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Help Yourself: The Mechanisms through which a Self-Leadership Intervention Influences Strain

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This research reports on two field studies which demonstrate that self-leadership training decreases strain via increases in self-efficacy and positive affect. The first, an experimental study, found that strain was reduced in the randomly-assigned training group but not in the control group. The second was a longitudinal study and supported the hypotheses that self-efficacy and positive affect mediated the effect of self-leadership training on strain. Our findings extend both self-leadership and stress management literatures by providing a theoretical framework within which the effects of self-leadership on strain can be understood. Practically, our findings suggest that self-leadership training offers an individual-level preventive approach to stress management.

The field of self-leadership is burgeoning both in research and practice (see Stewart, Courtright, & Manz, 2011). The self-leadership approach offers a combination of strategies through which individuals can influence and lead themselves, with demonstrated effects on performance (e.g., Abele & Wiese, 2008; Carmeli, Meitar, & Weisberg, 2006; Neck & Manz, 1992; Phelan & Young, 2003; Prussia, Anderson, & Manz, 1998). In this study, we examine whether self-leadership training can also be employed as an individual-level, preventive stress management intervention (SMI). In addition, we explicate the processes through which self-leadership training should buffer individuals from stress, thus addressing key criticisms of both self-leadership and stress management research, namely, the lack of theoretical work explaining *how* these interventions work (Briner & Reynolds, 1999; Neck & Houghton, 2006).

Manz (1986) defined self-leadership as a “comprehensive self-influence perspective that concerns leading oneself toward performance of naturally motivating tasks as well as managing oneself to do work that must be done but is not naturally motivating” (p.589). In self-leadership training, individuals learn a combination of behavioral, cognitive and emotional strategies, each of which is supported by prior research and is described in detail in an early paper by Manz (1986). In summary, the behavioral self-leadership strategies incorporated within the self-leadership approach are self-management strategies, namely goal-setting, self-monitoring and self-reward. The cognitive strategies derive from cognitive-behavior therapy and include the use of more constructive thinking patterns and mental rehearsal. Finally, the emotional strategies, or natural rewards, involve focusing on the intrinsically-motivating aspects of the task and designing the work and work environment in a way that maximizes the meaning and enjoyment derived from the task itself. This combination of strategies is likely to improve performance above and beyond the individual strategies alone (see Rousseau, 1997) and it has been linked to a range of outcomes such as performance (Neck & Manz, 1992; Prussia, et al., 1998), creativity and innovation (Carmeli, et al., 2006; Phelan & Young, 2003), initiative (Stewart, Carson, & Cardy, 1996) and career success (Abele & Wiese, 2008).

We propose that self-leadership training holds promise not only as a performance-enhancing intervention but also as a means of anticipatory coping (Aspinwall & Taylor, 1997). Primary SMI interventions aimed at anticipatory coping are focused on preventing stressors from occurring in the first place and we argue below that training in the self-leadership strategies of self-management, constructive thinking, and natural rewards allows an individual to address or attend to potential problems before they become threatening (Aspinwall & Taylor, 1997; Lazarus & Folkman, 1984). That is, a person who is trained to set goals, reward themselves upon reaching the goals, process information in a balanced way (i.e., with minimal dysfunctional thinking biases such as ignoring the positives or catastrophising), and motivate themselves by focusing on what they enjoy in the tasks is less likely to have problems with, for example, perceived workload (as they are less likely to feel overwhelmed), perceived relationship concerns (as they are less likely to perceive "slights" based on unbalanced processing of information), and perceived meaningfulness (as they are more likely to see the value in what they are doing), amongst other stressors. Within the stress literature, there is a shortage of individual-level preventive approaches to stress management (see Richardson & Rothstein, 2008); instead much of the stress management literature has examined interventions that target the employees' ability to cope with strain and specific existing stressors (Ivancevich, Matteson, Freedman, & Phillips, 1990). Our research thus extends both the self-leadership literature and stress management research by investigating self-leadership as a primary SMI intervention aimed at anticipatory coping.

We use the conservation of resources model (CoR: Hobfoll, 1989, 2001) to propose that self-leadership will operate as an effective SMI. This model defines stress as the reaction to a loss, or threatened loss, of resources. Resources are defined as "those objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies" (Hobfoll, 1989, p. 516). Empirical research has confirmed that the experience of various types of resource loss is associated with strain and burnout (e.g., Grandey & Cropanzano, 1999; Lee & Ashforth, 1996; Wright & Cropanzano, 1998) and that specific resource gain (specifically, recovery time away from work, task-related self-efficacy or proactivity) is associated with decreased strain from existing stressors (Binnewies, Sonnentag, & Mojza, 2009; S. Chen, Westman, & Eden, 2009; Searle, 2008; Sonnentag, 2001; Sonnentag, Kuttler, & Fritz, 2009; Sonnentag, Mojza, Binnewies, & Scholl, 2008). However, to our knowledge, there has been no examination of the hypothesis that general resource gain, such as is proposed in this study, will help to reduce or prevent future stressors and strain. Whereas the previous research in this area has examined the effect of resources that were designed to assist individuals in dealing with a specific potential stressor in the workplace, the self-leadership approach provides individuals with an array of behavioral, cognitive and emotional strategies. Consequently, this approach should have a broader preventive effect, buffering individuals against a range of potential stressors.

For example, imagine an individual who regularly writes and uses to-do lists, who rewards herself when she achieves things, who monitors her thoughts to ensure she does not obsess about her own or others' failures or take offence at unintended slights, who considers what she enjoys about her work and who crafts her work so that she is able to focus on those enjoyable aspects. Such an individual will be able to prevent or minimize a range of future stressors (e.g., workload or relationship stressors) and, as such, will not experience strain. This is particularly apparent if we also imagine an individual who does not use self-leadership strategies: a person who does not set goals for herself and who does not use to-do lists or other reminders about their tasks, who focuses on the negatives of life rather than the positives or who obsesses about what she "should" do rather than what she "can" do, who does not think about what she enjoys in her job but instead just works through every task as it is given to her (or who focuses on what she doesn't like in her job). We argue that such a person is much less likely to be able to reduce potential stressors in her environment.

Thus, the conservation of resources model suggests that self-leadership training will reduce the experience of strain in a range of situations because it increases the individual's store of psychological resources. However, neither self-leadership theory nor the conservation of resources model clearly explicates the psychological processes through which these resources reduce strain, thus we will now argue that two distinct psychological processes, namely self-efficacy and positive affect, act in this role.

Psychological Processes Mediating the Effect of Self-Leadership on Strain

Self-leadership is a self-regulatory approach (Day & Unsworth, in press; Manz, 1986; Manz & Sims, 1980) underpinned by social cognitive theory (Manz & Sims, 1980). Social cognitive theory outlines a triadic reciprocal relationship between behavioural, personal and environmental characteristics (Bandura, 1986). This approach is particularly appropriate for this study as we are concerned with the same set of factors, namely, the way in which behaviors (self-leadership strategies) affect personal characteristics (psychological resources) thus improving an individual's ability to deal with the environment (potential stressors). Social cognitive theory has been used previously to explain the prevention of health problems, including strain (Bandura, 1998, 2004). Within the social cognitive framework, self-efficacy is identified as a key determinant of outcomes as it affects direction and persistence of effort (Bandura, 1977, 1997). Thus, we chose to explore self-efficacy as a mediator of the effects of self-leadership strategies on strain.

