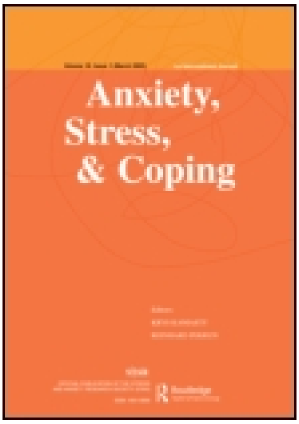

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General self-efficacy influences affective task reactions during a work simulation: the temporal effects of changes in workload at different levels of control

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General self-efficacy influences affective task reactions during a work simulation: the temporal effects of changes in workload at different levels of control

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This study investigated the effects of workload, control, and general self-efficacy on affective task reactions (i.e., demands-ability fit, active coping, and anxiety) during a work simulation. The main goals were (1) to determine the extent general self-efficacy moderates the effects of demand and control on affective task reactions and (2) to determine if this varies as a function of changes in workload. Participants ($N = 141$) completed an inbox activity under conditions of low or high control and within low and high workload conditions. The order of trials varied so that workload increased or decreased. Results revealed individuals with high general self-efficacy reported better demands-abilities fit and active coping as well as less anxiety. Three interactive effects were found. First, it was found that high control increased demands-abilities fit from trial 1 to trial 2, but only when workload decreased. Second, it was found that low efficacious individuals active coping increased in trial 2, but only under high control. Third, it was found that high control helped high efficacious individuals manage anxiety when workload decreased. However, for individuals with low general self-efficacy, neither high nor low control alleviated anxiety (i.e., whether workload increased or decreased over time).

Keywords: workload; control; general self-efficacy; anxiety; coping; person-environment fit

Introduction

The experience of stress is a pervasive factor present in many employees' working lives. Increasing job demands, such as workload, have increased the development of strain (Örtgvist & Wincent, 2006). Karasek's (1979) Demand-Control Model (D-CM) is a very influential model of employee strain which posits that high job demands will cause strain for employees when the environment does not provide opportunity for job control. In this way, it is postulated that the presence of job control is stress-buffering (i.e., high levels of control act to alleviate the effects of demand on strain). Thirty years of investigation into the stress-buffering hypothesis continues to yield inconsistent results; this is despite the use of varied methodologies and indicators of psychological well-being and employee strain (de Lange, Taris, Kompier, Houtman, & Bongers, 2003; Häusser, Mojzisch, Niesel, & Schulz-Hardt, 2010). Equivocal findings could be due to (1) the absence of an important

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contributing factor to the stressor-strain process (i.e., individual preferences and capabilities) and (2) a focus on the between-subjects (as opposed to within-subjects) effects of employees' stressor-strain experience.

Job control might only act as a stress-buffer for individuals who possess certain personality traits related to control preferences or capabilities. Thus, the main goal of the current study is to examine general self-efficacy (Bandura, 1988; Chen, Gully, & Eden, 2001; Scholz, Dona, Sud, & Schwarzer, 2002) as a person variable central to determining whether control opportunities will be stress-buffering or stress-exacerbating in response to changes in workload. In the current study, this is examined using a work simulation and experimental design. Prior survey research in the field setting has examined these propositions from a between-subjects perspective (see Jimmieson, 2000; Meier, Semmer, Elfering, & Jacobshagen, 2008). In the current research, an experimental research design was adopted so that the causal impact of workload, control, and general self-efficacy on affective task reactions (i.e., demands-ability fit, active coping, and anxiety) could be ascertained. This approach enables manipulation of workload within the person (i.e., increasing or decreasing workload), which allowed for (1) examination of the impact of general self-efficacy under different levels of workload over time and (2) a more rigorous test of whether control is stress-buffering or stress-exacerbating depending on general self-efficacy.

Investigating the D-CM with experiments

Experiments using mail-sorting tasks found support for the stress-buffering effects of control on perceived anxiety (Perrewe & Ganster, 1989) and positive mood (Jimmieson & Terry, 1998). However, Perrewe and Ganster did not find support for the stress-buffering effects of control on physiological arousal or task satisfaction. Moreover, Searle, Bright, and Bochner (1999) found control buffered demand on perceived task performance, but not stress ratings. In a subtraction task, no support was found for the stress-buffering effects of control on physiological arousal, mood, or performance perceptions (Flynn & James, 2009). Other experimental research using more representative tasks and a manipulation of control that reflects worker control (e.g., various combinations of task, method, pacing, scheduling, and environmental control; see Jackson, Wall, Martin, & Davids, 1993) has revealed more support for the D-CM. For example, studies using simulated office tasks (e.g., in-basket activities) have revealed stress-buffering effects of control on positive mood (Jimmieson & Terry, 1997), task satisfaction (Jimmieson & Terry, 1997, 1999), subjective fatigue (Hockey & Earle, 2006), as well as subjective task performance (Jimmieson & Terry, 1997). Recently, Häusser Mojzisch, and Schulz-Hardt (2011) found support for the strain hypothesis on cortisol levels. However, they did not replicate this effect on affective outcomes (e.g., interest/enjoyment or positive and negative affect). This may be because the control manipulation allowed participants to control the pace of their work. This specific type of control might not be useful to participants in managing increased time pressures during a work simulation. Overall, these findings support the use of representative work tasks and manipulations of control as a mechanism for investigating the causal implications of the D-CM.

General self-efficacy and the stressor-strain process

The concept of self-efficacy, derived from Bandura's (1977) social cognitive learning theory, is defined as an individual's belief that they can successfully execute the behavior required to produce a desired outcome. Bandura (1988) proposed that self-efficacy influences the behavior of individuals in many ways; including how much effort they invest in their actions, as well as their perseverance and resilience in the face of difficulties or setbacks. General self-efficacy refers to the global and stable confidence in one's ability to deal effectively with the demands placed upon them (Chen et al., 2001; Scholz at al., 2002). This type of self-efficacy is a stable and enduring trait, and unlike situational forms of self-efficacy, is not affected by any single event or setback (Smith, Kass, Rotunda, & Schneider, 2006). General self-efficacy explains much of the variance in more specific forms of efficacy, for example, almost 52% of the variance in teacher self-efficacy was explained by general self-efficacy in a study by Schwarzer and Hallum (2008) and almost 60% of job-specific self-efficacy was explained by general self-efficacy in a study by Chen, Goddard, and Casper (2004). It is likely that general self-efficacy (i.e., developed based on experiences across contexts and across the life span) would be activated when individuals encounter new work situations or novel tasks (see Sherer et al., 1982). Ostensibly, having a global belief in one's ability to handle demands has implications for stress and coping processes and the adaptive resolution of stressful situations across contexts.

There is evidence to support self-efficacy as a form of individual resilience in the organizational context. High levels of general self-efficacy (Endler, Speer, Johnson, & Flett, 2001; Nauta, Liu, & Li, 2010) and job-specific self-efficacy (Jex & Bliese, 1999; Jex & Gudanowski, 1992) are negatively related to psychological strain. In contrast, low levels of job-specific self-efficacy are associated with high levels of frustration and anxiety (Jex & Gudanowski, 1992). Although correlational in nature, these findings make sense; an individual who generally trusts in their own capabilities to effectively deal with high work demands, tends to interpret difficult tasks as challenging rather than threatening (Jerusalem & Schwarzer, 1992). In contrast, individuals with low general self-efficacy are prone to self-doubts and perceptions of coping deficiencies when confronted with high work demands (Jerusalem & Schwarzer, 1992). These findings demonstrate an important role for more stable forms of self-efficacy (i.e., general or job-specific) in the stressor-strain process in work contexts.

