Workplace coaching as a stress management intervention: a longitudinal study

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Abstract

The purpose of the present study is to investigate how learning experiences acquired through workplace coaching may affect strain, both directly and indirectly, through altering individual’s appraisals of stressors and job resources. Based on self-regulation theory, I identify two main learning experiences in the coaching process, insight and planning skills, and propose that these affect strain. I also hypothesize that insight and planning skills decrease strain indirectly through the mediator’s job demand, job control, and social support. A longitudinal design is applied to test these hypotheses, with data collected at three points in time: baseline (before coaching), after a three-month period of coaching, and a follow-up nine months later. The results show that planning skills reduce strain in the short term, and that the effect is partly mediated through reduced job demand. Reduced job demand is further shown
to reduce strain in the long term. Insight is related weakly to strain; however, insight affects social support, which in turn has a negative effect on strain in the long term.

**Key words:** workplace coaching, stress management, self-regulation, learning experiences

**Introduction**

Workplace stress has for a long time been considered as a major work environment problem in organizations (Cox et al., 2000). Many scholars point to the fact that modern work-life, with frequent organizational restructurings, technological changes, and increased competition, places increasing challenges on employees. Furthermore, the development of new values in management, such as empowerment and self-management, is a sign of increased decentralization and more freedom as well as more responsibility on modern employees (Hall, 2004). This new employee role has given modern workers more freedom and independence, but also more responsibility for the work environment as well as for managing their own career life (Frayse & Geringer, 2000; Frese & Fay, 2001; Raabe et al., 2007). Thus, modern employees may need new tools for self-management, and for stress management as well. That is, to be more able to tackle high, ambiguous work demands, balance between work and family life, and set own goals and standards for performance. This includes handling stressful work environments through taking charge and to be able to organize own work so it is less stressful, reap the advantages of teamwork, and set limits to own responsibilities.

Workplace coaching is a method for learning and development that may respond to these needs. The purpose of workplace coaching is to enable individuals to take more control over job circumstances, to define job-related goals, and develop adequate behavioural strategies to accomplish these goals (Grant, 2006). This may include handling stressful environments and developing the abilities to respond adequately to these. In this article,
coaching is investigated as a potential learning tool for individual stress management, where the learning experiences from coaching are proposed to affect both the subjective perceptions of stressors in the work environment as well as the outcome of the stress process, psychological strain.

The objective of the study is thus to investigate whether learning experiences from coaching strengthen individuals’ stress coping efficacy, and enable employees not only to reduce short-term psychological strain, but also to alter their appraisals of the work environments so they are less stressed over the long term. This article is organized as follows. First, I present the transactional perspective on stress that is applied in this study, where psychological strain is modelled as the psychological outcome of an interactive process between the individual and the work environment (Lazarus & Folkman, 1984). I then discuss the goal-oriented perspective on coaching (Grant, 2006), and use self-regulation theory to explain the relationship between the learning outcomes from coaching and the stress process (Cameron & Leventhal, 2003; Vancouver & Day, 2005). I develop and test hypotheses on how the learning experiences from coaching, labelled insight and planning skills, may affect psychological strain both directly and indirectly, through specific work environment variables. After presenting the results, I conclude with a discussion of the practical implications of the findings, with a particular focus on the potential usefulness of workplace coaching as a long-term individual stress management tool.

Theory

The transactional model of stress

There is a huge body of research addressing stress and coping (Cooper et al., 2001; Cox et al., 2000; Somerfield & McCrae, 2000). The transactional model of stress of Lazarus and Folkman is applied in many studies, and this theory addresses stress as a process
(Edwards, 1992; Lazarus & Folkman, 1984). The theory models the stress process as an ongoing relationship between the individual and the environment, where the individual perceptions and interpretations of the immediate environments play a central role in creating psychological strain. The stress relationship is one where the perceived demands in the environment exceed the person’s resources, and creates psychological strain (Lazarus, 1990). The transaction is defined as an encounter between the individual and the environment, where the stress is neither inherent in the person nor the environment, but “(...) reflects a conjunction between a person with certain motives and beliefs with an environment that may pose harm, threats or challenges, depending on these person characteristics” (Lazarus, 1990, p. 3). The effects of these encounters are mediated by two main elements: appraisals and coping. The appraisals are of two kinds: primary appraisal, where the environments are interpreted by the individual, based on own values and beliefs, and secondary appraisal, where personal resources and coping abilities are evaluated. Coping refers to the subsequent efforts by the individual to handle the stressful encounter. The personal meaning of the encounter, that is, the result of the appraisal processes, is the basis for the choice of coping strategies. A central assumption in transaction theory is that the process is recursive, such that the coping activities and the resulting psychological strain feeds back to the appraisal processes and change these. Consequently, time is an important factor in the theory, as the perceptions of the environment may change as a result of coping efforts over time (Edwards, 1992; Lazarus, 1990). Thus, successful stress management or coping efforts are proposed to not only reduce psychological strain, but also to enable a stable shift to less negative individual appraisals of the work environments. In this study, I shall include three major aspects of the work environment that have been shown to affect strain: job demand, job control, and social support (Häußer et al., 2010).
Coaching and the theory of self-regulation