Manz (1986) and Prussia and colleagues (1998) suggest that self-leadership training increases self-efficacy through both modeling (via self-instructional modeling and learning; Gist, 1989) and experience (via empowerment provided by increased self-leadership skills). The empirical data supports this theorising. For instance, Prussia and colleagues (1998) found that the use of self-leadership strategies was significantly and positively related to higher self-efficacy. Neck and Manz (1996) found that training in cognitive self-leadership had an effect on self-efficacy, and Morin and Latham (2001) found that training in mental practice (an aspect of cognitive self-leadership) either with or without goal-setting (an aspect of behavioural self-leadership) was related to higher levels of self-efficacy one month following the training.

This theoretical reasoning can also be integrated with the CoR model (Hobfoll, 1989). Hobfoll (2002) identified self-efficacy as a key resource in reducing strain because it enables people to alter their environment to meet stressful demands as well as increasing their psychological resilience. Existing research in this domain also supports this premise. For instance, Xanthopoulou, Bakker, Demerouti and Schaufeli (2009) found that the relationship between job-based resources (such as the level of autonomy and coaching provided by their shift supervisor) and work engagement was mediated by the individual’s self-efficacy. Therefore, we propose that the self-leadership resources reduce the experience of strain by increasing individual self-efficacy.

While there has been some debate over the usefulness of general self-efficacy over and above task-related self-efficacy (Bandura, 1986; Locke & Latham, 1990), we believe that general self-efficacy is the most appropriate form of self-efficacy for reducing strain due to the principle of specificity-matching: More general outcomes, such as strain, should relate more closely with general self-efficacy than with specific task-related self-efficacy (G. Chen, Gully, & Eden, 2001). General self-efficacy is defined as the individuals’ “perception of their ability to perform across a variety of different situations” (Judge, Erez, & Bono, 1998, p.170). And although general self-efficacy has usually been considered previously as a relatively stable construct there is some evidence to show that it can be changed: Eden and Aviram (1993) created a training intervention to increase unemployed people's general self-efficacy and found that there was indeed a change after the intervention. We propose, therefore, that training in self-leadership will lead to increased general self-efficacy which will be negatively related to strain.

Hypothesis 1: There will be a significant decrease in reported strain for individuals who participate in self-leadership training but no significant decrease in reported strain for individuals in the control group.

Hypothesis 2a: There will be a significant increase in general self-efficacy for those who participate in self-leadership training but no significant increase in general self-efficacy for those in the control group.

Hypothesis 3a: Change in general self-efficacy will mediate the effects of change in self-leadership on the change in strain.

CoR theory suggests that some resources are linked to others, resulting in "resource caravans" (Hobfoll, 2002). The most notable of these is self-efficacy which has been shown to be empirically related to many other cognitive psychological resources such as self-esteem, optimism, a sense of control, and mastery orientations in reducing stress (Cozzarelli, 1993; Rini, Dunkel-Schetter, Wadhwa, & Sandman, 1999). Thus, the increase in self-efficacy that we hypothesise above is likely to be related to a wide number of other potential cognitive processes and additional cognitive processes may not contribute unique variance. However, we argue that outside of this cognitive "caravan" there is likely to be an affective resource, namely positive affect, that could provide unique variance in preventing and reducing stress (e.g., Fredrickson, 2001, 2004; Tugade, Fredrickson, & Feldman-Barrett, 2004) and which can be developed from self-leadership training.

Fredrickson's broaden and build theory suggests that positive emotions broaden an individual's mindset so that they become aware of more possible actions and increase an individual's psychological resiliency (Fredrickson, 2001, 2004). This theory identifies positive affect as important for fostering experimentation, creativity, and the further development of personal resources. Thus, this theory suggests that positive affect will play an important role in the way in which the resources gained from self-leadership training affect the experience of strain. That is, individuals who experience positive affect are more likely to adopt creative responses to potential challenges in the environment reducing the likelihood of experiencing strain.

Empirical support for the broaden and build theory is itself broad including support for the premise that positive affect increases broadened thinking and coping (Fredricksen & Branigan, 2005; Fredrickson & Joiner, 2002), that positive affect reduces race bias in face recognition tasks (Johnson & Fredricksen, 2005), that positive affect increases resilience against depression following a terrorist crisis (Fredricksen, Tugade, Waugh, & Larkin, 2003) and that this relationship may be mediated by emotion regulation and meaning-making (Tugade & Fredricksen, 2004) amongst many other supporting studies. At a more general level, relationships have been found between positive affect and composite cardiovascular indicators (Wright, Cropanzano, Bonett, & Diamond, 2009) and even mortality (Danner, Snowden, & Friesen, 2001).

From a self-leadership perspective, theory suggests that the cognitive strategies of self-leadership, in particular, create increased positive affect (Neck & Manz, 1992), based on the well-known premise of cognitive-behaviour therapy that cognitions are linked to emotions (Beck, 1976). In other words, changing dysfunctional thinking habits into more constructive patterns should result in increased positive affect. Consistent with this proposition, Neck and Manz (1996) provided training in cognitive self-leadership and found a significant difference in positive affect between the experimental group and the control group. Therefore, we hypothesize that self-leadership training will not only result in increased general self-efficacy resources but also increased positive affect resources, and that these resources will work in different ways to reduce the experience of strain. We predicted that:

Hypothesis 2b: There will be a significant increase in positive affect for those who participate in self-leadership training but no significant increase in positive affect for those in the control group.

Hypothesis 3b: Change in positive affect will mediate the effects of change in self-leadership on the change in strain.

In summary, we integrate conservation of resources theory and social cognitive theory to explicate the psychological processes through which training in self-leadership will result in decreased strain. To test our model and to reduce as many alternative explanations as possible, we use both experimental and longitudinal survey methods. First, we test the changes in self-efficacy, positive affect and strain in a randomly-assigned self-leadership training group compared to a control group. In doing so we are able to minimise many of the external, cohort or situational explanations that otherwise might confound our findings. Second, we use longitudinal structural equation modeling analysis on a broader sample to replicate the findings from the first study and test the mediation hypotheses.

Methods

Self-Leadership Intervention

The self-leadership intervention was based predominantly on the theoretical work of Manz (1986). It was an online intervention with five modules that could be completed in the individual's own time and embedded all three components of self-leadership (behavioural self-leadership, cognitive self-leadership and natural rewards). The modules were open for two weeks, at which point the next module would open for the participants. The modules contained a mixture of information, interactive exercises, and reflection. To provide feedback and guidance for all participants an expert facilitator commented on the responses made by each participant in approximately half of the exercises (these were clearly identified as non-confidential) which often prompted participants to think more deeply about the issues or in alternative ways. Participants were then able to respond to this guidance. Each module took approximately two hours to complete.