In the current study, by choosing to examine general self-efficacy, as opposed to other forms of efficacy that are more context-specific, we are testing the "power" of general self- efficacy to explain the stressor-strain process from a Person-Environment Fit (P-E Fit) perspective (Kristoff-Brown, Zimmerman, & Johnson, 2005; Pervin, 1968). Luszczynska, Gutierrez-Dona, and Schwarzer (2005) agreed with Bandura (1997) that, for the majority of applications, perceived self-efficacy should be conceptualized in a situation or domain-specific manner. However, in a situation such as the current study, where participants will have no prior experience of the experimental task, it is anticipated that general self-efficacy beliefs will be important. In an experiment using an anagram task, Endler et al. (2001) showed that general self-efficacy, relative to perceived control, was a better predictor of state anxiety in both high and low control conditions. However, neither general self-efficacy nor perceived control predicted actual performance on the task. This is an important distinction. It is likely that task-specific efficacy is a more proximal predictor of performance (i.e., as specified by Bandura et al. (1997)), whereas trait self-efficacy plays an important role in the stressor-appraisal process and resulting mood and coping responses. However, as will be explained in the next section, the utility of self-efficacy as a personal resource depends not only on the demands of a job, but also the level of control available.

Self-efficacy moderates the stress-buffering effects of control

There is evidence that the resiliency of high efficacious individuals to work demands is dependent on control opportunities. In line with P-E Fit theory (Kristoff-Brown et al., 2005; Pervin, 1968), this could be due to high efficacious individuals holding a strong preference for high control environments. This preference for high control environments and the ability to utilize control as a stress-buffer is likely to be due to high efficacious individuals having a (1) greater general belief in their ability to meet challenges and (2) prior experiences successfully using control to their advantage. In contrast, for low self-efficacious individuals, the absence of a general belief in one's self and limited prior experience of successfully using control to alleviate stress is likely to make high control ineffective as a stress-buffer (and potentially stress-exacerbating).

One of the first field studies to investigate these differential stress-buffering and stress-exacerbating effects of control by self-efficacy was a study of healthcare professionals by Schaubroeck and Merritt (1997). Results revealed that the propositions of the D-CM held true for individuals high in job-specific self-efficacy on both diastolic and systolic blood pressure reports. More specifically, for individuals low in job-specific self-efficacy, low control was stress-buffering. However, high control was only stress-exacerbating on systolic blood pressure (and not diastolic). The authors concluded that a lack of control might be particularly harmful for individuals with high self-efficacy in demanding situations as uncontrollable situations challenge personal agency. Moreover, individuals who are not confident in their mastery of job content could be distressed by the greater responsibility stemming from control when under high demand. Moreover, it is likely that there is more comfort found in the structure of low control environments for those with low self-efficacy.

Other studies have since investigated these propositions in the field on a range of self-report measures (e.g., job-related affective strain and dimensions of burnout). Interpreting these field research findings holistically, individuals high in more stable forms of self-efficacy (i.e., job-specific and general) find high control stress-buffering and low control stress-exacerbating when they work in conditions which contain high job demand (as compared to low demand; Jimmieson, 2000; Meier et al., 2008; Schaubroeck & Merritt, 1997). In contrast, individuals low in self-efficacy find high control stress-exacerbating (Meier et al., 2008; Schaubroeck & Merritt, 1997). However, what is potentially more theoretically complex is the finding that low control is stress-buffering for individuals low in self-efficacy (Schaubroeck & Merritt, 1997). Overall, one general conclusion from these findings is that control will be stress-buffering when the amount available in the work environment is congruent with the individuals' level of self-efficacy. However, a more controlled test of this assumption is warranted.

Prior research investigating control and self-efficacy in the laboratory has used a range of tasks and conceptualizations of demand and control to examine the short-term effects of these conditions on stress and coping outcomes. For instance, Litt (1988) found that performance on the pain tolerance test (i.e., a cold-pressor task) was highest when both self-efficacy and perceived control were high. When control was objectively high in an anagram task, the negative impact of anxiety was buffered only for individuals who possessed general self-efficacy (Endler et al., 2001). Endler et al. also found that the negative main effect of general self-efficacy on anxiety was stronger than that of perceived control. To date, only one experimental study has investigated whether general self-efficacy would act as a conjunctive moderator in the D-CM; however, these researchers found no main or interactive effects of general self-efficacy (Flynn & James, 2009). This experiment was different to prior experimental studies testing the D-CM in that a subtraction task was used and demand was operationalized as task difficulty (i.e., rather than time pressure or workload), thereby limiting the usefulness of control as a stress-buffer. Thus, the question of whether general self-efficacy moderates the stress-buffering effects of control warrants further investigation.

The current study

The current study utilizes a work simulation where participants complete an inbox activity. Although longitudinal survey research (de Lange et al., 2003) and diary study research (Daniels & Harris, 2005) in the field has demonstrated fluctuations in job demands and subsequent changes to employee well-being over time, existing experimental research examining the D-CM has been limited to the between-subjects level of analysis (see Flynn & James, 2009; Jimmieson & Terry, 1997, 1998, 1999; Parker, Jimmieson, & Amiot, 2009; Searle et al., 1999). We argue that assessment of the stressor-strain process within the person could lead to more consistent evidence of the causal relationships of the stressor-strain process. This is because the differences between conditions are likely to be due to the treatment itself and not the participants (Tabachnick & Fidell, 2007). Therefore, the present study investigated workload and changes in workload (i.e., increase or decrease overtime) within-subjects. This is a methodological strength, as these work conditions represent the rapidly changing and stressful job demands which exist in contemporary organizations (Daniels & Harris, 2005). More importantly, this provides a more rigorous test of the stress-buffering effects of control as participants experience both low and high workload and the utility of the control available is more directly assessed.

Dependent variables

As stress presents in a variety of ways, we measured three affective task reactions that reflect participants stress and coping during the work simulation.

Demands-abilities fit perceptions. Perceived P-E Fit is an individual's assessment of the compatibility between themselves and their work environment (Kristof-Brown et al., 2005). Two main types of P-E Fit are commonly examined in the work context at the job-level of analysis; these are needs-supplies fit (i.e., when an individual's needs are fulfilled by their work) and demands-abilities fit (i.e., when an individual's abilities meet the demands of their work; Piasentin & Chapman, 2006). In the meta-analysis by Kristof-Brown et al. it was revealed demands-abilities fit at the job-level of analysis was particularly important to the development of strain. Assessment of perceived P-E Fit will provide an indication of how participants appraise the situation and their ability to cope.

