies are therefore likely to have a moderating effect on the relationship between role overload and burnout. Therefore, given constant role overload levels, the presence of coping strategies weakens the stressor–strain relationship, reducing the levels of burnout in the individual.

Nevertheless, previous studies on the effects of coping strategies on the relationship between job

stressors and their strain outcomes have found that different occupations involve very different strategies (Chan, 1994; Hurrell, 1995). For example, in a study of work-related stress and occupational burnout among nurses providing AIDS care, external coping strategies were regarded as more appropriate than internal strategies when dealing with a patient's condition, since there might be no cure for it (Gueritault-Chalvin *et al.*, 2000); in other words, the stressful situation could not be controlled. This is echoed in another study of occupational stress and individual coping, this time among police officers, where emotion-focused coping (similar to external coping) was found to be more consistently associated with strain reduction than problem-focused coping (similar to internal coping), since the stressors imposed on police officers (such as shift work and departmental politics) are, by and large, beyond individual control (Hurrell, 1995). However, the effects of problem-focused coping are recognized as reducing the distress experienced by secondary school teachers within their work environment, for example when dealing with a misbehaving student, rather than avoidant coping (Chan, 1994). Recently, emotional labour has been found to be an emerging stressor in the service industry (Zapf *et al.*, 2001), and social support could moderate the relations between emotion work variables and burnout (Zapf, 2002). These inconsistent findings add weight to Folkman and Lazarus's (1980) argument that the efficacy of a particular type of coping strategy in buffering the effects of stressors on strain is a result of the type of stressors and the situational characteristics, and therefore is occupation-specific.

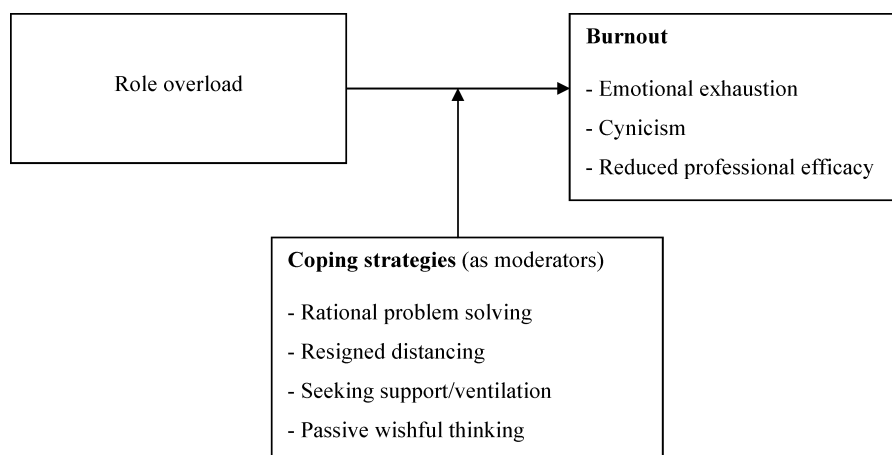
Although construction professionals have been found to experience high levels of burnout (Yip and Rowlinson, 2006), little research has so far been attempted to identify what coping strategies these individuals have adopted and their respective moderating effects on the relationship between occupational stressors and consequential burnout. It is therefore important to understand how some construction professionals cope better than others in the presence of role overload, apparently without developing symptoms of burnout, in respect to their coping strategies. From this pragmatic standpoint, a 'fit' between the coping strategies used by individuals and the specific stressors in their particular work environment should be emphasized (Lazarus and Folkman, 1984). Successful acquisition of such information could help to buffer the negative effects of job stressors on the burnout phenomenon. It is considered desirable that this should be incorporated into an individual-oriented approach to minimize burnout and its detrimental consequences.

## Research objective

Most studies relating to the management of burnout focus primarily on identifying its contributing factors in order to ameliorate job redesign, and aiming to minimize burnout and its negative consequential effects (e.g. Yiu *et al.*, 2001; Lingard, 2003; Burke and Mikkelsen, 2005). However, it is not always feasible for an organization to eliminate certain job stressors under given circumstances and the related occupational characteristics applicable to it. This limitation is probably compounded by employees often having relatively low levels of control over work-related sources of stress, resulting in the need to formulate alternative intervention strategies to manage burnout, such as individual-oriented approaches. Coping strategies, however, can become very important as these can be adopted relatively easily by affected individuals in the treatment of burnout. The objective of the research, as depicted in Figure 1, was to investigate the extent to which the different types of coping strategies, i.e. rational problem solving, resigned distancing, seeking support/ventilation and passive wishful thinking, moderate the relationship between role overload and burnout among professional construction engineers.