The first module covered an introduction to the concepts and the training and focused on self-awareness of strengths and psychological resources. The second module introduced the concept of natural rewards and contained exercises designed to help participants find meaning and enjoyment in their work. The third module covered both self-management strategies and identifying dysfunctional thinking biases, while the fourth module built on this by evaluating progress on the goal and practicing both mental practice and modifying thinking patterns. Finally, the last module covered the use of cues and included training transfer exercises where participants identified ways of using the self-leadership strategies to help transfer the training to their workplace and daily lives. In line with our theorizing, all modules covered general issues and did not ask participants to focus on specific stressors they were currently facing.

Study 1

The first study was an experimental study designed to test hypotheses one and two, namely, that participation in self-leadership training would result in increased general self-efficacy, positive affect and decreased strain compared to a control group.

Sample

The participants for Study 1 were volunteers who signed up for a “Self-Leadership Course” in a government health department. The course was publicized as a training tool to improve performance and well-being. As far as we are aware, there were no strain-related issues within the participating departments of this organization or the organization itself that made them substantially different to other organizations.

Approximately 100 hundred employees were invited to participate in the training and seventy-one individuals elected to take part. The participants were white-collar professional technical staff working in the public sector, providing pathology and scientific services. There were no significant organizational changes during the intervention time period. All respondents were randomly assigned to either the experimental group or a wait-list control group. Those in the control group were told that they would be in the second round of the training and were asked if they would complete an additional survey beforehand to help us evaluate the training. Thus the procedure was: At time one, both groups completed the survey; for the next 10 weeks, the experimental group took part in self-leadership training while the control group did not participate in any intervention; at time two, both groups again completed the survey; finally, the waiting-list control group completed self-leadership training (however the post-training data from the control group were not included in this study).

In the experimental group, 38 participants started the program; 23 completed the time-two survey at the end of the program 12 weeks later (60.5% retention rate). Of these, sixteen participants were female (69.6%), the mean age was 46.78 years (ranging from 37 to 59 years), and the mean tenure of employment with the department was 24.2 years (ranging from 10 to 42 years). In the control group, 33 completed the time-one survey and 23 completed the time-two survey (69.7% retention rate). The demographic profile of the control group was similar to that of the experimental group: 13 participants were female (56.5%), the mean age was 44.65 years (ranging from 24 to 58 years); mean years of employment 23.65 (ranging from 4 to 39 years). There were no significant differences between the experimental and control groups in the demographic variables.

As with many training programs, some attrition occurred. Furthermore, given that our intervention was designed to be practiced over time and took 10 weeks to complete, it is probably not surprising that the attrition rate was approximately 30-40%; follow-ups with the non-participants showed that a lack of time was the most common reason for not completing the training. Nonetheless, this potentially means that those who completed both pre and post surveys were different to those who did not complete both surveys, therefore, we tested for mean differences. There were no significant differences between the groups on gender (M_{T1T2} = 1.63, M_{T1only} = 1.56; t = -.57, n.s.), age (M_{T1T2} = 45.72, M_{T1only} = 43.2; t = -1.24, n.s.), years of employment (M_{T1T2} = 23.92, M_{T1only} = 24.32; t = .18, n.s.), or time one measures of strain (M_{T1T2} = 1.89, M_{T1only} = 1.92; t = .30, n.s.), general self-efficacy (M_{T1T2} = 3.80, M_{T1only} = 3.93; t = .87, n.s.), or positive affect (M_{T1T2} = 3.43, M_{T1only} = 3.49; t = .34, n.s.)

Measures

The pre-training survey was emailed to all participants (those in both the experimental and control groups) one to two weeks before training began. The post-training survey was emailed to all participants two weeks after the training group completed the final module.

Strain. The GHQ-12 (Goldberg, 1992) was used to measure strain both pre- and post-training. The GHQ-12 has been extensively validated in a wide range of samples (e.g., Salama-Younes, Montazeri, Ismail, & Roncin, 2009), and in our sample had a good internal reliability both pre-training (α = .85) and post-training (α = .86). An example item is, “Have you recently been able to concentrate on what you’re doing” (reverse-scored) and was measured on a 4-point scale from “Much less than usual” to “Much more than usual”. Overall strain was calculated as a mean of the items and coded such that high scores represent high levels of strain.

Self-leadership. The use of self-leadership strategies was measured both pre- and post-training. The 35 items from Houghton and Neck’s (2002) Revised Self-Leadership Questionnaire were used to measure the three components of self-leadership both pre- and post-training. An example item, assessing use of natural rewards strategies, is: “When I have a choice, I try to do my own work in ways that I enjoy rather than just trying to get it over with", scored on a 5-point scale from "Not at all accurate" to "Completely accurate". The scale had a high internal reliability both pre-training (α = .89) and post-training (α = .91).

General self-efficacy. Chen, Gully and Eden's (2001) scale was used to measure general self-efficacy both pre- and post-training. It consists of eight items measured on a 5-point Likert scale; an example item is "I will be able to achieve most of the goals that I have set for myself". We found that the scale demonstrated high internal reliability (pre-training: α = .90; post-training: α = .92).

Positive affect. The positive, state-based high-affect items (i.e., the enthusiasm dimension) from the Job Affect Scale (Brief, Burke, George, Robinson, & Webster, 1988) were used to measure positive affect. This measure comprised six adjectives (e.g., elated) and participants were asked to what extent they had felt that way at work in the past week. Responses ranged from "Very slightly or not at all" to "Very much". Internal reliability was good in both the pre-training survey (α = .85) and the post-training survey (α = .89).

Results

To first check that the intervention did indeed change the self-leadership behaviours of the experimental participants, we used a mixed design MANOVA with group participation as a between-subjects variable (experimental/control group) and time as a within-subjects variable (time one/time two). As expected, we found a significant group x time interaction for self-leadership ($F(1,39) = 12.18$, $p<.001$) indicating that there was a significant increase in self-leadership behaviours for those who participated in the training ($M_{T1} = 3.62$; $M_{T2} = 4.05$) but not for those in the control group ($M_{T1} = 3.59$; $M_{T2} = 3.48$).

Hypotheses 1 and 2 proposed differences in the experimental group but not in the control group for both the dependent variable of strain and the suggested mediating variables (general self-efficacy and positive affect). To test these hypotheses we again used a mixed design MANOVA with group participation as a between-subjects variable (experimental/control group) and time as a within-subjects variable (time one/time two).