Active coping. Coping refers to cognitive and behavioral efforts to master, reduce, or tolerate demands which are appraised as stressful (Lazarus & Folkman, 1984). Active coping is very similar to Lazarus and Folkman's (1984) conceptualization of problem-focused coping. de Rijk, Le Blanc, and Schaufeli (1998) described active coping as the attempt to come to grips with problems at work by cognitively analyzing the situation and (or) by concrete action in order to overcome the problem. Research has found that active (or "problem-focused") coping strategies have positive implications for physiological health and psychological well-being (Penley, Tomaka, & Wiebe, 2002). Use of active coping strategies depends on the amount of control available in the work environment (Daniels & Harris, 2005; de Rijk et al., 1998). Therefore, active coping has been included as a dependent variable as it informs how individuals appraise the situation and their ability to cope.

Anxiety. Affective Events Theory (Weiss & Cropanzano, 1996) proposes that the events and activities that occur within a work environment have immediate affective consequences. As a result, they generate emotional reactions and changes in employees' affective states. According to McNair, Lorr, and Droppleman (1971), anxiety is one mood state that encompasses diffuse anxiety, heightened musculoskeletal tension, somatic tension (e.g., tense, on edge), and observable psychomotor manifestations (e.g., shaky, restless). The mood state of anxiety also is representative of strain-related measures used in the field setting, such as the Job-Related Affective Strain Questionnaire (see van Katwyk, Fox, Spector, & Kelloway, 2000; as used by Meier et al., 2008).

Hypotheses

Overall, it is expected that individuals high in general self-efficacy, as compared to low in general self-efficacy, will perceive better demands-abilities fit, engage in more active coping, and experience less anxiety during the work simulation (Hypothesis 1). Drawing on P-E Fit theory (Kristof-Brown et al., 2005; Pervin, 1968), it is expected that these effects will depend on the levels of demand and control in the task environment. As these predictions involve changes in workload (i.e., level and order), control, and general self-efficacy, a four-way interactive model is proposed.

Hypothesis 2a. For individuals low in general self-efficacy, low control will be beneficial for managing changes in workload (i.e., will reduce anxiety and increase demands-abilities fit and active coping). Conversely, high control will not assist these individuals to manage a changing workload (i.e., will increase anxiety and reduce demands-abilities fit active coping).

Hypothesis 2b. The opposite pattern of effects is expected for those high in general self-efficacy. For these individuals low control will not assist these individuals to manage fluctuations in workload. For these individuals high control will help them deal with a changing workload.

Method

Participants and design

Participants were 141 first-year psychology students at an Australian university. The sample consisted of 78.70% females, with gender distributed evenly across conditions. Participants' ages ranged between 17 and 51 years ($M = 20.21$; $SD = 5.70$). All participants had prior work experience. A 2 (trials: first and second) $\times$ 2 (workload: low-to-high or high-to-low) $\times$ 2 (control: low or high) $\times$ 2 (general self-efficacy: low or high) mixed factorial design was used. Participants were randomly assigned to the order of workload and control condition. General self-efficacy was measured.

Experimental task and manipulations

The experimental task was an in-basket task used in prior experimental research (see Jimmieson & Terry, 1997, 1999; Parker et al., 2009). Participants were instructed to consider themselves as Kim Jones, a Human Resource Manager at the fictitious *Madison Department Store*, and were requested to respond to a total of 9 out of a pool of 18 emails that raised a variety of human resource issues. For each trial, a computer program randomized the selection and ordering of emails. Emails were adapted from the teaching activity EvalSim (Nkomo, Fottler, & McAfee, 2004). Adaptation of the emails included ensuring they were similar length (i.e., 85–95 words in length) and relevant to a retail store context.

Workload was manipulated by varying the number of emails participants were required to address within a 10 minute time period. Half of the participants received the high workload condition first and the low workload condition second (and vice versa). This meant half of the participants experienced an increase in workload in the second trial, while the other half experienced a decrease in workload in the second trial. Under low workload there were three emails and under high workload six emails.

High control was manipulated by instructions designed to heighten feelings of autonomy. The instructions addressed three of the five aspects of behavioral control identified in the work control literature (Jackson et al., 1993). High control participants were informed they could address each email in the order they believed appropriate (high scheduling control). They also were instructed they could alter their method, for example reading the emails first and then prioritizing them (high method control). Participants were informed they could adjust the time spent on each email (high pacing control). Low control was manipulated by via instructions designed to reduce feelings of autonomy. Participants were instructed to reply to emails in the order presented (low scheduling control). They were instructed to reply to emails as they read them (low method control). They were told to spend an equal amount of time on each email and to continue working the entire time (i.e., low pacing control).

Procedure

Participants were seated at a computer terminal and completed a baseline questionnaire (i.e., demographics and baseline anxiety). Participants then listened to audio recordings about the fictitious organizational context as well as task instructions that exposed them to the control manipulation. Each participant had an Outlook Express email account the researcher sent emails to for each trial. Just prior to beginning each trial, participants were told the current time and informed they had 10 minutes to address the emails in their inbox. Participants were stopped after 10 minutes and then completed a post trial questionnaire. After participants completed the second post-trial questionnaire, they were directed to a final questionnaire that included a measure of general self-efficacy and trait negative affectivity. General self-efficacy was measured after the experiment for several reasons; first, to reduce self-reflective priming effects, second, to avoid setting a performance norm for participants by asking questions about capabilities, and third, to conceal the true goals of the study. Several checks were conducted to ensure that random assignment to conditions did not impact ratings of general self-efficacy. As expected, there was no effect of control condition on general self-efficacy, $F(1, 136) = .89$, $p = .347$, *ns,* or order of workload trials, on general self-efficacy, $F(1, 136) = .08$, $p = .780$, *ns.*

Measures

General self-efficacy

The New General Self-Efficacy scale (Chen et al., 2001) was used to assess general self-efficacy. This measure contained eight items with responses on a 5-point scale ranging from 1 (*disagree*) to 5 (*strongly agree*). Items included "I am confident that I can perform effectively on many different tasks". Internal consistency was $\alpha = .91$.

Trait negative affectivity

Individuals' level of trait negative affectivity is often considered a potential confound in research examining stressors and strain (see Glick, Jenkins, & Gupta, 1986). As such, this trait was considered an important covariate. Negative affectivity was assessed using the 11-item version of the Multidimensional Personality Index (Agho, Price, & Mueller, 1992). An example item is "I often find myself worrying about something." This was measured on a 5-point scale ranging from 1 (*no, this is very unlike me*) to 5 (*yes, this is very much like me*). Internal consistency was $\alpha = .87$.

Manipulation checks

Perceptions of workload and control were assessed after each trial. These measures were drawn from prior research manipulating task demand and control (Jimmieson & Terry, 1997, 1998, 1999; Parker et al., 2009). Workload was measured with a 7-item scale assessing perceived time pressure and workload. One item was reverse coded. Items included "During the trial, what quantity of work was expected of you?" Reponses were collected on a 7-point scale ranging from 1 (hardly any) to 7 (a great deal). Internal consistency for perceived workload at post trial 1 was $\alpha = .88$ and post trial 2 was $\alpha = .94$. Control was measured on a 6-item scale, which assessed perceptions of behavioral control. Items included "During the trial, how much control did you have over your actions?" This was measured on a 7-point scale ranging from 1 (not at all) to 7 (a great deal). Internal consistency for perceived control at post trial 1 was $\alpha = .81$ and trial 2 was $\alpha = .86$.