As the coaching industry has expanded, a wide range of perspectives and approaches have been developed, and there is no unifying theory that provides a standardized method that is applied by coaches. In the present study, a goal-oriented approach is applied (Ives, 2008), where the theoretical basis is that of learning through self-regulation or action regulation (Cameron & Leventhal, 2003; Raabe et al., 2007; Vancouver & Day, 2005). Underlying the relationship between the coach and the coachee is an “agentic” perspective (Bandura, 2001), where the coachee is in charge of both problem definition and goal setting (Grant, 2003; Zimmerman, 1989). In goal-oriented workplace coaching, the role of the coach is to assist the client in identifying goals, based on the client’s own values and beliefs, as well as the identification of resources and development of action plans and feedback. The theory of self-regulation models the learning process as consisting of three factors: goal commitment, plan quality, and self-knowledge, the latter labelled insight (Raabe et al., 2007, p. 299). It is suggested—and the empirical results support the hypotheses—that these three factors all contribute to active career self-management, specifically that goal commitment and self-knowledge contribute to better plan quality, which in turn increases career management efficacy.

A similar reasoning can be applied for the coaching process, and insight and planning skills are proposed to be the two major learning experiences in the present study. Goal commitment is less relevant here, as the coaching intervention in the present study was directed specifically at individuals who wanted to reduce their stress.

Self-knowledge, or insight, is one of the most frequently reported learning experiences from coaching, and has a central role in coactive coaching (Whitworth et al., 1998). Increased insight is developed through reflections on individual values and integrity, own strengths, and weaknesses, and perceptions of other people’s expectations, specifically the tendencies to
internalize others’ expectations as one’s own (Gray, 2006; Peltier, 2001). The insight into own strengths and weaknesses can also be related to the second appraisal process in the transactional stress model, which includes appraisal of own coping resources. The other antecedent to active career management in self-regulation theory is plan quality. As the present study is focused on learning experiences, plan quality is less relevant, and planning skills are defined as the second independent variable. The learning process in coaching includes feedback on new behaviours. The goal setting and feedback processes implies that the coach assists the coachee in activities of “forethought” (Bandura, 2001), where desired outcomes and consequences of different courses of actions are envisioned and discussed. Plans and choices for strategies to cope with stress are developed during this process, which strengthens the coachee’s focus on desired goals. Furthermore, as the coachee engages in new behaviours or coping strategies, experiences from these behaviours are discussed with the coach, which in turn gives feedback and further facilitates self-reflection (Wales, 2003). The process through which goals are set, new initiatives are taken, and feedback is given, is suggested to yield planning skills as learning outcomes. Planning skills are the ability to set relevant goals and make action choices that are effective in attaining the goals. Planning skills can be related to the primary appraisal process in the transactional model of stress, which is about appraisal of the work environment and its degree of threat or harm. Planning skills are the ability to prioritize and sort out important from less important tasks and to say no to some tasks.

The learning outcomes from coaching, planning skills, and insight are proposed here to affect the stress process, as it is modelled in transactional theory, in the following way. First, insight and planning skills are proposed to affect strain directly, through active coping activities and better stress management. Second, these learning experiences are suggested to increase coping efficacy through increased ability to cope with high job demands, through
activities such as improved time management and prioritizing tasks. Third, increased insight includes better knowledge of own strengths and weaknesses, which together with increased insight may result in activities to make better use of own strengths as well as acquiring resources from other people where own resources fall short. Increased insight and planning skills may thus change the appraisals of job control and social support, which are job resources relevant for stress management. These propositions are further elaborated in the hypothesis section below.

Hypotheses

Learning experiences and strain

The main proposition in the present study is that the learning experiences of insight and planning skills will affect strain directly, as well as through the three mediators: job demand, job control, and social support. There is little empirical evidence of research on workplace coaching, and scarcely any significant studies of workplace coaching and stress. In a quasi-experimental study with a control group, Gyllensten and Palmer (2005a) found that there were no significant differences in the stress level between the coaching group and the control group after coaching, although the participants who received coaching reported lower stress levels in a qualitative follow-up study. The self-reported effects are, however, to be found in quite a number of studies. For example, in a study of 15 managers who received coaching for one year, participants reported that the coaching had increased their stress management abilities, improved work-life balance, and reduced psychological strain (Wales, 2003). Furthermore, in a study of the effects of life coaching, the 20 participants reported significant effects on depression, anxiety, and strain (Grant, 2003). However, none of the studies investigated individual differences in such effects, and they did not include any explanatory variables from the coaching process. Thus, we know little of the mechanisms
through which coaching is supposed to have an impact on psychological strain. Here, it is proposed that coaching affects strain through the process of self-regulation (Raabe et al., 2007), where insight and planning skills are major components. Hence, the following hypothesis:

**Hypothesis 1**

*Insight and planning skills as learning experiences from coaching are associated with a decrease in psychological strain, such that individuals with strong learning experiences will have a larger decrease in strain after a period of coaching than those with weak learning outcomes. The effect will persist for nine months.*

The learning experiences from coaching are also proposed to affect the work environment, both through altering the subjective appraisals of stressors and through recursive processes where reduced strain feeds back to perceptions about the work environment. In the following, I develop hypotheses on how insight and planning skills may have an impact on major variables in the work environment that have been shown to affect strain in earlier studies. These variables are further proposed to act as mediating variables and in turn affect strain.

**Learning outcomes and work environments**

Within the literature on stress, job demand is a stressor that has been shown to persistently affect psychological strain across theoretical perspectives (Häusser et al., 2010). Job demand is conceptualized mostly as work overload, which causes strain, e.g., through constant time pressure and deadlines (Cooper et al., 2001). Substantial support exists for the hypothesis that high workload affects both long- and short-term psychological strain and burnout (Bakker et al., 2004; Cordes & Dougherty, 1993; Cox et al., 2000; Landsbergis, 1988;
Van der Doef & Maes, 1999; Van Vegchel et al., 2005). However, although job demand is one of the most studied antecedents to psychological strain, there is little evidence of how individual differences in appraisal processes or coping strategies may have recursive effects on perceived job demand as it is modelled in transactional theory (Edwards, 1992). As a stressor, perceptions of job demand are the results of the first appraisal process, where individual values, beliefs, and goals underlie the appraisal of job demand. Thus, individuals with similar objective job demands may perceive them differently and as posing different threats (Lazarus, 1990). The learning outcomes from coaching may affect this appraisal process, and in addition have recursive effects on job demand. There is some empirical evidence that supports this relationship. For example, working with goals and aspirations during the coaching process has been reported to increase coachees’ ability to manage their time and take more initiative in their jobs (Laske, 2004). Similar reported outcomes of these cognitive processes are increased self-confidence (Leedham, 2005) and assertiveness (Wales, 2003) as a result of greater awareness of one’s own strengths and values. Furthermore, in studying the effects of coaching on managers, Hall et al. (1999) reported that respondents felt able to accomplish things after coaching that they could not do before, both as a result of increased self-confidence and the acquisition of new skills. These outcomes may all be indications of increased ability to cope with high job demands, i.e., that the job is perceived as less demanding as coping skills are enhanced. Hence, the following hypothesis:

*Hypothesis 2*

*Insight and planning skills as learning experiences from coaching will be associated with lower perceived job demand, such that individuals with strong learning experiences from coaching will have a larger decrease in perceived job demand after a period of coaching than those with weak learning experiences. The effect will persist for nine months.*
Regarding coping resources, the results of the second appraisal process in the transactional model of stress, several job-related, individual resources have been addressed in the stress literature. Specifically, the two resources social support and job control have been shown to reduce strain (Bakker et al., 2004; Karasek, 1979; Van der Doef & Maes, 1999). Job control, defined as decision latitude or autonomy (Karasek, 1979), has been found to reduce strain directly (Van der Doef & Maes, 1999) and in some studies also to moderate the effects of high job demand on strain (Karasek, 1979; Landsbergis, 1988). Job control is also considered as a resource in the transactional model of stress, where individual coping efforts include attempts to increase job control or to better utilize the actual possibilities of control. Perceived job control as a coping resource has been found to change over time during the coping process, so increased job control is considered an indicator of successful coping efforts (Fugate et al., 2002; Paulsen et al., 2005; Scheck & Kinicki, 2000). A core proposition in self-regulation theory is that employees enhance control over their own careers by engaging in different activities that increase self-management. A similar reasoning can be applied to stress management. Gaining job control can mean that individuals steer their own activities in correspondence with some goal, and both insight and planning skills may increase their abilities to do so. The processes of gaining more self-confidence, defining own goals, and the direction to reach them allow an employee to gain more control over his or her immediate job conditions. Wales (2003) reported in her study that coachees had stronger feelings of choice and were able to be more assertive and had more conviction in discussions, which are feelings of greater control and ability to gain influence. Hence, the following hypothesis:

Hypothesis 3

*Insight and planning skills as learning experiences from coaching are associated with perceived job control, such that individuals with strong learning experiences from coaching...*
have a larger increase in perceived job control after a period of coaching than those with weak learning experiences. The effect will persist for nine months.