In support of hypothesis 1, we found a significant group x time interaction for strain ($F(1,39) = 13.64$, $p<.01$). Neither group nor time had significant main effects ($F(1,39) = .99$, n.s.; $F(1,39) = 4.16$, n.s.). Subgroup analyses were in line with the hypotheses such that the experimental group had a significant reduction in strain ($M_{T1} = 1.94$, $M_{T2} = 1.60$; $t = 3.79$, $p<.01$) but strain in the control group did not change significantly ($M_{T1} = 1.83$, $M_{T2} = 1.93$; $t = -1.42$, n.s.). Similarly, the effect size of the difference in strain between the experimental and control groups before the intervention was very low ($d = -.06$; CI = -.20-.07; Cohen, 1977) and can be interpreted as being zero or near zero, while the standardized difference in strain between the two groups following the intervention is large and can be interpreted as having clear practical significance ($d = .82$; CI = .67 - .99; Cohen, 1977; Wolf, 1986).

Furthermore, in support of hypotheses 2a and 2b, we found a significant group x time interaction for general self-efficacy ($F(1,39) = 28.49$, $p<.001$) and positive affect ($F(1,39) = 10.84$, $p<.01$). Again, subgroup analyses showed no significant changes over time in the control group for general self-efficacy ($M_{T1} = 3.90$, $M_{T2} = 3.81$; $t = 1.23$, n.s.) or positive affect ($M_{T1} = 3.60$, $M_{T2} = 3.57$; $t = .33$, n.s.); however there were significant increases over time in the experimental group for both (general self-efficacy: $M_{T1} = 3.72$, $M_{T2} = 4.30$; $t = -6.13$, $p<.001$; and positive affect: $M_{T1} = 3.38$, $M_{T2} = 3.80$; $t = -3.41$, $p<.01$). And again, the effect sizes between groups before training was small or near zero for both general self-efficacy and positive affect ($d = .23$, CI = .05-.42; $d = .06$, CI = -.18-.28; Cohen, 1977) but following training, the differences between the experimental and control groups were substantial ($d = -1.12$, CI = -1.29 - -.93; $d = -.64$, CI = -.97 - -.31).

Study 2

The results from the first study demonstrate that self-leadership training has an effect on strain, general self-efficacy and positive affect. The aim of the second study was to investigate the mechanisms through which self-leadership training reduced strain by testing the hypothesized mediation effects. The sample for this study included those in the experimental group of Study 1 but also represented a wider range of employees; this study therefore also provides an opportunity to examine the generalizability of our findings.

This was a non-experimental study so there was no control group. Instead, we measured the use of self-leadership strategies, strain and mediators across the different time points and controlled for these within the model. As for study 1, the pre-training survey was emailed to participants one to two weeks before training began. The post-training survey was emailed to participants two weeks after the final module had been completed.

Sample

The same self-leadership intervention was offered within six public and private organizations and again was publicized as a training tool to improve performance and well-being. The HR Director of each of these organizations decided upon how many people would undergo training and specifically offered it to those they felt would benefit (usually the "rising-stars"). In total, 277 people began the program. Of those, 128 people completed the full five modules of training and the final post-training questionnaire (46.2%). Overall, the participants included staff from two universities (26 and 39 people completed), two government departments (29 and 13 people completed), a mining organization (14 people completed) and the corporate office of a retail restaurant group (19 people completed). The participants included health science professionals, engineering professionals, academics and white-collar employees and there were no significant differences in initial strain levels of the employees across the six organizations ($F(5,123) = .59$, n.s.). Fifty-three participants were male (41.4%), the mean age was 38.44 years, and the mean years of employment was 18.65 years. Twenty-three of the participants in this sample were those studied in Study One. They were included in the data set to ensure we had appropriate power for our analyses; however, to ensure the validity of the results, we also ran the structural analyses on the non-overlapping sample (N = 105) and the pattern of results remained the same[1].

Measures

The same measures for self-leadership, strain, general self-efficacy and positive affect were used as in Study One for both Time 1 (pre-training) and Time 2 (post-training).

Results

To begin, confirmatory factor analyses (CFA) were conducted at both time one and time two. Given the relatively small sample size, we parceled the items for each scale. For the self-leadership scale, the items were parceled according to their theoretical subscale (i.e., behavioural self-leadership, cognitive self-leadership, natural rewards) (Landis, Beal, & Tesluk, 2000; Little, Cunningham, & Shahar, 2002). For general self-efficacy, positive affect, and perceived strain there were no theoretical distinctions within the scale, so they were parceled randomly into "odd" and "even" items (Landis, et al., 2000). For each CFA we first checked regression weights and goodness-of-fit statistics. In both CFAs, there were no standardized regression weights lower than 0.58 and both had good fit to the data (χ^2 = 25.60, df = 22, CFI = .99, RMSEA = .05; χ^2 = 31.85, df = 22, CFI = .99, RMSEA = .06; respectively).

We then checked for convergent and divergent validities at both time points using Fornell and Larcker's (1981) approach. The parcels accounted for more than the recommended benchmark of 50% of the variance (Fornell & Larcker, 1981) for all scales with the exception of self-leadership at time one which accounted for 46% of the variance. Given this potential lack of validity, we followed Netemeyer, Johnston and Burton (1990) and compared the hypothesized model with a one-factor model and a theoretically-plausible two-factor model where self-leadership, general self-efficacy and positive affect loaded onto one factor. The hypothesized four factor model provided a significantly better fit than either of these models (χ^2 = 368.20, df = 28; $\Delta\chi^2$ = 342.60, df = 6, p<.001; χ^2 = 147.48, df = 27; $\Delta\chi^2$ = 121.88, df = 5, p<.001; respectively). In further support of our four-factor model, we compared the squared correlations between each latent scale with the variance extracted for those scales (Fornell & Larcker, 1981). In each instance, the variance extracted was greater than the squared correlation providing support for the divergent validity of our scales.

The third check that we ran on our data was that the meaning of the scales remained consistent over time. We did not expect full metric invariance over time as the intervention was designed to change the intercept; however to make meaningful comparisons of that change we needed to ensure that we had factorial invariance. This was achieved.

[1] Results can be obtained from the authors upon request.

There was no significant difference between the baseline model and a model where the measurement loadings, correlations between latent factors, and the variances of the latent factors were held invariant across both time points (χ^2 = 79.0, df = 59; $\Delta\chi^2$ = 16.13, df = 15, n.s.) indicating that participants perceived the items, the latent constructs, and their relationships in the same way both before and after the training. There was a significant worsening of fit when the measurement residuals were held invariant (χ^2 = 132.38, df = 67; $\Delta\chi^2$ = 68.52, df = 23, p<.01), however this is common and partial measurement invariance, such as that found within our data, is considered acceptable (Byrne, Shavelson, & Muthén, 1989).