Demands-abilities fit

Items adapted from Piasentin and Chapman (2006) measured perceptions of demands-abilities fit after both trials. Selected items related to having the requisite skills and abilities to meet the demands of the inbox activity. An example item is, "My skills and abilities matched the skills and abilities needed to do the inbox activity". Participants indicated how much they used each strategy on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Internal consistency at post trial 1 was $\alpha = .95$ and at post trial 2 was $\alpha = .95$.

Active coping

Items adapted from the Ways of Coping Checklist (Lazarus & Folkman, 1984) measured active coping strategies after both trials. Six items were adapted to be specific to the inbox task (three items reverse coded). Items related to actively working, concentrating on the task at hand, and avoiding distractions (e.g., "Concentrated my efforts on performing the inbox task"). Participants indicated how much they used each strategy on a 5-point scale ranging from 1 (*not at all*) to 5 (*yes, almost all the time*). Internal consistency at post trial 1 was $\alpha = .75$ and post trial 2 was $\alpha = .76$.

Anxiety

Six items from the tension-anxiety subscale of the Profile of Mood States (McNair et al., 1971) were used at baseline and after each trial of the inbox activity. The measure includes items such as "anxious", "on edge", and "tense". Two items were reverse coded. Participants responded on a 5-point scale ranging from 0 (*not at all*) to 4 (*extremely*). Internal consistency at baseline was $\alpha = .82$, at post trial 1 was $\alpha = .82$, and at post trial 2 was $\alpha = .81$.

Results

Control variables

Descriptive statistics and correlations are presented in Table 1. Age was negatively correlated with anxiety at post trial 1 ($r = -.18$, $p = .038$) and positively correlated with active coping at post trial 1 ($r = .20$, $p = .020$). Age was not significantly correlated with demands-abilities fit. Trait negative affectivity was positively correlated with anxiety at baseline, post trial 1 and post trial 2 ($r = .35$, $p < .001$; $r = .18$, $p = .037$; $r = .20$, $p = .017$, respectively). Mixed-factorial ANOVAs were conducted on the dependent variables to determine if there was an influence of gender. A main effect of gender on anxiety was found, $F(1, 139) = 18.11$, $p < .001$, *partial* $\eta^2 = .12$, with females reporting more anxiety ($M = 1.62$; $SE = .05$) than males

Table 1. Descriptive statistics and bivariate correlations among age, gender, control, workload order, and all measured variables ($N = 141$).

Variables	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
Controls														
(1) Age	20.21	5.70	—											
(2) Gender[a]	—	—	−.13	—										
(3) Trait negative affectivity	2.96	.87	−.05	.13	—									
(4) Anxiety (Baseline)	1.17	.68	−.12	.17*	.35**	—								
Between-subjects variables														
(5) Workload order[b]	—	—	.12	−.11	−.16	−.21*	—							
(6) Control[c]	—	—	−.00	.07	.04	−.04	−.06	—						
(7) General self-efficacy	3.99	.64	−.00	−.20*	−.22**	−.19*	.07	.06	—					
Post trial 1 dependent variables														
(8) Demands-abilities fit	4.23	1.49	.01	−.12	−.04	.01	−.11	.08	.35**	—				
(9) Active coping	3.01	.75	.20*	−.00	.03	.02	.04	−.07	.25**	.34**	—			
(10) Anxiety	1.79	.77	−.18*	.29**	.18*	.32**	−.04	−.11	−.32**	−.41**	−.19*	—		
Post trial 2 dependent variables														
(11) Demands-abilities fit	4.43	1.45	−.07	−.18*	−.08	−.04	.09	.02	.46**	.81**	.30**	−.37**	—	
(12) Active coping	3.15	.74	.11	.06	.05	.05	−.09	.07	.10	.19*	.55**	−.16	.25**	—
(13) Anxiety	1.60	.76	−.11	.33**	.20*	.34**	−.43**	−.04	−.34**	−.13	−.05	.59**	−.30**	−.07

Notes: M = mean; SD = standard deviation.
[a]1 = Male and 2 = Female.
[b]1 = low to high and 2 = High to low.
[c]1 = low and 2 = high.
*$p < .05$; **$p < .01$.

($M = 1.14$; $SE = .10$). Following the guidelines of Tabachnick and Fidell (2007), age was included as a covariate for the analysis on active coping, and gender, age, and trait negative affectivity for the analysis on anxiety.

Manipulation checks

A mixed factorial ANCOVA (i.e., controlling for age, gender, and trait negative affectivity) on the workload manipulation check revealed no main effect of trials, $F(1, 135) = 1.60$, $p = .208$, *ns.* In support of the experimental manipulation of workload, a significant main effect of workload order, $F(1, 135) = 17.22$, $p < .001$, *partial* $\eta^2 = .113$, and a two-way interaction of trials and workload order, $F(1, 135) = 197.90$, $p < .001$, *partial* $\eta^2 = .594$, was revealed. Participants who experienced an increase in workload reported more workload overall ($M = 4.94$, $SE = .11$) than those experiencing a decrease in workload ($M = 4.26$, $SE = .12$). Examining the simple effects of trials, participants in the decreasing workload condition perceived more workload at trial 1 when they experienced the high workload condition ($M = 4.98$; $SE = .13$) as compared to the low workload condition ($M = 3.55$; $SE = .13$) at trial 2, $F(1, 135) = 110.20$, $p < .001$, *partial* $\eta^2 = .449$. In addition, participants in the increasing workload condition perceived less workload at trial 1 when they experienced the low workload condition ($M = 4.29$; $SE = .13$) as compared the high workload condition ($M = 5.59$; $SE = .13$) at trial 2, $F(1, 135) = 92.61$, $p < .001$, *partial* $\eta^2 = .407$. There was no significant main effect of control condition on workload perceptions, $F(1, 135) = 1.81$ $p = .181$, *ns*, or significant interaction between workload and control, $F(1, 135) = .58$, $p = .447$, *ns*, indicating the independence of these experimental manipulations. The successful manipulation of workload is further demonstrated in the number of emails completed by participants, with 79% completing all three emails when they experienced low workload compared to only 28% completing all six emails when they experienced high workload.

A mixed factorial ANCOVA on the control manipulation check revealed a significant main effect of the control manipulation, $F(1, 136) = 20.15$, $p < .001$, *partial* $\eta^2 = .129$, indicating that participants in the high control condition perceived higher levels of discretion over the task ($M = 5.12$; $SE = .14$) compared to individuals in the low control condition ($M = 4.21$; $SE = .14$). There was no significant main effect of trials, $F(1, 136) = .69$, $p = .409$, *partial* $\eta^2 = .005$. In addition, there was no significant interaction between workload and control, $F(1, 136) = 1.07$, $p = .303$, *partial* $\eta^2 = .008$, further indicating the independence of the experimental manipulations.