Social support is considered to be a major coping resource in transactional theory (Lazarus, 1990, p. 4). The individual’s perceptions of social support is addressed in the second appraisal process in the transactional stress model, where the person is considering the resources available for coping with the stressors in the environment (Edwards, 1992). Social support from supervisors and colleagues is frequently reported to have a negative effect on strain (Bakker et al., 2004; Beehr et al., 2000; Peterson et al., 2008; Scheck & Kinicki, 2000; Searle et al., 1999). It is believed that social support has a direct, calming effect on employees in stressful situations and acts as a job resource, so that negative stressors are less likely to cause strain for employees with strong social support (Fenlason & Beehr, 1994; van Dierendonck et al., 1998), and also to act as a coping resource in stressful job environments such as during major organizational changes (Fenlason & Beehr, 1994; Fugate et al., 2002; Scheck & Kinicki, 2000; Searle et al., 2001; Shimazu et al., 2005; van Dierendonck et al., 1998). Thus, we may expect that not only will individuals with strong social support be better able to cope with stressful work environments, but effective coping strategies may also include efforts to acquire more social support from supervisors and colleagues, or to better make use of the existing social environments. There is empirical evidence that perceived social support may increase as a result of coping processes (Fugate et al., 2002; Scheck & Kinicki, 2000). Several authors have found effects of coaching on social support. In a study of 12 managers who completed a coaching programme, the participants reported that they more actively engaged their colleagues in giving feedback, discussing ideas for improvements, and increasingly included others in teamwork (Bush, 2004). Moen and Skaalvik (2009) found that coaching increased the participants’ relatedness, defined as the connectedness and attachment to other people. As social support is a core job resource variable in transactional stress theory,
it is suggested that the insight into strengths and weaknesses includes awareness of the opportunities to better utilize the social environments in the job, which thus increases the appraisal of social support. This gives rise to the following hypothesis:

**Hypothesis 4**

*Insight and planning skills as learning experiences from coaching are associated with perceived social support, such that individuals with strong learning experiences from coaching have a larger increase in perceived social support after a period of coaching than those with weak learning experiences. The effect will persist for nine months.*

In sum, the transactional perspective on stress and coping not only addresses the management of psychological strain, but also includes coping strategies directed at changing the appraisals of the work environments that affect strain, conceptualized as problem-focused coping (Amiot et al., 2006; Fugate et al., 2002; Lazarus, 1990). Thus, it is proposed here that individuals through successful coping strategies may reframe their work environments and their appraisals of both stressors and job resources, and thereby over time manage to reduce the psychological strain. Furthermore, coaching may be a tool for learning these coping strategies and to create less stressful work environments over time. In line with earlier studies of coaching, as well as self-regulation theory, I have hypothesized that the learning outcomes of coaching may affect job demand, job control, and social support. Following the research on stress, I further suggest that the changes in these work environments are subsequently associated with changes in individual levels of strain. Hence, the following hypothesis:

**Hypothesis 5**

*The changes in job demand, job control, and social support after a period of coaching will be associated with a change in strain level, such that individuals with a large decrease in job demand, increase in job control, and social support will have a larger decrease in strain level*
than those who do not experience these changes. This association will persist for nine months after the coaching has ended.

To sum up, the hypotheses suggest that the learning outcomes of coaching affect strain directly, and also indirectly through affecting specific aspects of the work environments that have shown to be related to stress. Consequently, job demand, job control, and social support are hypothesized to mediate the effects of learning outcomes on stress. Hence, the following hypothesis:

Hypothesis 6

The effects of learning experiences from coaching on strain are mediated by the work environment variables job demand, job control, and social support.

Method

Intervention design

The study took place in Norway, and both the coaches and the coachees were Norwegian. The coaches were recruited from among coaches certified by the International Coaching Federation to ensure a minimum level and area of expertise and similar coaching approaches. All coaches were educated in and practicing the coactive coaching approach, a specific approach with standardized education, tools, and methods (Irwin & Morrow, 2005; Whitworth et al., 1998). Differences between coaches represent a substantial extraneous variable that may interfere with the model in this study, so the results of this study may apply to coactive coaching only. All respondents received coaching over the same three month period. Each coaching session lasted for 45 minutes (plus or minus five minutes) and each participant received between eight and 10 sessions.
To strengthen the external validity of the study, the sample population was drawn from different types of companies. A coaching agency recruited respondents using the following procedure. The agency contacted employers and offered 10 coaching hours over a three month period for a number of employees at a very low price (625 euros per person). Participants volunteered for coaching after being informed that it was a stress management programme. The employers paid for all coaching sessions. I collected data at three points in time: at baseline (T1), after the three-month period of coaching (T2), and nine months after the last coaching session (T3)—i.e., one year after baseline.