Finally, we checked for common method variance at both time points. Using the procedures outlined by Williams, Hartman and Cavazotte (2010) we identified an item that was measured at both times but was theoretically distinct from our model ("How much effort does your supervisor expect you to contribute most of the time?"). We used this as a marker variable in both sets of analyses - both time one and time two separately. We fixed the loading of this variable to a marker latent factor to 1 to provide the latent factor with "meaning" distinct from the other measured variables and then conducted four analyses on each time point (see Table 1). The first analysis was a baseline analysis where the marker latent factor loaded only onto the marker item and the four latent factors correlated with each other but not with the marker latent factor. The second analysis tested whether there was any common method variance that was equal across all items (such as a response bias); in this model the marker latent factor loaded onto all nine parcels as well as onto the original marker item but these loadings were constrained to be equal. As shown in Table 1 the chi-square differences between this model and the baseline model were non-significant for both time one and time two, indicating that there was no equal common method variance at either time point. A more rigorous test was then conducted which allowed the loadings between the marker variable and the parcels to be unconstrained. Again, however, there were no significant chi-square differences between this model and the baseline model for either time point. In addition, no loadings between the parcels and the latent marker factor were significant. Finally, we tested whether or not common method variance affected the correlations between the factors. Again, following the procedures advised by Williams and colleagues (2010), we fixed the correlations in the final model to those found in the original baseline model. As can be seen in Table 1, there was no significant difference between the goodness of fit of the fixed correlations unconstrained loadings model and the unconstrained loadings model in either data set, indicating that common method variance did not inflate the correlations between the variables.

Table 1 about here

In addition to these findings, we also found that the estimated reliabilities of the scales were satisfactory even after removing the variance associated with common methods. The composite reliabilities of the scales at both time one and time two calculated according to Fornell and Larcker (1981) are presented in the diagonal of Table 2; these are all above .70 and represent adequate internal reliability. We calculated the reliabilities due to common method using the unconstrained loadings on the latent marker factor for both time one and time two data-sets (see Williams, et al., 2010); for time one the reliability of the method loadings was only 0.02, and for time two it was 0.03. There is support, therefore, for the premise that common method variance was not inflating the reliability estimates, nor correlations between factors, nor factor loadings at either time one or time two.

Table 2 outlines the means, standard deviations, composite reliabilities and intercorrelations of the variables studied. As can be seen in this table, from pre- to post-training, there were increases in the use of self-leadership strategies, general self-efficacy and positive affect and decreases in strain. Consistent with our findings from Study One, all of these changes were significant (self-leadership: $t = -11.18$, $p<.001$; general self-efficacy: $t = -11.43$, $p<.001$; positive affect: $t = -5.35$, $p<.001$; strain: $t = 6.62$, $p<.001$).

We examined the hypotheses that changes in general self-efficacy and positive affect mediated the effect of on a change in strain by comparing a fully mediated model with non-mediated and partially mediated structural models. In all models, the time one variable loaded onto the time two variable and the time two dependent variable; by controlling for the time one variables we are able to mimic the effect of change on change without having to use difference scores which are problematic. Finally, we allowed the errors for the parcels at time one and time two to correlate to account for any item-level variance not associated with the change over time.

The hypothesized, fully-mediated model produced an adequate fit to the data ($\chi^2 = 149.49$, df = 109, CFI = .97, RMSEA = .061). All structural loadings were significant and the hypothesized loadings between the time two factors were in the expected direction. More specifically, self-leadership at time two was significantly associated with both general self-efficacy at time two ($\beta = .56$) and positive affect at time two ($\beta = .66$) even after controlling for previous levels of self-leadership, and general self-efficacy or positive affect respectively; and general self-efficacy at time two and positive affect at time two were significantly related to strain at time two after controlling for previous levels of these factors ($\beta = -.37$ and $\beta = -.48$, respectively).

We then compared this hypothesized model to two theoretically plausible models. The first was a non-mediated model where self-leadership loaded directly onto strain alongside, but not via, general self-efficacy and positive affect. Again, the time one factors were included as controls so that we could measure the effects of changes in the factors. The non-mediated model had significantly worse fit than the hypothesized model ($\chi^2 = 232.27$, df = 114; $\Delta\chi^2 = 86.87$, $p<.001$).

Finally, we compared the hypothesized model to a partially-mediated model where self-leadership had both direct and indirect effects on strain via general self-efficacy and positive affect. After controlling for time one levels of self-leadership, general self-efficacy and positive affect, this partially mediated model was found to have a significantly better fit than the hypothesized fully-mediated model (χ^2 = 145.40, df = 108, CFI = .98, RMSEA = .05; $\Delta\chi^2$ = 4.09, $p<.05$). However the loading between self-leadership and strain (after accounting for time one levels) was only marginally significant (β = .28, p = .06). This final model is shown in Figure 1.

Figure 1 about here

As we included multiple mediators in our model, a simple test of the indirect effects, such as the Sobel test, is inappropriate due to the attenuation of the shared variance. Instead, we calculated the total indirect effect of time two self-leadership on time two strain by summing the product of the coefficients and dividing this by the asymptotic variance of this effect (see Preacher & Hayes, 2008). This provided an asymptotic critical ratio of Z = 5.18 ($p<.05$) indicating that there is an overall significant indirect effect of self-leadership on strain. In addition, to check whether each mediating path contained a unique significant indirect effect we calculated the asymptotic critical ratios for the path via general self-efficacy (Z = 2.03, $p<.05$) and the path via positive affect (Z = 3.15, $p<.05$). As both of these were significant it suggests that general self-efficacy and positive affect mediate the effect of self-leadership on strain in different ways and that both are conceptually and theoretically important in our understanding of the effect of self-leadership as a stress management intervention.

Discussion

In this study we examined the effects of self-leadership training on levels of strain. As hypothesized, we found that participation in self-leadership training was associated with decreased strain, even when compared to a control group. Furthermore, using CoR theory, we identified and tested general self-efficacy and positive affect as the mechanisms within this relationship. The first study revealed that both general self-efficacy and positive affect were increased by self-leadership training. Longitudinal analyses further revealed that increases in self-efficacy and positive affect mediated the effect of increased use of self-leadership strategies on the decreased experience of strain.

What is important about these findings is that they suggest that self-leadership offers an individual-level preventive approach to stress management. While most other individual-level stress management interventions have been used to change the way employees appraise their current stressors (e.g., Ganster, Mayes, Sime, & Tharp, 2002), reduce the problem stressors (e.g., Searle, 2008) or change the way employees cope with current strain (e.g., Kabat-Zinn, 1990), self-leadership training provides individuals with resources that not only enable them to address current stressors but also prevent future stressors from occurring. Whereas previous research has examined stress management interventions in relation to a specific stressor in this research we examined individuals in a wide range of organizational settings where the range of potential stressors varied naturally. Thus, the research examined the ability of self-leadership strategies to reduce strain across a range of settings and situations.

Our research also strengthens the CoR model by supporting the proposition that building one's psychological resources can help reduce and prevent strain. Much of the work on CoR has focused on the proposition that strain is caused by a loss of resources (e.g., van Gelderen, Heuven, van Veldhoven, Zeelenberg, & Croon, 2007). Less research has examined the effect of building resources, and that which has been done has specifically tested the effect of time away from work (e.g., Sonnentag, 2001) or training for a new IT system (S. Chen, et al., 2009). In contrast, the self-leadership approach provides individuals with a combination of behavioral, cognitive and emotional strategies that are designed to be effective in a range of environments. Thus, examining the effect of self-leadership training provides a stronger test of the general proposition that resource gain reduces the experience of strain. Our research suggests that a more general approach to building psychological resources that can be applied to a wide variety of situations is also effective in reducing the experience of strain.