Data analyses overview

As general self-efficacy is continuously measured, a median-split was performed on the sample ($N = 141$) to create a dichotomized categorical variable with low ($n = 57$) and high ($n = 84$) groups. This was required to perform mixed factorial ANCOVA. As such, the analysis was a 2 (trials: within-subjects) $\times$ 2 (workload order: between-subjects) $\times$ 2 (control: between-subjects) $\times$ 2 (general self-efficacy: between-subjects) ANCOVA. After median-splitting general self-efficacy, cell sizes ranged from $n = 14$ to $n = 23$. Sums of squares Type 3 was used in all the SPSS analyses to evenly weight cells (Tabachnick & Fidell, 2007). Checks were carried out to ensure no confounds emerged due to this transformation of general self-efficacy (e.g., gender was still evenly distributed across cells). Separate ANCOVAs were conducted as opposed to one MANOVA as (1) the dependent variables were uncorrelated or negatively correlated (see Table 1) and (2) because investigation of the unique effects of the model on each of dependent variable was central to the hypotheses (Tabachnick & Fidell, 2007).

Main findings

Table 2 summarizes all the main and interactive effects of the mixed factorial ANCOVAs.

Table 2. Summary of main and interactive effects of mixed factorial ANCOVAs of trials, workload order, control, and general self-efficacy on the dependent variables ($N = 141$).

Source	Demands-abilities fit, F; $df = (1, 133)$	Active coping, F; $df = (1, 132)$	Anxiety, F; $df = (1, 130)$
Main effects			
Trials[a]	7.258*	4.973*	4.990*
Workload order	.118	.401	7.649**
Control	1.060	.000	3.672
General self-efficacy	20.502**	4.864*	7.555**
Two-way interactions			
Trials × workload order[a]	13.948**	2.327	14.863**
Trials × control[a]	.737	4.138	.805
Trials × general self-efficacy[a]	1.721	4.897	3.460
Workload order × control	.057	.219	.052
Workload order × general self-efficacy	.447	.017	1.348
Control × general self-efficacy	2.773	.106	.970
Three-way interactions			
Trials × workload order × control[a]	3.955*	1.526	1.653
Trials × workload order × general self-efficacy[a]	.016	.376	.093
Trials × control × general self-efficacy[a]	.031	4.231*	.007
Workload order × control × general self-efficacy	.683	.676	.032
Four-way interaction			
Trials × workload order × control × general self-efficacy[a]	1.161	2.368	4.017*

Notes: MSE for within-subjects effects on demands-abilities fit = .380; MSE for between-subjects effects on demands-abilities fit = 3.464; MSE for within-subjects effects on active coping = .172; MSE for between-subjects effects on active coping = .641; MSE for within-subjects effects on anxiety = .248; MSE for between-subjects effects on anxiety = .747.

[a]Within-subjects effects.

$*p < .05$; $**p < .01$.

ANCOVA on demands-abilities fit

There was a significant main effect of trials, $F(1, 133) = 7.258$, $p = .008$, *partial* $\eta^2 = .05$, such that participants reported better demands-abilities fit at trial 2 ($M = 4.33$; $SE = .12$) as compared to trial 1 ($M = 4.13$; $SE = .12$). In support of Hypothesis 1, there was a significant main effect of general self-efficacy, $F(1, 133) = 20.50$, $p < .001$, *partial* $\eta^2 = .13$, such that participants with high general self-efficacy ($M = 4.74$; $SE = .14$) reported better demands-abilities fit compared to participants with low general self-efficacy ($M = 3.72$; $SE = .17$). A significant two-way interaction of trials by workload order emerged, $F(1, 133) = 13.95$, $p < .001$, *partial* $\eta^2 = .10$, such that participants in the high-to-low workload condition reported better demands-abilities fit at trial 2 ($M = 4.43$; $SE = .17$) as compared to trial 1 ($M = 3.95$; $SE = .17$), $F(1, 133) = 20.46$, $p < .001$, *partial* $\eta^2 = .13$. There was no difference in demands-abilities fit from trial 1 ($M = 4.31$; $SE = .17$) to trial 2 ($M = 4.23$; $SE = .16$) in the low-to-high workload condition, $F(1, 133) = .547$, $p = .461$, *ns.*

This two-way interaction of trials by workload order was qualified by a significant three-way interaction of trials by workload order by control, $F(1, 133) = 3.96$, $p = .049$, *partial* $\eta^2 = .03$, which is displayed in Figure 1. To deconstruct this interaction the sample was split into low versus high control.

At low control there was a main effect of trials, $F(1, 68) = 8.202$, $p = .006$, *partial* $\eta^2 = .11$ such that there was better demands-abilities fit at trial 2 ($M = 4.40$; $SE = .18$) compared to trial 1 ($M = 4.10$; $SE = .17$). There was no interaction of trials and workload order, $F(1, 68) = 2.173$, $p = .145$, *ns.*

At high control there was no main effect of trials, $F(1, 69) = 2.178$, $p = .145$, *ns.* Demands-abilities fit at trial 1 ($M = 4.32$; $SE = .17$) and trial 2 ($M = 4.48$; $SE = .18$) were not significantly different. The interaction of trials by workload order was significant, $F(1, 69) = 15.119$, $p < .001$, *partial* $\eta^2 = .18$. When workload increased, there was no significant difference in demands-abilities fit from trial 1 ($M = 4.57$; $SE = .25$) to trial 2 ($M = 4.32$; $SE = .23$), $F(1, 69) = 3.130$, $p = .081$, *ns.* However,

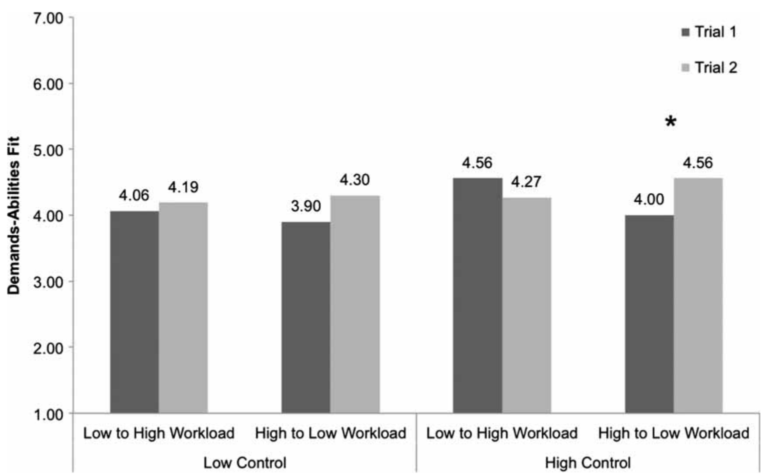

Figure 1. Trials by workload order by control on demands-abilities fit. Note: Significant changes from trial 1 to trial 2 are denoted with an asterisk.

when workload decreased, there was a significant increase in demands-abilities fit from trial 1 ($M = 4.07$; $SE = .27$) to trial 2 ($M = 4.64$; $SE = .25$). No interactions with general self-efficacy emerged, as such no support for Hypotheses 2a and 2b was found on demands-abilities fit.