## Method

In order to obtain statistically reliable results to predict the phenomena across the total population, a quantitative approach was adopted in this study. A web-based self-administered questionnaire was developed to obtain data from corporate members of the Hong Kong Institution of Engineers (HKIE) in construction-related disciplines, i.e. building, building services, civil, geotechnical and structural. The HKIE distributed e-mail invitations to the corporate members inviting participation in the survey. The invitation was also posted within the website of the HKIE. A web address hyperlink was included, allowing access to the questionnaire, which was designed to be completed and submitted online. The front page of the questionnaire consisted of plain language statements describing the objectives of the study. The statements also explained the voluntary nature of participation and assured the respondents of both anonymity and confidentiality. Demographic information collected included the age and gender. Upon completion of the survey, participants became eligible to receive an optional analysis of their personal coping styles and a copy of the survey analysis itself. A total of 222 completed questionnaires were returned. The nature of the survey prohibited the calculation of the response rate. The mean age of the



**Figure 1** Contingent effect, coping strategies as moderators in the relationship between role overload and burnout

respondents was 40.80 years ( $SD=9.78$ ). Of the 222 respondents, 205 (92.76%) were male and 16 (7.24%) were female. One hundred and eighty-four (83%) respondents expressed their interest in obtaining an analysis relating to their personal coping strategies.

## Measures

Corporate HKIE members hold an accredited/recognized degree, or the equivalent, in a relevant discipline. Thus the target group were considered fluent in English, and as such the original measures which were in English were used to compile the questionnaire. Role overload was measured using six items adopted by Harris and Bladen (1994). They included three items developed by Seashore *et al.* (1982), an example being the item: 'I never seem to have enough time to get everything done'. Since James *et al.* (1982) recommended that at least three, but preferably four or more indicators be used to measure each latent construct, three additional items from Beehr *et al.* (1976) were added, for example the item 'I am given enough time to do what is expected of me on the job'. This resulted in two 'comfort-worded' and four 'stress-worded' items. Respondents were asked to rate the items on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). By conducting a series of exploratory factor analyses of the six items, taking eigenvalues greater than 1 and adopting varimax rotation, one single factor emerged explaining 48.20% of the variance. The Cronbach's alpha coefficient of the role overload items is 0.77.

Burnout was measured using the Maslach Burnout Inventory—General Survey (Maslach *et al.*, 1996). This 16-item inventory comprises three sub-scales assessing emotional exhaustion (I feel emotionally drained from my work), cynicism (I have become less interested in my

work since I started this job) and professional efficacy (at my work, I feel confident that I am effective at getting things done). The items for the third dimension of burnout are framed in positive terms and thus a low score of professional efficacy reflects a high level of burnout. Items were rated on a seven-point scale ranging from 0 (never) to 6 (every day). The structure of the burnout among our sample was examined using principal components analysis (PCA) with varimax rotation. The PCA yielded three components as expected: emotional exhaustion, cynicism and professional efficacy with eigenvalues larger than 1. This solution accounted for 65% of total variance. Emotional exhaustion itself explained 34% of total variance, suggesting that emotional exhaustion could be regarded as the core dimension of burnout in this study. The Cronbach's alpha coefficients were 0.92 for emotional exhaustion, 0.82 for cynicism and 0.84 for professional efficacy. This indicates that each of the burnout sub-scales has very high internal consistency and reliability.

Coping strategies were measured using the Ways of Coping Questionnaire (WCQ) revised scale suggested by Chan (1994) among the Chinese population. The reliability of the WCQ was validated and tested on a revised scale for the Chinese population. It consists of 29 items measuring four coping dimensions: rational problem solving (I tried to analyse the problem in order to understand it better), resigned distancing (I went along with fate; sometimes I just have bad luck), seeking support/ventilation (I let my feelings out somehow) and passive wishful thinking (I wished that the situation would go away or somehow be over with). Respondents were first asked to recall the most stressful situation at work that they had experienced in the past week and to keep this situation in mind while responding to the 29 statements. Each statement described the thoughts or actions an individual had

used to cope with stressful encounters. Respondents were then asked to indicate the extent to which they use each strategy in a four-point Likert scale (0=does not apply or not used, 1=used somewhat, 2=used quite a bit, 3=used a great deal).

