RUNNING HEAD: CAREER SELF-MANAGEMENT BEHAVIORS

Action Regulation Theory and Career Self-Management

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Abstract

Much of the responsibility for managing careers is shifting from employers to adaptive and proactive employees. A career management intervention based on action regulation theory trained 205 white collar employees to engage actively in their own career building by increasing their self-knowledge, career goal commitment, and career plan quality. As hypothesized, these three variables were positively related to subsequent career self-management behaviors, which led both directly and indirectly to career satisfaction almost 10 months after the intervention. Self-management career interventions based within an employing organization appear feasible.

Action Regulation Theory and Career Self-Management

With the changing nature of jobs (Bridges, 1995) and the concept of the protean career (Hall, 1996, 2004), there has been a shift of the responsibility for careers from employers to employees (Arnold, 2001) and a call for people to be proactive regarding their careers (Seibert, Crant, & Kraimer, 1999), which requires a high degree of personal initiative (Frese & Fay, 2001). In this paper we present a model explaining how employees can self-manage their careers within a single organization and how the organization can aid their self-management. We test the model with a quasi-experimental design using an intervention based on the concept of personal initiative (Frese & Fay, 2001). An action theory framework based on personal initiative served as a basis for developing the intervention content and process (self-regulation).

The goal of this study is to expand knowledge on the relation of individual control of their careers by addressing the following two issues. First, an action-theory based model attempts to explain how employees enhance control over their own careers by engaging in different activities that increase career self-management. Second, the role and importance of active career self-management for career building are clarified.

In action regulation theory, control means that individuals steer their own activities in correspondence with some goal (Frese & Zapf, 1994). Self-regulation theory argues that people's transactions with the environment "enable an individual to guide his/ her goal-directed activities over time and across changing circumstances" (Karoly, 1993; see also Vohs & Baumeister, 2004). Interventions to apply self-regulation theory aim at enhanced control and self-regulation, and they have been effective for very specific, short-term employee behaviors such as job attendance (Frayne & Latham, 1987; Latham

& Frayne, 1989), reduction of problematic workplace behaviors (Godat & Brigham, 1999), and sales (Frayne and Geringer, 2000). Evidence about interventions to attain more complex, longer-term goals (e.g., career building) is lacking.

Self-regulation theory is based on the idea that goals, plans and feedback are relevant parameters for regulating one's actions (Hacker, 1985; Frese & Sabini, 1985; Carver & Scheier, 1982). An action sequence (Frese & Zapf, 1994) consists of the following steps: Goals, information collection, planning, execution, and feedback. People monitor their environments, gathering information to aid in planning a course of action. As a result of goals and information, they develop plans. Executing the plan means to actively influence the environment on one's behalf, and the results are feedback regarding one's actions. Thus personal initiative, characterized by people being self-starting, proactive and persistent in the face of barriers (Frese, Kring, Soose & Zempel, 1996), serves as the underlying foundation for this study's intervention.

We begin by developing two models to apply action theory to career self-management. The first model (Figure 1a) explains how a career-focused intervention based on action regulation theory increases career self-management through self-knowledge and goal commitment, which affect plan quality. The second model (Figure 1b) explains how implementation of active career self-management behaviors affects career satisfaction, directly or through feedback variables from the organizational environment. The term feedback in action theory refers to stimuli that the person can interpret as information about the action. This can be either information on the process of action within the acting person (e.g., proprioceptive feedback), given by other people (e.g., in the sense of receiving a smile, when one has told a joke), by the objective

environment (e.g., receiving a pay raise), or by a feedback intervention (when other people give me information on my actions so that I can learn from it). The models are tested in a longitudinal field quasi-experiment over a period of more than nine months.

The study was conducted at a global technology organization headquartered in Germany that spans different industries. Its strong company culture relies on performance management and employee development. It was a good place to conduct the study, because it was typical of many of today's companies in introducing career-related changes by helping the employees to develop career-related skills. Collecting the data in Germany, however, had some implications for data ownership during the course of the intervention (e.g. in the 360-degree feedback) that needed to adhere to German labor and co-determination laws.

Antecedents to the Execution of Active Career Self-Management Behaviors

Figure 1a illustrates three hypotheses in the first part of the study, a quasi-experiment aimed at enhancing career self-management behaviors. The intervention aimed to enhance three variables suggested by action theory (Frese & Zapf, 1994): (a) goal commitment, (b) self-knowledge, and (c) quality of a self-management plan. These three variables in turn should increase career self-management behaviors (i.e., actions to develop one's own career). Thus, the three variables mediate the effect of the intervention on career self-management behavior.

Hypothesis 1: The intervention leads to positive changes in goal commitment, self-knowledge and plan quality.