ANCOVA on active coping

There was a significant main effect of trials, $F(1, 132) = 4.973$, $p = .027$, *partial* $\eta^2 = .04$, such that participants reported more active coping in trial 2 ($M = 3.11$; $SE = .06$) as compared to trial 1 ($M = 2.92$; $SE = .06$). In support of Hypothesis 1, there was a significant main effect of general self-efficacy, $F(1, 132) = 4.620$, $p = .033$, *partial* $\eta^2 = .03$, such that participants with high general self-efficacy ($M = 3.12$; $SE = .06$) reported more active coping as compared to participants with low general self-efficacy ($M = 2.91$; $SE = .08$). A significant two-way interaction of trials by general self-efficacy emerged, $F(1, 132) = 4.897$, $p = .029$, *partial* $\eta^2 = .04$, as well as a two-way interaction of trials by control, $F(1, 132) = 4.138$, $p = .044$, *partial* $\eta^2 = .03$. These two-way interactions were qualified by a higher-order interactive effect.

A significant three-way interaction of trials by control by general self-efficacy was revealed, $F(1, 132) = 4.231$, $p = .042$, *partial* $\eta^2 = .03$, which is displayed in Figure 2. In order to deconstruct this interaction the sample was split into low versus high general self-efficacy.

For the low general self-efficacy participants, a two-way interaction of trials by control was significant, $F(1, 52) = 6.018$, $p = .018$, *partial* $\eta^2 = .10$. The differences across trials were only evident under high control, $F(1, 52) = 17.480$, $p < .001$, *partial* $\eta^2 = .25$. More active coping was used in trial 2 ($M = 3.118$; $SE = .13$) compared to trial 1 ($M = 2.68$; $SE = .13$). There was no difference in active coping from trial 1 ($M = 2.86$; $SE = .13$) to trial 2 ($M = 2.95$; $SE = .13$) for those with low general

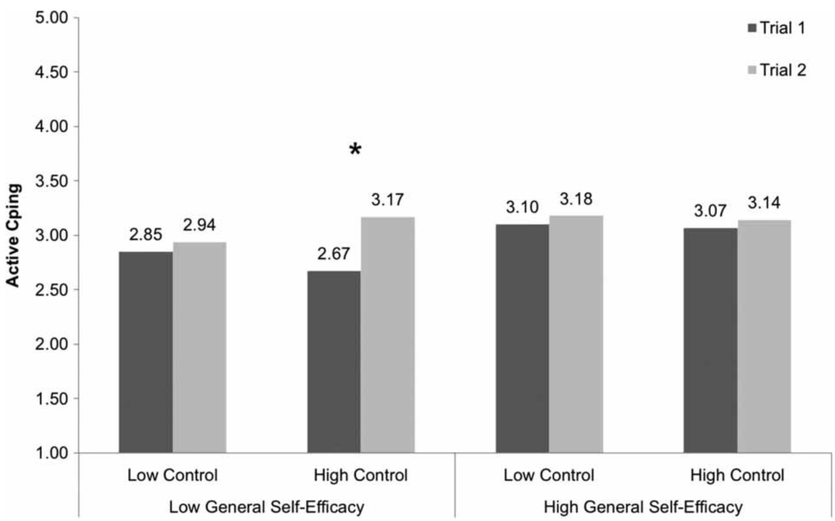

Figure 2. Trials by control by general self-efficacy on active coping. Note: Significant changes from trial 1 to trial 2 are denoted with an asterisk.

self-efficacy under low control. Therefore, no support for Hypothesis 2a was found on active coping.

For the high general self-efficacy participants, there was only a main effect of trials approaching significance, $F(1, 79) = 3.886$, $p = .052$, *partial* $\eta^2 = .05$, such that there was slightly more active coping used in the trial 2 ($M = 3.15$; $SE = .07$) as compared to the trial 1 ($M = 3.08$; $SE = .06$). There were no other effects for high general self-efficacy on active coping indicating that their active coping efforts were not dependent on the change in workload or level of control. Therefore, no support for Hypothesis 2b was revealed for active coping.

ANCOVA on anxiety

For the analysis on anxiety, baseline anxiety was included as a within-subjects factor. There was a significant main effect of trials, $F(1, 130) = 4.990$, $p = .027$, *partial* $\eta^2 = .04$. This was followed-up with pairwise comparisons (i.e., controlling for multiple comparisons) which revealed that participants were more anxious in the first trial as compared to baseline ($p < .001$) and less anxious in the second trial as compared to the first ($p < .001$) but were still more anxious in the second trial than they were at baseline ($p < .001$; $Ms = 1.19$, 1.82, 1.62; $SEs = .05$, .06, .06, respectively). There was a significant main effect of workload order, $F(1, 130) = 7.649$, $p = .007$, *partial* $\eta^2 = .06$, such that participants in the condition with increasing demands (i.e., low and then high workload) experienced more anxiety overall ($M = 1.66$; $SE = .06$), as compared to those participants in the condition with decreasing demands (i.e., high and then low workload, $M = 1.42$; $SE = .06$). In support of Hypothesis 1, there was a significant main effect of general self-efficacy, $F(1, 130) = 7.555$, $p = .007$, *partial* $\eta^2 = .06$, such that those participants with high general self-efficacy ($M = 1.42$; $SE = .06$) were less anxious than those with low general self-efficacy ($M = 1.67$; $SE = .07$). A significant two-way interaction of trials by workload order also emerged, $F(1, 130) = 14.863$, $p < .001$, *partial* $\eta^2 = .10$. This was qualified by a higher-order interaction.

In partial support of Hypotheses 2a and 2b, a significant four-way interaction emerged, $F(1, 130) = 4.017$, $p = .047$, *partial* $\eta^2 = .03$, which is displayed in Figures 3a and 3b. Follow-up tests were conducted to deconstruct the four-way interaction. The sample was split into low versus high general self-efficacy and then by control (i.e., low or high).

For those participants low in general self-efficacy (see Figure 3a), there was no significant three-way interaction of trials, workload order, and control, $F(1, 50) = .535$, $p = .468$, *ns*, indicating there were no differences across trials due to the combination of workload order and control. Therefore, no support for Hypothesis 2a was found. There was a significant two-way interaction of trials and workload order, $F(1, 50) = 9.009$, $p = .004$, *partial* $\eta^2 = .15$. Examination of the effects of trials across workload order for those low in general self-efficacy revealed that those participants in the increasing demands condition had greater anxiety at trial 1 ($p < .001$; $M = 1.98$; $SE = .14$) and at trial 2 ($p < .001$; $M = 2.02$; $SE = .13$) as compared to baseline ($M = 1.39$; $SE = .10$), however the difference in anxiety from trial 1 to trial 2 was not significant ($p = .720$, *ns*). However, for those participants in the decreasing demands condition although anxiety was higher at trial 1 ($p < .001$; $M = 2.13$; $SE = .15$) and at trial 2 ($p < .001$; $M = 1.57$; $SE = .13$) as compared to