As expected, changes in the levels of the resources of general self-efficacy and positive affect mediated the relationship between changes in self-leadership and changes in strain. Furthermore, both mediators had a significant effect, suggesting that they contribute to overall resource levels in different ways. Research in both of these areas has tended to operate in parallel: the benefits of self-efficacy have been extolled in a large literature founded on social learning theory (e.g., Bandura, 1997; Maddux, 2005) while the benefits of positive affect have been equally extolled by the work of Fredrickson amongst others (e.g., Burns et al., 2008; Fredrickson, 2001; Fredrickson & Joiner, 2002). Our research suggests that the personal resources of general self-efficacy and positive affect complement each other in their ability to reduce and prevent strain. For example, positive affect might support individuals in stressful situations by encouraging a broader attentional focus and fostering experimentation (Fredrickson, 2004), whereas general self-efficacy might contribute to the reduction of strain by providing the individual with the confidence to persist with this broader repertoire of behavior and cognition (Bandura, 1986, 1998). The finding that self-leadership affects strain through multiple psychological processes is consistent with the fact that self-leadership itself represents a combination of behavioral, cognitive and emotional strategies and supports the premise that this type of "treatment package" (e.g., Rousseau, 1997) may be more beneficial than training in only particular components.

An additional contribution from this study is to the literature on self-leadership. Since its inception by Manz in 1996, self-leadership has spawned wide-ranging theoretical propositions and empirical examinations (see Neck & Houghton, 2006). However, this research has focused on the effects of self-leadership on performance and effectiveness (e.g., Prussia, et al., 1998). Our research takes the field of self-leadership into a new domain by demonstrating that self-leadership training is associated with reduced levels of strain.

These pervasive effects of self-leadership also indicate, from a practical perspective, the benefits of developing the self-leadership of employees. By providing employees with additional psychological resources, an organization can benefit in both decreased down-time due to stress leave and increased productivity due to the performance outcomes from this training (Stewart, et al., 2011). Self-leadership training therefore gives organizations more "bang for their buck"; given the time and financial constraints of many training sections within organizations and the organisations themselves, self-leadership may offer a practical, viable alternative for training to improve both well-being and performance at the same time. Furthermore, our research was based on an online SMI. While other research has also found online training and stress management to be effective (Dimeff et al., 2009; Zetterqvist, Maanmies, Strom, & Andersson, 2003), there still remains some doubt as to the effects of the medium on attrition rates and overall potency. Thus, our online approach may represent a conservative test of the efficacy of self-leadership as a preventive SMI and future research could test whether additional benefits ensued from face-to-face self-leadership training.

Other directions for further research are suggested by some of the limitations associated with this study. Due to the psychological nature of the independent variable, mediators and dependent variable, we relied on self-report data. We argue that self-report data is the most appropriate for our hypotheses and we attempted to mitigate some of the problems associated with self-report data by obtaining both pre- and post-measures as well as directly testing the effects of common method variance within the data-sets. However, future research exploring more distal, related effects, such as absenteeism and turnover, using non-self-report data would be useful in confirming and validating our findings. Furthermore our sample sizes, particularly in study 1, are fairly small; nonetheless, we take heart that we were able to both find significant results with such relatively low power and potential sampling bias, and to replicate our findings with a broader sample. Another limitation of this research was that we were unable to assess the long-term effects of self-leadership training. Our post-training measures were obtained between two weeks and one month following the completion of the final module in the training. It would be useful for future research to examine whether the effects on strain that we found in the short-term continued in the longer-term.

In summary, we argued and found support for the proposition that self-leadership training provided participants with psychological resources that strengthened their general self-efficacy and positive affect resources and ultimately reduced their experience of strain. As well as extending the known effects of self-leadership, this research identifies psychological processes affected by self-leadership training, thus providing insight into the mechanisms through which self-leadership manifests its effects and providing insight into the "black-box" of a stress management intervention. Given the growing recognition of the importance of self-leadership in both academic and practitioner circles we believe that this demonstration of practical and theoretical applicability is both timely and appropriate; and given the growing need for SMIs in organizations we believe that this greater level of in-depth understanding is both theoretically and practically significant.

References

Abele, A. E., & Wiese, B. S. (2008). The nomological network of self-management strategies and career success. *Journal of Occupational and Organizational Psychology, 81*(4), 733-749.

Aspinwall, L. G., & Taylor, S. E. (1997). A stitch in time: Self-regulation and proactive coping. *Psychological Bulletin, 121*(3), 417-436.

Bandura, A. (1977). Self-efficacy: Toward unifying theory of behavioral change. *Psychological Review, 84*, 191-215.

Bandura, A. (1986). *Social foundations of thought and action: A social-cognitive view.* Englewood Cliffs, N.J.: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control.* New York: Freeman.

Bandura, A. (1998). Health promotion from the perspective of social cognitive theory. *Psychology and Health, 13*, 623-649.

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education and Behavior, 31*(2), 143-164.

Beck, A. (1976). *Cognitive therapy and the emotional disorders.* New York: International Universities.

Binnewies, C., Sonnentag, S., & Mojza, E. J. (2009). Feeling recovered and thinking about the good sides of one's work. *Journal of Occupational Health Psychology, 14*(3), 243-256.

Brief, A. P., Burke, M. J., George, J. M., Robinson, B. S., & Webster, J. (1988). Should negative affectivity remain an unmeasured variable in the study of job strss? *Journal of Applied Psychology, 73*, 193-198.

Briner, R. B., & Reynolds, S. (1999). The costs, benefits, and limitations of organizational level stress interventions. *Journal of Organizational Behavior, 20*(5), 647-664.

Burns, A. B., Brown, J. S., Sachs-Ericsson, N., Plant, E. A., Curtis, J. T., Fredrickson, B. L., et al. (2008). Upward spirals of positive emotion and coping: Replication, extension, and initial exploration of neurochemical substrates. *Personality and Individual Differences, 44*(2), 360-370.

Byrne, B. M., Shavelson, R. J., & Muthén, B. (1989). Testing for the equivalence of factor covariance and mean structures: The issue of partial measurement invariance. *Psychological Bulletin, 105*(3), 456-466.

Carmeli, A., Meitar, R., & Weisberg, J. (2006). Self-leadership skills and innovative behavior at work. *International Journal of Manpower, 27*(1), 75-90.

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational Research Methods, 4*(1), 62-83.

Chen, S., Westman, M., & Eden, D. (2009). Impact of enhanced resources on anticipatory stress and adjustment to new information technology: A field-experimental test of Conservation of Resources Theory. *Journal of Occupational Health Psychology, 14*(3), 219-230.

Cohen, J. (1977). *Statistical power analysis for behavioral sciences (Revised ed.).* New York: Academic Press.

Cozzarelli, C. (1993). Personality and self-efficacy as predictors of coping with abortion. *Journal of Personality and Social Psychology, 65*, 1224-1236.