**Sample and procedure**

Initially, 112 individuals volunteered to participate, and all 112 received a web-based questionnaire a week before the coaching sessions started. This initial sample spanned 39 different firms from a variety of industries (e.g., tourism, health, transport, and education). All variables were measured at all three points in time, except for the two independent variables (insight and planning skills), which were measured only at T2, i.e., immediately after the coaching ended. At baseline, I received 107 completed questionnaires. At T2, after coaching, 98 completed questionnaires were returned. After deleting questionnaires that were missing from T1, the matched sample from T1 and T2 comprised 93 respondents. At T3, 64 individuals returned completed questionnaires, eight of whom did not answer at T1 and T2, resulting in 56 completed, matched questionnaires from all three periods. Based on the initial sample at baseline, this is a response rate of 50%.
Measures

All variables in the model were measured using established measurement instruments, and tested for validity and reliability in several earlier studies, except for the two independent variables. Job demand, job control, and social support were measured by using parts of the QPS-Nordic instrument designed to measure a wide range of job-related psychological and social factors (Dallner et al., 2000; Elo et al., 2001). The respondents were asked to indicate the degree of presence of different types of work characteristics in their specific job on a five-point Likert-type scale (ranging from 1, very seldom or never to 5, very often or always). Job demand was measured by four items that indicated aspects of quantitative workload. Job control was measured by four items that indicated decision latitude. Social support was measured with indicators of support from the supervisor (two items) and colleagues (three items). These variables all had satisfactory Cronbach’s alpha scores at all three points in time (see Appendix 1).

Psychological strain was measured using the Bergen burnout indicator, an index of 25 statements (e.g., “I often sleep badly because of my work circumstances.”) based on the work of Maslach and Jackson (1981) and collapsed to form a unidimensional concept as an indicator of strain (Matthiesen, 2002; Matthiesen & Dyregrov, 1992; Nurmi et al., 2008). This measure was used because it represents a broad definition of strain but does not focus on subscale analysis. I wanted a unified measure of psychological strain as it was perceived by the respondents. The response format was a seven-point Likert-type scale ranging from 1 (“completely disagree”) to 7 (“completely agree”). The index had one item that was similar to one of the items in the job demand index, so I removed it. The resulting strain index included 24 items.

Learning experiences were measured only at T2, with eight items asking respondents to indicate experiences that had occurred as a result of the coaching process. I wanted to tap
learning experiences concerned with cognitive processes related to increased insight and planning skills. Examples of the questions are, “Through coaching I increased my understanding of my strengths and weaknesses” and “Through coaching I constructed new methods for planning and organizing my work”. An exploratory factor analysis (with oblimin rotation) produced two factors, one related to work planning, the other to increased self-insight, and both with three items. I computed two variables, insight and planning, from these indexes, and removed the two redundant items. Cronbach’s alpha was .81 for insight and .88 for planning. The measurement statements are shown in Appendix 2.

Results

Sample characteristics

In the matched sample from all three periods, 33% of respondents were female and 67% male. In terms of working hours per week, 55% of respondents worked between 30 and 39 hours, 38% worked between 40 and 49 hours, and 7% worked more than 50 hours. The following analyses are based on the matched sample from all three periods (N = 56).

Analysis

The correlation matrix including alpha scores of all measured variables at all three points of time is shown in Appendix 1. The analysis started with a t test of the changes in the mean levels of strain. The mean level of strain (Strain 1) in the sample before coaching (T1) was 3.35 (SD = .75). After three months of coaching, the mean level of strain (Strain 2) was reduced to 2.92 (SD = .63). A paired samples t test of the differences in means between the two periods shows that the change in level of strain from T1 to T2 was significant, \( p < 0.01, t(55) = 4.05 \). I also conducted t tests of the differences in strain between T2 and T3, as well as
between T1 and T3. The analysis showed that the mean level of strain nine months after the coaching had ended (Strain 3) was still significantly lower than before coaching (Strain 1), \( p < 0.01, t(55) = 2.99 \). However, there was no significant difference in strain level between T2 and T3. The result of this analysis is shown in Table 1.

**Insert Table 1 about here**

The results in Table 1 indicate that the mean level of strain in the sample decreased significantly after the period of coaching, and that this effect persisted nine months later. However, there is substantial variation between individuals regarding these effects. The maximum reduction in strain level after coaching was 2.16 points (on a scale from 1 to 7), and nine months later the maximum reduction was 3.36. Furthermore, some of the respondents actually experienced increases in their stress levels between periods 1 and 2. This result further underscores the need for individual comparisons of effects, as coaching does not appear to work similarly for all.

**Dropout analysis**

To investigate the effect of dropout of respondents between the periods, I did two analyses. I first compared the initial level of strain between participants who dropped out from T1 to T3 (N = 51) and those included in the final sample from all three periods (N = 56). A one-way ANOVA shows that the mean strain level is only slightly higher in the final sample (3.12, SD = .72) than in the baseline sample (3.35, SD = .75), and the difference is not significant. I further compared the mean change in the level of strain between T1 and T2 (ChStrain 1–2) between those who participated in all three periods (the final sample, N = 56) and those who only participated in the two first periods (N = 93), i.e., the dropouts between T2 and T3. The results from the ANOVA revealed no significant differences between these
two groups regarding change in stress level. Thus, the dropout rate should not affect the subsequent analyses.