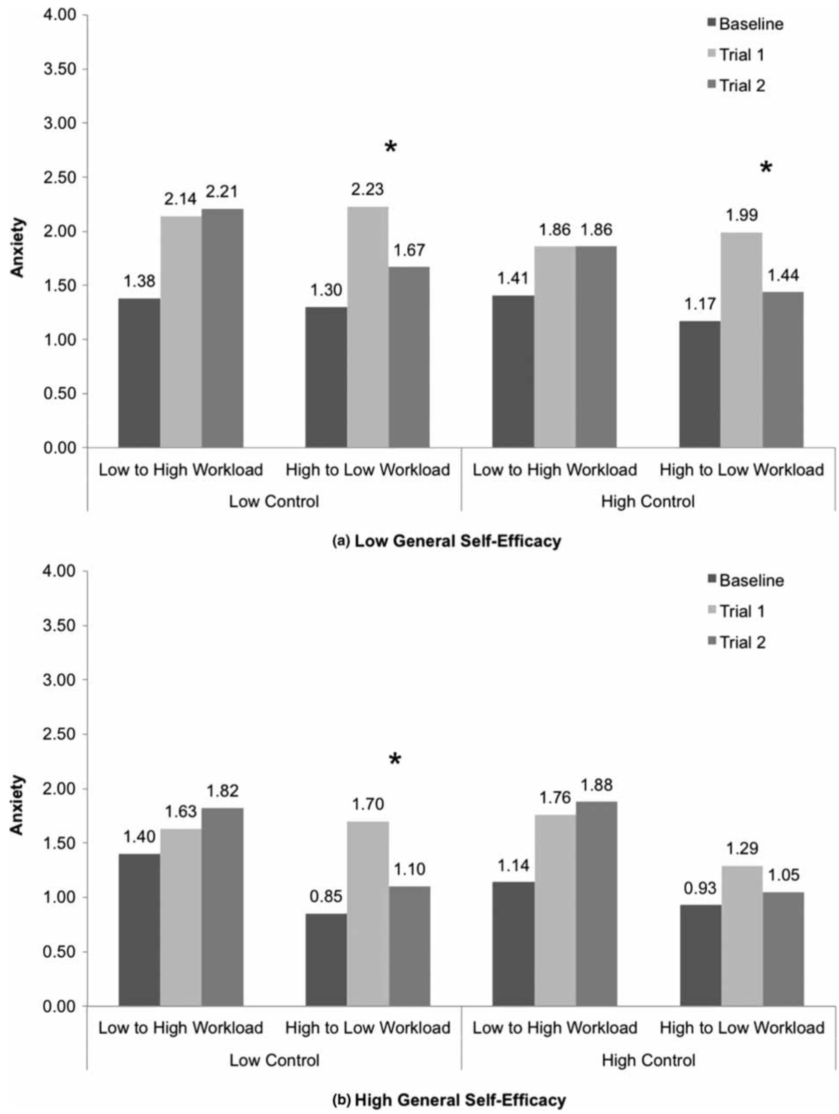

Figure 3. (a, b) Trials by workload order by control by general self-efficacy on anxiety. Note: Significant changes from trial 1 to trial 2 are denoted with an asterisk.

baseline ($M = 1.24$; $SE = .11$), it did decrease from trial 1 to trial 2 ($p = .033$). These findings indicate that anxiety fluctuated as would be expected given the level of workload associated with each trial, moreover, that control did not moderate the impact of workload on anxiety for individuals with low general self-efficacy. This finding suggests that neither high nor low control assisted low efficacious individuals to manage fluctuations in workload.

For the high general self-efficacy group (see Figure 3b), there was a main effect of workload order, $F(1, 1, 77) = 9.741$, $p = .003$, *partial* $\eta^2 = .11$, such that those participants in the increasing demands condition ($M = 1.55$; $SE = .08$) experienced more anxiety overall than those in the decreasing demands condition ($M = 1.21$; $SE = .08$). This effect was qualified by a significant three-way interaction of trials by workload order by control, $F(1, 77) = 6.507$, $p = .013$, *partial* $\eta^2 = .078$. This significant three-way interaction for high self-efficacy participants was followed-up by examining the two-way interactive effects of trials and order of workload at each level of control.

At high general self-efficacy and low control, the two-way interaction of trials by workload order was significant, $F(1, 37) = 17.289$, $p < .001$, *partial* $\eta^2 = .32$. When workload increased, anxiety was significantly higher at trial 2 ($M = 1.83$; $SE = .14$) as compared to baseline ($p = .020$; $M = 1.41$; $SE = .15$). Although the differences between trial 1 and baseline as well as trial 1 and trial 2 were non-significant, examination of the means suggests a steady increase in anxiety over time (see Figure 3b). When workload decreased, anxiety increased from baseline ($M = .84$; $SE = .14$) to trial 1 ($p < .001$; $M = 1.75$; $SE = .14$) and then decreased from trial 1 to trial 2 ($p < .001$; $M = 1.09$; $SE = .13$). This pattern of results partially supports Hypothesis 2b.

At high general self-efficacy and high control, the two-way interaction of trials by workload order was significant, $F(1, 37) = 4.797$, $p = .035$, *partial* $\eta^2 = .12$. When workload increased, anxiety at trial 1 ($p = .001$; $M = 1.69$; $SE = .15$) and trial 2 ($p = .001$; $M = 1.79$; $SE = .14$) was significantly higher than at baseline ($M = 1.03$; $SE = .13$). There was no difference in the levels of anxiety at trial 1 and trial 2 ($p = .413$, *ns*). When workload decreased, there were no differences in the levels of anxiety across trials as compared to baseline, $F(1, 36) = 2.07$, $p = .141$, *ns.* This supports Hypothesis 2b; when individuals with high general self-efficacy had high control, experiencing a high to low workload was not particularly anxiety provoking (as compared to baseline levels of anxiety).

Discussion

In support of Hypothesis 1, individuals with high general self-efficacy reported better demands-abilities fit as compared to individuals with low general self-efficacy. It is likely that trait-level efficacy is a more robust and distal predictor of a broad range of reactions to a novel work task. High efficacious individuals also reported use of more active coping compared with individuals who had low general self-efficacy. This finding is consistent with previous research finding that high efficacious individuals use more active coping because they have the tendency to systematically approach and define a problem rather than avoid it (MacNair & Elliott, 1992; Terry, 1991). In contrast, individuals who have low self-efficacy are likely to dwell on their lack of ability (Litt, 1988), which is likely to increase anxiety and distract active coping efforts. As expected, it also was found that individuals with low general self-efficacy reported more anxiety than individuals with high general self-efficacy. Bandura (1997) postulated that one source of self-efficacy is emotional arousal; high self-efficacious individuals experience low levels of negative emotions in threatening situations and, therefore, feel capable of mastering the situation. This leads to effective problem solving followed by an increase of positive emotions. In contrast, low self-efficacy is associated with negative emotions, helplessness, and possibly depression (Bandura, 1997). As highlighted by Endler et al. (2001), examination of general self-efficacy and its effects on anxiety is a worthwhile as prior research has shown general self-efficacy can be enhanced by coping skills training (see Smith, 1989) and behavior modeling training (see Eden & Aviram, 1993).

Interactions of demand by control supporting Karasek's (1979) propositions were not anticipated as many researchers fail to find support for the *stress-buffer hypothesis* using a range of methodologies (see de Lange et al., 2003; Häusser et al., 2010). It is possible that effects of control might only be evident when considered in combination with a chronic-level of demand or with the inclusion of relevant individual differences. However, examination of the effects on demands-abilities revealed that, at low control, demands-abilities fit remained the same across trials regardless of whether workload was increasing or decreasing. However, at high control, demands-abilities fit perceptions only remained the same when workload was increasing. At high control, when workload was decreasing, demands-abilities fit perceptions increased across trials. This finding suggests that participants working under high control believed they were better able to meet the lower workload level at trial 2. In contrast, high control did not assist them in meeting the challenge of a higher workload in trial 2 (i.e., when demands were increasing). Examination of additional trials over time might reveal some utility of control or evidence of adaptation towards it. However, in this study, the interactions on active coping and anxiety suggest that this would still depend on general self-efficacy.