Danner, D. D., Snowden, D. A., & Friesen, W. V. (2001). Positive emotions in early life and longevity: Findings from the nun study. *Journal of Personality and Social Psychology, 80*, 804-814.

Day, D. V., & Unsworth, K. L. (in press). Goals and self-regulation. In E. A. Locke & G. P. Latham (Eds.), *New Developments in Goal-setting and Task Performance*: Taylor & Francis.

Dimeff, L. A., Koerner, K., Woodcock, E. A., Beadnell, B., Brown, M. Z., Skutch, J. M., et al. (2009). Which training method works best? A randomized controlled trial comparing three methods of training clinicians in dialetical behavior therapy skills. *Behavior Research and Therapy, 47*(11), 921-930.

Eden, D., & Aviram, A. (1993). Self-efficacy training to speed reemployment: Helping people to help themselves. *Journal of Applied Psychology, 78*(3), 352-360.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research, 18*(1), 39-50.

Fredricksen, B. L., & Branigan, C. (2005). Positive emotions broaden the scope of attention and thought-action repertoires. *Cognition and Emotion, 19*(3), 313-332.

Fredricksen, B. L., Tugade, M. M., Waugh, C. E., & Larkin, G. R. (2003). What good are positive emotions in crises? A prospective study of resilience and emotions following the terrorist attacks on the United States on September 11th, 2001. *Journal of Personality and Social Psychology, 84*(2), 365-376.

Fredrickson, B. L. (2001). The role of positive emotions in positive psychology: The broaden-and-build theory of positive emotions. *American Psychologist, 56*, 218-226.

Fredrickson, B. L. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society of London, 359*, 1367-1377.

Fredrickson, B. L., & Joiner, T. (2002). Positive emotions trigger upward spirals toward emotional well-being. *Psychological Science, 13*(2), 172-180.

Ganster, D. C., Mayes, B. T., Sime, W. E., & Tharp, G. D. (2002). Managing organizational stress: A field experiment. *Journal of Applied Psychology, 67*(5), 533-542.

Gist, M. E. (1989). The influence of training method on self-efficacy and idea generation among managers. *Personnel Psychology, 42*, 787-805.

Goldberg, D. P. (1992). *General Health Questionnaire (GHQ-12).* Windsor, UK: National Foundation for Educational Research - Nelson.

Grandey, A. A., & Cropanzano, R. (1999). The conservation of resources model applied to work-family conflict and strain. *Journal of Vocational Behavior, 54*, 350-370.

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist, 44*(3), 513-524.

Hobfoll, S. E. (2001). The influence of culture, community, and the nested-self in the stress process: Advancing Conservation of Resources Theory. *Applied Psychology: An International Review, 50*(3), 337-421.

Hobfoll, S. E. (2002). Social and psychological resources and adaptation. *Review of General Psychology, 6*(4), 307-324.

Houghton, J. D., & Neck, C. P. (2002). The revised self-leadership questionnaire: Testing a hierarchical factor structure for self-leadership. *Journal of Managerial Psychology, 17*(7), 672-692.

Ivancevich, J. M., Matteson, M. T., Freedman, S. M., & Phillips, J. S. (1990). Worksite stress management interventions. *American Psychologist, 45*(2), 252-261.

Johnson, K. J., & Fredricksen, B. L. (2005). "We all look the same to me": Positive emotions eliminate the own-race bias in face recognition. *Psychological Science, 16*(11), 875-881.

Judge, T. A., Erez, A., & Bono, J. E. (1998). The power of being positive: The relation between positive self-concept and job performance. *Human Performance, 11,* 167-187.

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness.* New York: Delacourt.

Landis, R. S., Beal, D. J., & Tesluk, P. E. (2000). A comparison of approaches to forming composite measures in structural equation models. *Organizational Research Methods, 3,* 186-207.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal and coping.* New York: Springer.

Lee, R. T., & Ashforth, B. E. (1996). A meta-analytic examination of the correlates of the three dimensions of job burnout. *Journal of Applied Psychology, 81*(2), 123-133.

Little, T. D., Cunningham, W. A., & Shahar, G. (2002). To parcel or not to parce: Exploring the question, weighing the merits. *Structural Equation Modeling, 9*(2), 151-173.

Locke, E. A., & Latham, G. P. (1990). *A theory of goal setting and task performance.* Englewood Cliffs, NJ: Prentice Hall.

Maddux, J. E. (2005). Self-efficacy: The power of believing you can. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of Positive Psychology* (pp. 277-287). New York: Oxford University Press.

Manz, C. C. (1986). Self-leadership: Toward an expanded theory of self-influence processes in organizations. *Academy of Management Review, 11,* 585-600.

Manz, C. C., & Sims, H. P. J. (1980). Self-management as a substitute for leadership: A social learning perspective. . *Academy of Management Review, 5,* 361-367.

Morin, L., & Latham, G. P. (2001). The effect of mental practice and goal setting as a transfer of training intervention on supervisors' self-efficacy and communication skills: An exploratory study. *Applied Psychology: An International Review, 49*(3), 566-578.

Neck, C. P., & Houghton, J. D. (2006). Two decades of self-leadership theory and research: Past developments, present trends, and future possibilities. *Journal of Managerial Psychology, 21*(4), 270-295.

Neck, C. P., & Manz, C. C. (1992). Thought self-leadership: The influence of self-talk and mental imagery on performance. *Journal of Organizational Behavior, 13*(7), 681-699.

Neck, C. P., & Manz, C. C. (1996). Thought self-leadership: The impact of mental strategies training on employee cognition, behavior and affect. *Journal of Organizational Behavior, 17,* 445-467.

Netemeyer, R. G., Johnston, M. W., & Burton, S. (1990). Analysis of role conflict and role ambiguity in a structural equations framework. *Journal of Applied Psychology, 75*(2), 148-157.

Phelan, S., & Young, A. M. (2003). Understading creativity in the workplace: An examination of individual styles and training in relation to creative confidence and creative self-leadership. *Journal of Creative Behavior, 4,* 266-281.

Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891.

Prussia, G. E., Anderson, J. S., & Manz, C. C. (1998). Self-leadership and performance outcomes: The mediating influence of of self-efficacy. *Journal of Organizational Behavior, 19*, 523-538.

Richardson, K. M., & Rothstein, H. R. (2008). Effects of occupational stress management intervention programs: A meta-analysis. *Journal of Occupational Health Psychology, 13*(1), 69-93.

Rini, C. K., Dunkel-Schetter, C., Wadhwa, P. D., & Sandman, C. A. (1999). Psychological adaptation and birth outcomes: The role of personal resources, stress and sociocultural context in pregnancy. *Health Psychology, 18*, 333-345.

Rousseau, D. M. (1997). Organizational behavior in the new organizational era. *Annual Review of Psychology, 48*, 515-546.