### Statistical procedures for testing the moderating effect of coping strategies

To test the moderating effect of coping strategies on the relationship between role overload and each dimension of burnout, statistical procedures described by Baron and Kenny (1986) were employed. First, multiplicative interaction terms between role overload and each of the coping dimensions were created. Second, hierarchical regression analyses, including the multiplicative interaction terms, were carried out so that both demographics and main effects were controlled in the analysis of burnout (Aiken and West, 1991). In step 1 of each regression, control variables—i.e. age and gender—were regressed against each of the burnout dimensions so that the effects of exogenous demographic differences were suppressed in subsequent analysis. In step 2, independent variables, i.e. role overload and the four dimensions of coping, which may have main effects on burnout, were also entered into the same block. This is based on Baron and Kenny's (1986, p. 174) assumption that 'moderators and predictors are at the same level in regard to their role as casual variables antecedent or exogenous to certain criterion effects'. In other words, the four dimensions of coping strategies function as independent variables. In step 3, the multiplicative interaction terms (role overload  $\times$  the relevant coping strategies) were entered last. If the interaction term was significant, above and beyond the independent variables, a moderating effect became apparent; however, if the interaction term appeared to be insignificant, no moderation was apparent (Osborne and Costello, 2004). These statistical procedures have been widely used to test the moderating effects (Kirkman *et al.*, 2004; Wang *et al.*, 2004; Lingard and Francis, 2006). Prior to testing for moderation effects, all continuously measured predictor variables were centred. This procedure eliminates problems associated with multi-collinearity by a linear transformation method which is achieved by subtracting the mean value for a variable from each score for that variable.

## Results

### Factorial structure and scores of coping strategies

The structure of the coping behaviours among the sample in this study was examined by means of

principal components analysis (PCA) with varimax rotation due to an absence of sufficient evidence supporting the underlying factors being related (Field, 2005). The results of this analysis are presented in Table 1. The PCA yielded four components: rational problem solving, resigned distancing, seeking support/ventilation, and passive wishful thinking, with eigenvalues larger than 1, as expected. This solution accounted for 54% of total variance. Cronbach's alpha coefficients were calculated to determine the internal consistency of the four coping dimensions. These coefficients were 0.81 for rational problem solving, 0.78 for resigned distancing, 0.73 for seeking support/ventilation and 0.78 for passive wishful thinking. This indicates that each of the coping sub-scales has satisfactory internal consistency and reliability as recommended by Nunnally and Bernstein (1994). In addition, Table 1 demonstrates the relative mean score, which describes the proportion of effort represented for each type of coping strategy. For rational problem solving the score was 36% (SD=0.10), for resigned distancing it was 16% (SD=0.09), seeking support/ventilation was 29% (SD=0.08) and passive wishful thinking was 19% (SD=0.09).

### Testing the moderating effect of coping strategies

Bivariate Pearson correlations between demographics, role overload, coping strategies and the three dimensions of burnout are presented in Table 2. It is observed that age and gender were significantly correlated with burnout and hence these two variables were controlled in the first step of the following regression analysis. Results of this table suggest highly positive correlations exist between role overload and burnout. Furthermore, the four dimensions of coping strategies were highly correlated with each other, leading to a need to centre the variables to eliminate problems associated with multi-collinearity prior to testing for moderation effects.

Hierarchical regression analysis was used to test the ability of role overload and coping strategies to predict respectively the three dimensions of burnout: emotional exhaustion, cynicism, reduced professional efficacy. The results of the regression analysis are shown in Table 3.