Contrary to hypotheses, individuals high in general self-efficacy utilized the same level of active coping regardless of the task conditions. Although this finding was unexpected, it suggests that high efficacious individuals have a global propensity to engage in more active coping. A very different pattern of effects was revealed for individuals with low general self-efficacy. For these individuals, when control was high, during the second trial (regardless of the change in workload) they implemented more active coping as compared to the first trial. This finding suggests that, over trials, individuals with low general self-efficacy may learn to become more comfortable with high control and, as such, attempt to use more active coping to deal with work pressures. Low efficacious individuals might need practice doing a task or activity under high control before they begin to benefit from such conditions. However, the finding that high control did not help low efficacious individuals to maintain or reduce anxiety across trials may indicate that this process of practicing with active coping was still stressful. Another explanation could be that low efficacious individuals' secondary appraisal of their workload improved over trials (see Lazarus & Folkman, 1984). Recent research has revealed that the link between stress appraisal and outcomes is moderated by self-efficacy; more specifically, this relationship only exists for individuals with low self-efficacy (Prati, Pietrantoni, & Cicognani, 2010). In partial support of the Hypothesis 2b, for individuals high in general self-efficacy, high control alleviated anxiety, but only when workload decreased. When workload increased, anxiety also increased and the level of control did not moderate this effect. Interestingly, neither high nor low control assisted individuals with low general self-efficacy to manage their anxiety as workload increased or decreased. This is not surprising as support for the stress-buffering effects of low control for low efficacious individuals has been mixed across field studies (see Jimmieson, 2000; Meier et al., 2008; Schaubroeck & Merritt, 1997).

Overall, this research suggests a between-subjects approach to the investigation of P-E Fit and strain is an incomplete story. For example, the current study did not find support for the stress-exacerbating effect of high control for low efficacious individuals, which was found in the Schaubroeck and Merritt (1997) study on blood pressure and for which a trend was revealed in the Meier et al. (2008) study on affective strain. It is surprising that individuals with low general self-efficacy did not experience the high control manipulation as stressful. The absence of this effect in the current study could be due to the within-subjects design. More specifically, that low efficacious individuals were able to adapt to high control (i.e., increased their active coping in the second trial when high control was available). This discrepancy further highlights the importance of examining stress and coping processes over time. However, another explanation is that such effects are only revealed with exposure to chronic stressors and as a result of the development of habitual contextual-responses to high or low control. Examination of these effects in the short-term over trials indicates that low efficacious individuals may be able to learn to use active coping, which may in time enable them to deal with work pressures, but only when they have high control. However, further research is needed on whether training on use of active coping would help low efficacious individuals feel less anxious during complex work tasks.

In the most recent review of the D-CM, Häusser et al. (2010) posit that matching demands and control will provide more support for the stress-buffering hypothesis of the D-CM. For example, scheduling control would be likely to counteract cognitive demands, such as workload; however, this type of control might not be stress-buffering on emotional demands. This might explain the limited effects of control in the present study. It is possible that the manipulation of behavioral control (i.e., task, scheduling, and pacing) was not useful in managing a doubling of workload from one trial to the next. However, as was observed in the four-way interaction on anxiety, high control was useful to individuals with high general self-efficacy when experiencing a decrease in workload. More generally, it is likely that measurement of relevant traits that influence (1) how demands are appraised, and (2) whether control is considered useful or not, is just as important as the specificity of types of demands and control. General self-efficacy, as a personal resource, may be highly relevant to the utility of behavioral control in novel situations (and across a broad range of contexts). This is because individuals with high general self-efficacy have developed control capabilities over time through experience in using control opportunities to their advantage. However, this advantage over those with low general self-efficacy may dissipate after repeated experience with a task, as low efficacy individuals learn to find their own methods for dealing with the complexities of the task, regardless of the control available.

Enhancing the fit between the individual and their work environment may be one way of reducing the personal, social, and economic costs associated with work-related stress. In fact, recent research has revealed that the impact of personality traits (e.g., extroversion and conscientiousness) on perceived stress is mediated by general self-efficacy (Ebstrup, Eplow, Pisinger, & Jorgensen, 2011). This suggests there is a particularly important role for general self-efficacy in the stressor-strain process. It should be noted that efforts to increase autonomy for individuals with low general self-efficacy are not destined to fail. Shperling and Shirom (2005) demonstrated in a field experiment that a focused diagnostic model for increasing employee job autonomy was effective for employees low in general self-efficacy. This intervention counteracted the negative effects of low general self-efficacy on feelings of job autonomy, whereas no such effect was observed for a control group that did not receive the intervention. Moreover, Heggestad and Kanfer (2005) have demonstrated that task-specific self-efficacy is a consequence, rather than a cause, of performance during training. This implies that efficacy at the task-level can be bolstered over time through training on a specific task. It is likely that there will be spill-over effects of increases in performance and task-specific self-efficacy, which could have positive implications for well-being.

The current study was limited to university students in a simulated organizational setting. Conducting this research in this setting had advantages, primarily enabling the findings to be evaluated according to their causal implications. Although attempts were made to generate realism, there is uncertainty regarding how these effects operate on a daily basis in organizational contexts. The short-term nature of the inbox activity does not reflect the importance and meaning of work carried out in work settings or the amount of time spent completing complex work tasks. In future, utilizing experience sampling methodologies could be particularly useful for determining if the short-term effects observed in the current study occur for employees on a daily basis at work. Such research could determine whether low or high control ultimately raises the task-specific self-efficacy of those with low general self-efficacy; moreover, whether this increase in task-specific self-efficacy has implications for anxiety and coping. Seemingly, if a person has low task-specific self-efficacy and finds comfort in a high degree of structure, over time low control might lead to higher levels of success and ultimately greater confidence with work tasks, resulting in less anxiety and more adaptive coping. However, over time, low control may actually become a hindrance and high control may become preferred. Although experience sampling would assess participants' subjective experiences rather than directly manipulating objective levels of demand and control, this is still a worthwhile endeavor as subjective experiences of control can be more important than objective levels (see Logan & Ganster, 2005). Future experimental research should include behavioral or physiological dependent variables (i.e., alongside self-report measures) as well as more trials with more varied levels of workload. This would help unravel the longer-term effects of adjustment and learning on anxiety and active coping during work tasks.

Overall, the current research and prior field studies (see Meier et al., 2008) offer converging evidence for an extension of the D-CM to incorporate individual differences (such as general self-efficacy) as conjunctive moderators. Such personal resources determine the effectiveness of control as a stress-buffer. As a methodological contribution, the current study examined reactions to changes in workload within-subjects. Not only does this change the experimental paradigm typically utilized in research testing the D-CM, it enabled a more rigorous test of the moderating effects of control. In particular, our findings highlight that control might be more useful when demands are decreasing rather than increasing. As stress is a within-subjects phenomenon, future research should further examine stress and coping over time.

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