**Variable properties**

The hypotheses suggest that changes in strain should occur between baseline (T1) and after three months of coaching (T2). In the following analysis, I also test whether this effect persists at T3. Because of the small sample size, path analysis with standardized variables was considered suitable for hypothesis testing (Alwin & Hauser, 1975) (I considered the sample too small to conduct a SEM analysis). To prepare the data for analysis, I first create new variables as expressions of the change in individual scores on the variables job demand, job control, social support, and strain in the three periods. These were computed as the change between T1 and T2. Thus, change in job demand (ChJD 1–2), change in job control (ChJC 1–2), change in social support (ChSS 1–2), and change in strain (ChStrain 1–2) indicate the individual differences between T1 and T2 on these variables (score at T2 minus T1). I further created one variable indicating the long-term change in strain, between T1 and T3 (ChStrain 1–3). The set of variables included in the further analysis thus comprised the two independent variables, insight and planning, two dependent variables, ChStrain 1–2 and ChStrain 1–3, and the three mediating variables as mentioned above. Means, standard deviations, and correlations between these variables are displayed in Table 2.

*Insert Table 2 about here*
Direct effects of learning outcomes on strain

In this first step, I conducted a regression analysis of strain, both immediately after the three months period of coaching had ended (T2) as well as nine months later (T3), on the learning experiences insight and planning skills. The results are shown in Table 3.

Insert Table 3 about here

The results show that planning skills are significantly related to reduced strain after coaching (T2), but this effect is no longer significant at T3. Thus, there do not seem to be long-term direct effects of planning skills on strain. Insight is not significantly related to change in strain in any of the two periods. However, Table 3 shows that insight is more strongly correlated to long-term changes than to short-term changes, because the coefficient increases and is closer to significant ($p = 0.17$) at T3. Table 3 also shows that both models are significant, and that the models are weaker after nine months. Thus, hypothesis 1 is partly supported, i.e., it is supported for planning skills as a learning experience but not insight.

Learning outcomes and work environment

The next step was a regression analysis of the effects of learning outcomes on changes in the three work environment variables, job demand, job control, and social support. I conduct three separate analyses, one for each dependent variable. The results are shown in Table 4.

Insert Table 4 about here

Table 4 shows that planning skills are related to changes in job demand, but not to the other variables. Insight, on the other hand, is (weakly) related to changes in social support, but not to the other variables. Thus, hypotheses 2 and 4 are supported partly, while hypothesis 3 is not supported. Note also that planning skills and insight are associated with different
variables. In the regression analysis on the direct effects on strain (see Table 3), insight and planning skills appeared to have different time perspectives in their effects, which further indicate that although these two learning experiences are strongly correlated (see Table 2), they do have different consequences.

**Effect on strain from changes in the work environment**

The third step in the analysis is to investigate the relationship between the changes in job demand, job control, and social support and strain, for both the short term and long term. I conduct a regression analysis in two steps. Step 1 includes changes in strain from T1 to T2, and step 2 the changes in strain from T1 to T3. The results are shown in Table 5.

**Insert Table 5 about here**

The results in Table 5 show that the changes in the work environment variables after coaching are significantly related to changes in the strain level, both at T2 and nine months later (T3). This is supportive of hypothesis 5. Because job demand, job control, and social support in earlier studies showed strong effects on strain, these relationships are not very surprising. However, as the present analysis includes only changes in the work environment variables, it appears that something has happened in the coaching period of three months: the work environment variables have changed to the extent that they affect strain, both in the short term and long term. To further test whether the effects of learning experiences on strain, which are not very strong, are mediated by the changes in the work environment (hypothesis 6), I conduct a test for mediation, in line with the recommendations of Baron and Kenny (1986). According to these authors, three conditions should be met to support a mediating relationship. First, the independent variable(s) must be associated significantly with the dependent variable. This was tested in the first regression analysis, and the results are shown
in Table 3. The conclusion was that planning skills are related significantly and directly to changes in strain in T2. Insight, however, was not related to changes in T2, but weakly related to long-term changes in strain. Second, the independent variable must be associated significantly with the mediating variable(s). The results from this test are displayed in Table 4, and show that planning skills are related to change in job demand, and insight is (weakly) related to change in social support. Thus, these two conditions are supported partly. Finally, after the mediators are included in the analysis, the relationship between the independent and dependent variables should either disappear (full mediation) or significantly diminish (partial mediation). This third condition was tested in a regression analysis, where planning skills and insight, as well as the three work environment variables, which are moderators, are entered as independent variables, and change in strain during both periods are the dependent variables. The analysis was conducted in two steps, one for each dependent variable. The results are shown in Table 6, where I have included the results for the analysis of direct effects between the independent and dependent variable from Table 3 to enable a better comparison of the results when the moderators are entered into the equation.