#### *Predicting emotional exhaustion*

Model E1 indicated the regression results when age and gender as control variables were entered as the first block to predict emotional exhaustion. When both the control variables and the main effects were entered as in Model E2, the results showed that the block of main effects has a statistically significant effect on emotional exhaustion and explained considerably more variance (adjusted  $R^2=0.39$ ,  $p<0.001$ ) than when the control

**Table 1** Principal component analysis of coping: item loadings, scale reliabilities and mean relative scores

	Factor 1 EV=6.834	Factor 2 EV= 3.433	Factor 3 EV=1.047	Factor 4 EV=1.565
<b>Rational problem solving</b>				
I tried to analyse the problem in order to understand it better.	<b>0.74</b>	0.01	−0.06	0.01
I came up with a couple of different solutions to the problem.	<b>0.68</b>	0.06	0.25	0.01
I drew on my past experiences; I was in a similar situation before.	<b>0.65</b>	−0.15	0.19	0.09
I tried to see things from the other person's point of view.	<b>0.63</b>	−0.07	0.01	0.31
I made a plan of action and followed it.	<b>0.62</b>	0.24	0.17	−0.21
I changed something so things would turn out all right.	<b>0.60</b>	0.14	−0.01	0.10
I knew what had to be done, so I doubled my efforts to make things work.	<b>0.60</b>	0.17	−0.10	−0.02
I just concentrated on what I had to do next—the next step.	<b>0.59</b>	−0.08	0.27	0.08
I went over in my mind what I would say or do.	<b>0.59</b>	0.21	0.28	−0.05
I tried to keep my feeling about the problem from interfering with other things.	<b>0.53</b>	0.12	0.02	−0.01
I prepared myself for the worst.	<b>0.52</b>	0.01	0.26	−0.15
I changed or grew as a person.	<b>0.51</b>	0.38	0.21	0.09
I changed something about myself.	<b>0.46</b>	0.07	−0.08	0.21
I waited to see what would happen before doing anything.	<b>0.42</b>	0.19	0.02	0.21
<b>Resigned distancing</b>				
I went on as if nothing had happened.	0.05	<b>0.68</b>	−0.03	0.13
I tried to forget the whole thing.	−0.02	<b>0.61</b>	0.23	−0.02
I don't let it get to me; and refused to think too much about it.	−0.15	<b>0.59</b>	0.22	0.16
I tried to get away from it for a while by resting or taking a vacation.	0.19	<b>0.51</b>	−0.13	0.07
I went along with fate; sometimes I just have bad luck.	0.24	<b>0.46</b>	−0.10	0.10
<b>Seeking support/ventilation</b>				
I asked advice from a relative or friend I respected.	0.33	−0.01	<b>0.63</b>	0.20
I talked to someone about how I was feeling.	−0.05	0.17	<b>0.61</b>	0.08
I let my feelings out somehow.	0.22	0.09	<b>0.60</b>	0.17
I talked to someone who could do something concrete about the problem.	−0.04	0.33	<b>0.55</b>	0.10
I talked to someone to find out more about the situation.	0.06	0.28	<b>0.49</b>	0.22
I took it out on other people.	−0.03	0.14	<b>0.46</b>	0.03
<b>Passive wishful thinking</b>				
I daydreamed or imagined a better time or place than the one I was in.	0.21	0.03	0.11	<b>0.76</b>
I wished that the situation would go away or somehow be over with.	0.31	0.03	0.15	<b>0.71</b>
I had fantasies or wishes about how things might turn out.	−0.07	0.27	0.40	<b>0.60</b>
I wished that I could change what had happened or how I felt.	−0.06	0.20	0.23	<b>0.59</b>
Percentage of variance explained	18%	14%	12%	10%
Cronbach's alpha coefficients	0.81	0.78	0.73	0.78
Mean relative score	36%	16%	29%	19%
Standard deviation	0.10	0.09	0.08	0.09

Notes:

<sup>a</sup> Item loadings of 0.40 and above appear in bold.

<sup>b</sup> Cronbach's alpha coefficients: scales comprise only component loadings in bold.

variables were entered on their own. What this seems to show is that emotional exhaustion is heavily influenced by the main effects of combining role overload and coping strategies. Within Model E3, the adjusted  $R^2$  for the full model was 0.45 ( $p < 0.001$ ), which is 0.06 more than that for the model without interaction items. In this model, role overload interacted with rational problem solving and resigned distancing to a statistically significant degree. This indicates that rational problem solving and resigned distancing do moderate

the relationship between role overload and emotional exhaustion, i.e. construction engineers who adopt either one of these two coping strategies are less emotionally exhausted when they are exposed to constant levels of role overload.