Goal commitment has been defined as "one's determination to try for a goal" (Locke, Shaw, Saari & Latham, 1981, p.143) and includes the intent to put effort into

goal attainment and to persist in goal pursuit (Hollenbeck & Klein, 1987; Campion & Lord, 1982). The intervention guided participants to develop high commitment to personal goals pertaining to their careers. Action theory argues further that information collection is a prerequisite of planning. Self-knowledge provides insights about which essential career management competencies to develop. Employees who know how to utilize their strengths and weaknesses in career management will develop more meaningful and specific plans. Action theory also suggests that the quality of the career plan (Frese & Zapf, 1994) is central. Although goal commitment is the starting point (Frese & Zapf, 1994), goals are only transformed into actions by a plan. Both goal commitment and self-knowledge should enhance plan quality, the key variable leading to improved career self- management behavior. Therefore, the relationship between the intervention and plan quality is mediated by self-knowledge and goal commitment.

Hypothesis 2: Goal commitment and self-knowledge are positively related to plan quality.

According to action theory, plans help transform general goals into specific implementation intentions, which then lead to goal-directed behaviors (Gollwitzer, 1993; Gollwitzer & Brandstätter, 1997). Effective plans need to have certain qualities, including specific action steps and the timing of these steps (Gollwitzer & Brandstätter, 1997), as well as alternative plans in case unexpected problems occur (Frese & Zapf, 1994).

Hypothesis 3: Plan quality mediates the relationships of self-knowledge and goal commitment to active career self-management behaviors.

Consequences of Executing Active Career Self-Management Behaviors

The objective of the second part of the study was to examine the effects of active career self-management behaviors (the outcome variable of the intervention part of the study) on career building (see Figure 1b). An important plan-related variable is plan implementation. Without plan implementation, the best plan can not be transformed into action. The action process model suggests the importance of feedback from the organizational environment, such as organizational responsiveness, pay increase, or speed in job transition. In order to evoke feedback from the environment, another plan-related variable is crucial to feedback: plan implementation. Change in career satisfaction was the ultimate outcome variable of this process. As shown in Figure 1b, there are three paths from active career self-management behaviors to career satisfaction.

When actions are successful so that goals are achieved and positive feedback is received, action theory predicts positive affect (e.g., career satisfaction) to increase (Pekrun & Frese, 1992). Employees engaging in more active career self-management behaviors have more control over their careers and should be more satisfied with their progress and careers subsequently. Generally, employees like control, participation, autonomy etc., and so it was expected that career self-management behaviors could affect career satisfaction directly regardless of other payoffs involved.

Hypothesis 4: Career self-management relates positively to career satisfaction.

Active career self-management behaviors can influence one's career success via influencing the objective organizational conditions. Career management behaviors increasing the visibility of employees have been found to be related to informal organizational career management (Sturges, Conway, Guest & Liefooghe, 2005), and employees who self-manage their career plans attempt to influence the organization to be

more responsive in helping their careers. Organizational responsiveness (Sturges, Guest, and Mackenzie Davey refer to *organizational* career management; 2000) includes organizational advancement efforts, such as providing mentoring, training opportunities or skill-development, and informal networking. In the present organization some of these advancement efforts were not automatically granted to employees – rather the employees had to show a certain degree of initiative to get the organization to become responsive. Employees with active career self-management behavior would make the organization responsive and therefore experience the organization to be responsive. Employees who have a high degree of active career self-management behaviors will more likely be perceived as able and standing out (thereby increasing organizational responsiveness). In terms of action theory, only active behavior leads to environmental changes conducive to the individual (Frese & Fay, 2001). Organizational responsiveness to career self-management should lead to visible positive outcomes, namely pay increase, which in turn relates to career satisfaction. Salary increases are decided upon by supervisor according to merit. The supervisor is supposed to take into account business results of various kinds to determine a pay increase, and generally income changes only for people who expand their realm of responsibility. Pay increase is something the organization can control, and something that should lead the employees to be more satisfied with their careers. Because it is unlikely that self-management without organizational responsiveness leads to pay increase (at least in a merit-based performance system), the hypothesized path goes via organizational responsiveness to pay increase.

Hypothesis 5: There is a mediated path from active career self-management behaviors via organizational responsiveness and pay increase to career satisfaction.

The lower part of Figure 1b suggests career self-management behaviors can influence career success by how well a career plan is implemented. If employees manage their careers proactively as a result of the intervention, they would be likely to alter their jobs more quickly. Some form of job change is thus likely to be a key result of enhanced career self-management. The employee can look for jobs in an internal job market, contact people who have relevant openings, broaden own skills to be more marketable, get his/her resume up to date, enact changes in the job he/she already has, etc. Job changes were generally seen as a key element of career management. The faster employees change to new jobs or take over increased responsibilities, the more satisfied they should be with their progress towards skill development and advancement. Increasingly better jobs should make employees more satisfied with their career paths.

Hypothesis 6: There is a mediated path from career self-management behaviors via career plan implementation and speed in job transition to career satisfaction.

Method

Participants were 205 white collar employees of a large global technology company, headquartered in Germany. On average, they were 32.0 years old, had 6.3 years of organizational tenure, and 2.6 years of job tenure. About 33.7% were female, and 68.3 % had a graduate degree.

There were four measurement times: Three weeks before the first training intervention (n at t1= 205), directly after the first intervention (n at t2=205), three months after the first intervention and directly before the one-day follow-up intervention (n at t3= 188), and nine months after the first intervention (n at t4= 172). Response rates ranged between 100 and 85 percent at the different data collection times.