Insert Table 6 about here

We see from the table that the direct effect of planning skills on strain decreases when the mediators are entered into the analysis, and it is no longer significant. This should indicate that the work environment variables are mediating the effects of planning skills on strain at T2, but not at T3. The effects of insight have not changed. This indicates partial support for hypothesis 6.
Discussion

The purpose of this study was to investigate the effects of learning experiences gained through coaching on psychological strain. The main proposition was that insight and planning skills reduce strain, both directly and indirectly, by altering individual perceptions of job demand and job resources. The results indicate partial support for the hypotheses. First, the average level of strain is reduced after coaching, but the change is quite small. Furthermore, the effect appears to be consistent over a nine month period. Obviously, the effects of coaching vary between individuals, as some coachees increased their strain level after coaching, and some reduced it considerably. This is an interesting finding in itself, as most controlled studies of coaching assume implicitly that coaching has similar effects across individuals, and consequently compare individuals that have received coaching with a control group that has not (see e.g., Gyllensten & Palmer, 2005b; Moen & Skaalvik, 2009). There are many factors that may have an impact on these individual variations in coaching outcomes, but learning experiences appear to be of some importance. Specifically, increased planning skills are significantly related to a short-term reduction in strain. Insight, on the other hand, is not related to a short-term reduction in strain, but weakly related to a long-term reduction, although the relationship is not significant.

The result regarding the work environment variables also shows that insight and planning skills are associated with different outcomes, as planning skills, but not insight, appear to be quite strongly associated with a reduction in job demand after coaching, and these changes in job demand were further associated with a reduction in strain, both short term as well as long term. This is specifically interesting, as job demand is found to be one of the most forceful stressors in stress research (Cox et al., 2000; Van der Doef & Maes, 1999; Van Vegchel et al., 2005). The results may raise the issue of the impact of perceived versus objective job demands on strain. Most studies of stress use subjective measures of work
characteristics, and the present study supports the relevance of such measures. However, we do not know whether the coaching only altered individual perceptions of job demands, or actually enabled the individuals to change their “objective” work load. Considering the importance of this knowledge for the design of stress management interventions, the relationship between objective and subjective work characteristics should be investigated further.

This is underscored further by the indication in the data that insight is (weakly) related to increased social support after coaching, and the change in social support is associated with reduced strain, both short term and long term. Although the results show no mediating effects, there may be additive effects. If increased insight into own strengths and weaknesses makes individuals better able to utilize social resources in their daily work, these resources may contribute to better stress management on a long-term basis. This illustrates the importance of having longitudinal data when investigating coaching outcomes. It is plausible to suggest that the primary outcomes of the learning processes in coaching are individual cognitive changes, and these changes have to be manifested in behavioural changes that also alter the immediate work environment if they are to be effective on a long-term basis.

The results can also be discussed in light of the transactional theory of stress. Although this study does not investigate the recursive effects from strain back to the work environment variables, it can be speculated that such effects may be present. However, this question requires more complicated models with larger samples. This further points to one of the weaknesses in the study, the limited size of the sample. As there are many variables in the model and the sample is quite small, it is more difficult to detect effects. It may be that a larger sample would show clearer patterns in the data, so the results must be interpreted with caution. However, the longitudinal design does strengthen the validity of the results, as the
changes in strain appear to persist over time across individuals, and the probability that these changes are spurious is smaller when data are gathered at several points of time.

In future studies, it would also be interesting to have more information about variables that could have an impact on the individual differences in learning experiences through coaching. Anecdotal evidence through conversations with some of the coachees after the project had ended indicated that some of them did not get along very well with their coach. Although the coaches had similar education and a similar approach to coaching, the coactive approach, there are certainly personal differences that will affect the coaching process. Furthermore, other individual differences between the individual coachees may be of importance. For example, Raabe et al. (2007) found that goal commitment plays a significant role in the self-regulation process, and commitment to learning is no doubt an important antecedent to learning outcomes.

In sum, the results indicate that behavioural training through coaching has more immediate effects on strain than increased insight, and that the psychological learning processes of self-reflection in coaching primarily affects other job-related factors, so the effects on strain are only indirect. Thus, the proposed effects of the psychological processes of awareness and insight, so often mentioned in the coaching literature (Bush, 2004; Gray, 2006; Hall et al., 1999; Wales, 2003), are not supported in this study. One explanation of this may be how the effects are modelled, as insight may be a primary outcome, whose effects are mediated through increased planning skills. Planning skills were shown to be a mediating variable between insight and the behavioural results in the study of self-regulation of careers by Raabe et al. (2007), and this may also be more in line with how a coaching process is designed.
Implications

Considering the magnitude of the stress problem in modern organizations, it is important to gather evidence of the effectiveness of different stress management strategies. Furthermore, because stress is such a complex issue, we need to develop clearer models of the specific mechanisms that occur in different stress management interventions. The research on stress has established that a major determinant of the level of strain is the job environment. Therefore, it is important to gather more knowledge about the interplay between objective job environments and differences in individual perceptions of these (Edwards, 1992). It has long been argued that job redesign is a core issue for better stress management, but empirical studies indicate that organization level interventions are difficult to accomplish (Landsbergis & Vivona-Vaughan, 1995; Murphy & Sauter, 2003; Van der Klink et al., 2001). Furthermore, organizational level interventions do necessarily include employees with low levels of strain, and these interventions may have counterproductive effects for non-stressed individuals, as they often involve complex organizational processes with increased demands on individual participation (Landsbergis & Vivona-Vaughan, 1995).