#### *Predicting cynicism*

In Model C1, the control variables alone explained 14% of the total variance of cynicism. The results in Model C2 show that the block of main effects has a

**Table 2** Correlations between demographics, role overload, coping strategies and the three dimensions of burnout

	Mean	S.D.	1	2	3	4	5	6	7	8	9	10
1. Age	0.46	0.50	–									
2. Gender	0.16	0.36	–0.26***	–								
3. Role overload	50.02	10.55	0.01	–0.05	–							
4. Rational problem solving	10.70	0.46	0.11*	–0.05	0.04	–						
5. Resigned distancing	0.90	0.67	–0.22**	0.05	0.09	0.34***	–					
6. Seeking support/ventilation	10.46	0.58	–0.16**	0.22***	0.07	0.52***	0.35***	–				
7. Passive wishful thinking	10.10	0.71	–0.29***	0.23***	0.13**	0.29***	0.60***	0.46***	–			
8. Emotional exhaustion	30.09	10.59	–0.34***	0.12*	0.48***	0.04	0.28***	0.25***	0.37***	–		
9. Cynicism	20.62	10.41	–0.39***	0.06	0.27***	–0.01	0.32***	0.18***	0.39***	0.62***	–	
10. Professional efficacy	40.12	10.06	0.25***	–0.13**	–0.18**	0.35***	–0.08	0.10*	–0.18***	–0.04	–0.17***	–

Notes:

<sup>a</sup> Emotional exhaustion and cynicism contribute positively to burnout, whereas professional efficacy contributes negatively.

<sup>b</sup> Entries represent correlation coefficients.

<sup>c</sup> \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

statistically significant effect on cynicism and explained considerably more variance (adjusted  $R^2 = 0.30$ ,  $p < 0.001$ ) than when the control variables were entered on their own. Within Model C3, the results revealed that the interaction between role overload and the four dimensions of coping strategies have a statistically significant effect on cynicism, with adjusted  $R^2$  measured as 0.32 ( $p < 0.001$ ). In this full model, role overload interacted with rational problem solving and seeking support/ventilation to a statistically significant degree. This indicates that rational problem solving and seeking support/ventilation do moderate the relationship between role overload and cynicism, i.e. construction engineers who adopt either one of these two coping strategies are less cynical when they are exposed to constant levels of role overload.

#### *Predicting lack of professional efficacy*

In Model P1, the control variables alone explained only 7% of the total variance of professional efficacy. The results in Model P2 show that the block of main effects has a statistically significant effect on professional efficacy and explained considerably more variance (adjusted  $R^2 = 0.23$ ,  $p < 0.001$ ) than when the control variables were entered on their own. Within Model P3, the interactions between role overload and the four dimensions of coping strategies have a statistically significant effect on professional efficacy, with adjusted  $R^2$  measured as 0.26 ( $p < 0.001$ ). However, in this full model, role overload interacted with only rational problem solving to a statistically significant degree. This indicates that rational problem solving does moderate the relationship between role overload and professional efficacy, i.e. construction engineers who adopt rational problem solving as a coping strategy are more professionally efficacious when they are exposed to constant levels of role overload.

## Discussion

Two hundred and twenty-two professional engineers were investigated, representing a good cross-section of this work group in the Hong Kong construction industry. An extremely high proportion (83%) of them indicated they wished to obtain an analysis of their personal coping strategies. This suggests that construction engineers recognize that they are subject to stressful experiences at work and wish to understand more about their personal coping strategies, thereby improving their ability to deal with day-to-day stressful situations. However, limited studies have so far scientifically linked this requirement to intervention strategies of burnout (Maslach *et al.*, 2001), in