Salama-Younes, M., Montazeri, A., Ismail, A., & Roncin, C. (2009). Factor structure and internal consistency of the 12-item General Health Questionnaire (GHQ-12) and the Subjective Vitality Scale (VS) and the relationship between them: A study from France. *Health and Quality of Life Outcomes, 7*, 22-25.

Searle, B. J. (2008). Does personal initiative training work as a stress management intervention? *Journal of Occupational Health Psychology, 13*(3), 259-270.

Sonnentag, S. (2001). Work, recovery activities and individual well-being: A diary study. *Journal of Occupational Health Psychology, 6*(3), 196-210.

Sonnentag, S., Kuttler, I., & Fritz, C. (2009). Job stressors, emotional exhaustion, and need for recovery: A multi-source study on the benefits of psychological detachment. *Journal of Vocational Behavior, In press.*

Sonnentag, S., Mojza, E. J., Binnewies, C., & Scholl, A. (2008). Being engaged at work and detached at home: A week-level study on work engagement, psychological detachment and affect. *Work & Stress, 22*(3), 257-276.

Stewart, G. L., Carson, K. P., & Cardy, R. L. (1996). The joint effects of conscientiousness and self-leadership training on employee self-directed behaviour in a service setting. *Personnel Psychology, 49*, 143-164.

Stewart, G. L., Courtright, S. H., & Manz, C. C. (2011). Self-leadership: A multilevel review. *Journal of Management, 37*, 185-222.

Tugade, M. M., & Fredricksen, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of Personality and Social Psychology, 86*(2), 320-333.

Tugade, M. M., Fredrickson, B. L., & Feldman-Barrett, L. (2004). Psychological resilience and positive emotional granilarity: Examining the benefits of positive emotions on coping and health. *Journal of Personality, 72*(6), 1161-1191.

van Gelderen, B., Heuven, E., van Veldhoven, M., Zeelenberg, M., & Croon, M. (2007). Psychological strain and emotional labor among police-officers: A diary study. *Journal of Vocational Behavior, 71*(3), 446-459.

Williams, L. J., Hartman, N., & Cavazotte, F. (2010). Method variance and marker variables: A review and comprehensive CFA marker technique. *Organizational Research Methods, 13*(3), 477-514.

Wolf, F. M. (1986). *Meta-analysis: Quantitative methods for research synthesis*. Beverly Hills, CA: Sage.

Wright, T. A., & Cropanzano, R. (1998). Emotional exhaustion as a predictor of job performance and voluntary turnover. *Journal of Applied Psychology, 83*(3), 486-493.

Wright, T. A., Cropanzano, R., Bonett, D. G., & Diamond, W. J. (2009). The role of employee psychological well-being in cardiovascular health: When the twain shall meet. *Journal of Organizational Behavior, 30*, 193-208.

Xanthopoulou, D., Bakker, A. B., Demerouti, E., & Schaufeli, W. B. (2009). Work engagement and financial returns: A diary study on the role of job and personal resources. *Journal of Occupational and Organizational Psychology, 82*, 183-200.

Zetterqvist, K., Maanmies, J., Strom, L., & Andersson, G. (2003). Randomized controlled trial of internet-based stress management. *Cognitive Behavior Therapy, 32*(3), 151-160.

Table 1. Means, Standard Deviations & Intercorrelations from Study One.

CONTROL	Mean(SD)	2.	3.	4.	5.	6.	7.	8.
1. Self-eff T1	3.92 (.52)	.81***	.40*	.56*	.56**	.68**	-.42*	-.44'
2. Self-eff T2	3.83 (.42)		.31	.59**	.35	.52*	-.24	-.40'
3. Pos.aff. T1	3.48 (.70)			.51*	.39*	.54*	-.55**	-.48*
4. Pos.aff. T2	3.29 (.80)				.15	.42*	-.52*	-.73**
5. Self-ld. T1	3.63 (.43)					.66**	-.10	.04
6. Self-ld T2	3.54 (.45)						-.08	-.11
7. Strain T1	1.89 (.41)							.69**
8. Strain T2	1.91 (.37)							
EXPTAL								
1. Self-eff T1	3.79 (.61)	.64**	.48**	.28	.51**	.55**	-.65**	-.09
2. Self-eff T2	4.30 (.44)		.45*	.51*	.33	.79***	-.48*	-.56**
3. Pos.aff. T1	3.44 (.68)			.73**	.39*	.51**	-.71**	-.23
4. Pos.aff. T2	3.79 (.82)				.25	.59**	-.44*	-.52*
5. Self-ld. T1	3.62 (.57)					.44*	-.49**	-.02
6. Self-ld T2	4.05 (.53)						-.33	-.38
7. Strain T1	1.91 (.39)							.42*
8. Strain T2	1.60 (.42)							

Notes: 'p<.10; *p<.05; **p<.01; ***p<.001; “T1” refers to measures taken before the intervention; “T2” refers to measures taken after the intervention.

Table 2. Chi-Square and Model Comparison Tests for Common Method Variance

Model	Time One	Time Two
Baseline model with uncorrelated latent marker	χ^2 = 35.98, df = 31	χ^2 = 48.30, df = 31
Constrained model with marker loadings constrained to be equal	χ^2 = 35.84, df = 30	χ^2 = 48.09, df = 30
Constrained compared to Baseline	$\Delta\chi^2$ = 0.14, df = 1, ns	$\Delta\chi^2$ = 0.21, df = 1, ns
Unconstrained model with marker loadings not constrained	χ^2 = 29.46, df = 22	χ^2 = 32.29, df = 22
Unconstrained compared to Baseline	$\Delta\chi^2$ = 6.52, df = 9, ns	$\Delta\chi^2$ = 6.01, df = 9, ns
Unconstrained model with fixed correlations	χ^2 = 29.85, df = 28	χ^2 = 32.40, df = 29
Unconstrained fixed correlations compared to Unconstrained	$\Delta\chi^2$ = 0.39 df = 6, ns	$\Delta\chi^2$ = 0.11, df = 6, ns

Table 3. Means, Standard Deviations, Composite Reliabilities and Intercorrelations of Study Two Sample

	Mean (SD)	1	2	3	4	5	6	7
1. Self-eff T1	3.90 (.59)							
2. Self-eff T2	4.39 (.50)	.63*						
3. Pos. aff. T1	3.46 (.77)	.46*	.29*					
4. Pos. aff T2	3.85 (.74)	.36*	.57*	.44*				
5. Self-lead T1	3.67 (.49)	.49*	.25*	.49*	.28*			
6. Self-lead T2	4.21 (.49)	.32*	.52*	.21*	.55*	.42*		
7. Strain T1	1.90 (.42)	-.40*	-.30*	-.35*	-.22*	-.14	-.14	
8. Strain T2	1.58 (.46)	-.09	-.46*	-.05	-.52*	.08	-.26*	.25*

Notes: *p<.05, “T1” refers to measure completed before the intervention, “T2” refers to measure completed following the intervention

Figure 1. Structural Loadings of Final Partially-Mediated Model

NOTE: Dashed lines were non-significant. All other loadings were significant at $p<.05$