Overall, the present study indicated that workplace coaching may be effective in reducing strain, specifically for individuals that are able to acquire increased work planning skills through coaching. It further indicates that coaching produces changes in specific work characteristics that affect strain over a longer time perspective. This underscores the importance of individual job design in stress management, and suggests that individual cognitive-behavioural interventions should be designed specifically with this in mind.

References


Table 1  
*Means and paired sample t tests of differences in levels of strain between times T1, T2, and T3 (N = 56)*

<table>
<thead>
<tr>
<th>Mean (SD) level</th>
<th>Paired samples</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strain T1: 3.35 (.75)</td>
<td>T1–T2</td>
<td>4.06</td>
<td>.00</td>
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<tr>
<td>Strain T2: 2.92 (.63)</td>
<td>T1–T3</td>
<td>2.99</td>
<td>.00</td>
</tr>
<tr>
<td>Strain T3: 2.93 (.67)</td>
<td>T2–T3</td>
<td>–.11</td>
<td>.91</td>
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Table 2  
*Means, standard deviations, and correlations of variables in the model*

<table>
<thead>
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<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<tr>
<td>1. Planning</td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>2. Insight</td>
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<td></td>
<td></td>
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<td></td>
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<tr>
<td>3. ChJD T1–T2</td>
<td>–.24 (.58)</td>
<td>–.27†</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ChJC T1–T2</td>
<td>.11 (.77)</td>
<td>.17</td>
<td>.17</td>
<td>.02</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. ChSS T1–T2</td>
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<td>.00</td>
<td>.18</td>
<td>.25†</td>
<td>.25†</td>
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<tr>
<td>6. ChStrain T1–T2</td>
<td>–.43 (.79)</td>
<td>–.42**</td>
<td>–.18</td>
<td>.53**</td>
<td>–.340*</td>
<td>–.25†</td>
<td></td>
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<tr>
<td>7. ChStrain T1–T3</td>
<td>–.42 (1.04)</td>
<td>–.32*</td>
<td>–.27*</td>
<td>.37**</td>
<td>–.39**</td>
<td>–.33*</td>
<td>.73**</td>
</tr>
</tbody>
</table>

† p <= .10  * p <= .05  ** p <= .01  
*Note. ChJD = change in job demand, ChJC = change in job control, ChSS = change in social support*

Table 3  
*Regression of learning experiences on strain*

<table>
<thead>
<tr>
<th></th>
<th>ChStrain T1–T2</th>
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<td>β</td>
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<td>–.21</td>
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<tr>
<td>Insight</td>
<td>–.05</td>
<td>–.22</td>
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<td>F</td>
<td>4.61**</td>
<td>3.54*</td>
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<tr>
<td>Adj. R²</td>
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<td>.10</td>
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* p <= .05  ** p <= .01
Table 4
*Regression of learning experiences on work environment variables*

<table>
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<tr>
<th></th>
<th>Change in job demand T1–T2</th>
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<th>Change in social support T1–T2</th>
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<td>1.03</td>
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<td>.00</td>
<td>.01</td>
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</table>

† p <= .10  * p <= .05  ** p <= .01

Table 5
*Regression of work environment variables on strain*

<table>
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<tr>
<td>ChSocialsupport</td>
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<td>−.37**</td>
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<td>.47</td>
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* p <= .05  ** p <= .01
Table 6  
*Regression analysis of mediating effects of job environment variables*

<table>
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<th>ChStrain T1–T2</th>
<th>ChStrain T1–T3</th>
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</thead>
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<tr>
<td><strong>β</strong></td>
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<td>Direct effects:</td>
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<td></td>
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<tr>
<td>Planning skills</td>
<td>–.39*</td>
<td>–.21</td>
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<tr>
<td>Insight</td>
<td>–.05</td>
<td>–.22</td>
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<td>Mediating effects:</td>
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<td>Planning skills</td>
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<td>–.04</td>
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<tr>
<td>Insight</td>
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<td>ChJobdemand T1–T2</td>
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<td>.46</td>
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<tr>
<td>ChJobcontrol T1–T2</td>
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<td>.14</td>
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<td>.36</td>
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† p <= .10  
* p <= .05  
** p <= .01