**Table 3** Hierarchical regression analysis of predicting burnout from role overload interacting with coping strategies

Model:	Burnout dimensions								
	Emotional exhaustion			Cynicism			Professional efficacy		
	E1	E2	E3	C1	C2	C3	P1	P2	P3
<i>Step 1: Control variables</i>									
Age	−0.26***	−0.23***	−0.23***	−0.36***	−0.27***	−0.27***	0.23***	0.13*	0.12*
Gender	0.02	0.00	0.00	−0.06	−0.08	−0.09	0.04	0.00	0.00
<i>Step 2: Main effects</i>									
Role overload		0.44***	0.42***		0.24***	0.24***		0.10*	0.10*
Rational problem solving		−0.08	−0.10		−0.12*	−0.13*		0.39***	0.37***
Resigned distancing		0.04	0.05		0.14*	0.14*		−0.04	−0.03
Seeking support/ventilation		0.11	0.11*		0.04	0.03		0.06	0.05
Passive wishful thinking		0.18**	0.17**		0.23***	0.23***		−0.28***	−0.28***
<i>Step 3: Interactions</i>									
Role overload × rational problem solving			−0.07**			−0.05*			0.16**
Role overload × resigned distancing			−0.08**			0.03			−0.01
Role overload × seeking support/ventilation			0.03			−0.05*			−0.01
Role overload × passive wishful thinking			0.04			−0.02			0.02
$R^2$	0.13	0.40	0.46	0.15	0.31	0.33	0.08	0.25	0.28
Adjusted $R^2$	0.12	0.39	0.45	0.14	0.30	0.32	0.07	0.23	0.26
$F$	140.24***	280.73***	200.50***	170.25***	190.56***	130.92***	80.31***	140.36***	110.26***
$\Delta R^2$	0.13	0.28	0.06	0.15	0.16	0.02	0.08	0.17	0.03

Notes:

<sup>a</sup> Emotional exhaustion and cynicism contribute positively to burnout, whereas professional efficacy contributes negatively.<sup>b</sup> Entries represent standardized regression coefficients.<sup>c</sup> \* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

particular with regard to specific occupational characteristics that exist in the construction industry itself. The present study filled this gap in an innovative way by investigating the dimensionality of coping strategies, along with the proportion of usage related to each coping strategy and the 'buffering' effect there may have been between role overload and three dimensions of burnout.

### Moderating effects of coping strategies

Rational problem solving interacted with role overload and demonstrated a significant moderating effect on all three dimensions of burnout. In other words, when construction professionals use more analytical and problem-focused efforts to alter stressful encounters, the relationships between role overload and burnout are significantly weaker than with others using less effort of this kind. These results corroborate those of Rijk *et al.* (1998) and Siu *et al.* (2006) and suggest that active positive coping has a beneficial role in work well-being and hence may actually reduce strain. Rational problem solving is a type of active positive coping that takes a constructive and direct approach to defining and solving problems, and should therefore be incorporated into intervention strategies designed to alleviate burnout as a whole, in particular when it is contributed to by role overload. This finding is promising since, among the four dimensions of coping strategies, rational problem solving is found to be the one most commonly used, representing 36% of an individual's effort in coping with stressful encounters. This can be explained by referring to two theories in the work of Folkman and Lazarus (1980): (1) that coping is found to vary according to the type of situation; for example, work-related situations elicit more problem-focused coping than health- or family-related matters; and (2) that the relative use of problem- and emotion-focused coping varies according to whether or not the situation is appraised as changeable, with problem-focused coping found to be used more in situations considered changeable, while emotion-focused coping is used more in situations considered not amenable to change. Combining these two theories, a reasonable interpretation is that construction professionals tend to use, most of the time, rational problem solving to tackle job stressors that are most likely to be appraised as changeable within the work environment.

Turning to seeking support/ventilation, this only showed a moderating effect on the relationship between role overload and cynicism, suggesting that when construction professionals use more effort to search for intangible and emotional support, or express themselves mentally and physically, the relationship between role overload and cynicism is significantly

weaker than when others use less effort. A proposition put forward by Park (2007) may be employed to explain this finding, as he highlights that human interaction is a measure of how an employee relates to both peers and supervisors, and can develop feelings of better moral standing and contribute towards an improved state of work well-being, enabling such employees to function more effectively if they receive, or feel they receive, support when it is needed. This finding should draw the attention of the construction industry, as this sector widely shows lack of support within the work environment (Love and Edwards, 2005; Lingard and Francis, 2006), leading to limited opportunities to benefit from the protective effects of positive social interactions, and hence strengthening the stressor-strain relationship. This phenomenon may be compounded with the issue of maintaining 'face', a common concern within Hong Kong culture (Rowlinson and Root, 1996), where employees may avoid searching for support or ventilating their feelings within their working environment for fear of losing credibility in the eyes of their peers and superiors.

Resigned distancing only appeared to be a moderator of the relationship between role overload and emotional exhaustion, implying that construction professionals who use a more cognitive effort to detach themselves and minimize the significance of a stressful situation are likely to be less emotionally exhausted. However, Siu *et al.* (2006) suggest that although passive adaptive coping may be a method of coping within stressful conditions, if overused, it can actually exacerbate the problem. For instance, withdrawal from reality is not necessarily an adaptive means of coping with workload or interpersonal conflict, because the work or the conflict still exist. From this standpoint, it is reasonable to think that resigned distancing may help professionals to cope with stressors appraised as not amenable to change, because they feel acceptance is their only option (Hurrell, 1995; Gueritault-Chalvin *et al.*, 2000). This perhaps explains why resigned distancing is used the least, and is not as effective as rational problem solving in moderating the relationship between role overload and burnout as a whole, because role overload is likely to be appraised as a changeable stressful encounter.

### Intervention strategies

Literature relating to managing job burnout focuses primarily on identifying its contributing factors in order to improve job design, aiming to minimize burnout and its negative effects (Yiu *et al.*, 2001; Lingard, 2003). However, it is not necessarily feasible to eliminate some job stressors under the given organizational resources and the related occupational characteristics. The

results in the present study show that rational problem solving, resigned distancing and seeking support/ventilation demonstrate moderating effects on the relationship between role overload and burnout, suggesting that preventive strategies for burnout should include training in the area of coping strategies, in particular rational problem solving. This is considered both desirable and feasible, as Lazarus (1991) suggests that coping can be influenced by the circumstances and/or the environment in which a stressful encounter occurs, rather than being a stable trait.

With reference to the finding in this study that rational problem solving demonstrated the most significant moderating effect on burnout, individual-oriented approaches such as organizational in-house training for effective coping strategies are suggested to emphasize rational problem solving in the context of construction engineers. These include reappraisal of work-related stress as positive and practical techniques to deal with the changeable nature of stress, such as management of conflict between different parties. Other approaches, including reaching out for support and ventilating feelings within one's working environment, changing the perceptions of situations and re-evaluating the impact on time, cost and quality for the project, are likely to minimize staff burnout and its negative ramifications within the organization. In addition, professional institutions could contribute to a reduction in burnout among their members by organizing seminars and workshops to promote effective coping strategies, (e.g. effective communication skills, time management and approach management), to discuss ways to tackle the role overload issue in the workplace as part of their continued professional development programmes. Indeed, since construction undergraduates are the professionals of the future, the incorporation of rational problem solving as a coping strategy into the professional training curriculum would better equip undergraduates to cope with a stressful post following graduation.

Organizations may take steps to mitigate the emotional response to job stressors by providing support, including listening and being sympathetic to employees' difficulties, emphasizing team spirit among the construction project teams, providing a supportive work environment, promoting good relationships between supervisors and co-workers and reducing levels of social distancing between colleagues, all of which may tend to buffer the feelings of stress and burnout in the workplace. In addition, organizations may also arrange regular sports and recreation activities to allow employees to ventilate mental stress physically, which is also likely to contribute to a reduction of burnout.

Furthermore, as suggested by Djebarni (1996), different cognitive and behavioural efforts are required for handling different sources of occupational stress. It is therefore crucial to establish effective coping strategies specifically matched to the job characteristics of construction professionals, so as to reduce the burnout phenomenon effectively in the industry.

## Conclusions

The results of the study reveal the important role coping strategies have on the management of professional burnout in a sample of construction engineers in Hong Kong. The moderating effect of rational problem solving in the relationship between role overload and all three dimensions of burnout, i.e. emotional exhaustion, cynicism and reduced professional efficacy, were significant; whereas the moderating effects of resigned distancing and seeking support/ventilation were significant only in regard to emotional exhaustion and cynicism respectively. This suggests that analytical and problem-focused training on how to alter stressful situations could be an effective intervention to alleviate or prevent burnout as a whole. Such individual-oriented approaches could be implemented by individuals, organizations, educational and professional institutions to reduce the levels of burnout and its negative implications at both individual and organizational levels.

The limitations in this study include the inability to ascertain the causal direction of the relationships between the perceived role overload and burnout, and coping strategies and burnout due to its cross-sectional nature. Future studies should be encouraged to overcome these limitations by longitudinal design, which would enable quantification regarding the effectiveness of intervention coping strategies in moderating the relationship between role overload and burnout. In addition, since this is a quantitative study, the results derived from this study relied on standardized measures of existing theories.

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