Procedure and Intervention

The design of the company-sponsored intervention was guided by action theory and provided the following elements of the action sequence: goal development, information collection, plan generation, and plan execution/monitoring.

An important message conveyed in the sessions was that the organization helped participants to become active in their own career management and that it was recommended not to wait for supervisors or human resource experts to take the initiative. The organizational structure consisted of different businesses operating in different markets on a global scale. Despite this, the employees had strong commitment of belonging to the overall organization and were highly identified with its products. The organization had a number of well-established management practices (e.g. strong value-driven culture, performance management instruments and processes, identification of high-potential people world-wide) and was shifting from a more patriarchal style of caring for employees in which employees tended to spend their whole career in the organization to a more employee-driven approach and employee career self-management. With regard to careers, the organization had started to pilot career management training on a small scale to test the need for such action. Overall, the organization did not differ greatly in structure or cultural changes from many other large, modern organizations. Therefore, the hypotheses investigated should pertain to many other organizations.

The intervention encouraged participants to develop goals based on their career aspirations for the next five years and a plan for how to achieve them. Participants reflected on the nature of their own career motives and driving forces in a self-assessment

and an interview based on Schein's (1978) career anchors that were used to raise awareness about past and future career preferences.

Information collection was the second intervention topic before developing a plan. Action theory suggests that people look for information helpful to goal accomplishment and try to understand the likely future states of their environment. Participants received feedback about their strengths and weaknesses through 360-degree feedback, and received company-specific information about career building possibilities. Consistent with proactive career management and personal initiative, the trainer provided information on the importance of self-management, self-assessment and feedback to develop a realistic view of one's strengths and weaknesses.

Following action theory, the intervention then focused on developing a plan to direct actions. The plan was critiqued by other participants as a group, in order to enhance plan quality. Employees mentally simulated the actions inherent in their plans (Probehandlung; Frese & Zapf, 1994); this included their own personal initiative, ways to deal with barriers, methods for monitoring effects of their actions, and ways to reinforce themselves for successful plan implementation. Three months later, during the one-day follow-up, participants presented the actions they had taken on their personal development plans and talked about both positive experiences and barriers they had encountered. In addition, a Human Resources expert answered questions about job transitions and career building in the organization.

Thus the intervention was geared toward developing a personal plan for career control, applying self-management strategies (self-control), and increasing the degree of implementation of plans after training. The company intent in providing such training

was to optimize the placement of employee talents, to encourage employees to take control of their own careers (instead of waiting for the company to act), ultimately to enhance career satisfaction, and to keep employees on rotation within the organization in order to develop new skills.

The career self-management training intervention and measurement of outcomes occurred over almost 10-month training cycles, with a total data collection time of almost three years. Due to practical constraints, we measured different variables at different post-intervention times. That is, to keep the amount of measurement to a minimum at any one time, variables that were expected to be affected immediately were measured closer in time to the intervention, and variables expected to be affected only in the long run were measured later.

Regarding the 360-degree feedback in particular, prior to training and in compliance with German legal requirements that demand maximum control over one's own personal data, participants distributed and collected results of their own 360-degree feedback surveys, entered them into a special computer program, and brought the resulting printouts to the workshop. The feedback was supplemented with practical examples and explanations by colleagues, supervisors, or friends.

Measures

All questionnaire measures, instructions, and exercises were conducted in German. Measures originally published in English were translated by the first author into German, were retranslated from German into English by a native German speaker fluent in English, and then errors were corrected by consensus between the two translators.

Participants rated their *self-knowledge* on a 5-item, 5-point Likert scale from 1 - *not at all* to 5 - *very much* regarding the extent to which they knew (a) their strengths and weaknesses in their current job, (b) how to use their strengths for success, (c) which weaknesses to work on to develop into their desired position, and (d) the fit of their personal values to the job. Because items tapped different content areas, this learning measure was not unidimensional, but was an index. Therefore, it had low internal consistency, especially at pretest (see Table 1). Learning measures often show lower reliabilities than other training criteria because they are more heterogeneous in content and cover a broader conceptual range (Alliger, Tannenbaum, Bennett, Travor & Shotland, 1997). Two sample items were "I know how to utilize my strengths for my professional success." and "I know which personal values are important for me at work."

Goal commitment was measured by 5 items from Klein, Wesson, Hollenbeck, Wright and DeShon (2001).

Participants indicated the extent to which their plan contained elements of a "good" plan (*plan quality*) as taught in the training, such as separate steps, a timeline for implementation, potential barriers or risks, fallback plans, time points for monitoring and a mixture of time ranges (short-/long-term perspectives). This 9-item measure was developed specifically for the study. Two sample items were "Please indicate to what extent the following items are contained in your plan (1 – *not at all* to 5 – *very much*): (1) separate action steps; (2) a time frame on when I want to implement my plan."

For practical reasons, the *career self-management behaviors* measured in the first part of the study (intervention) was a shorter subset of the measure in the second part of the study (outcomes), and therefore the latter will be described first.

In the second part of the study, after all participants had been involved in the training intervention, participants reported on 6 items with 5-point Likert scales the extent to which they had applied self-management behaviors. Two of the items were adapted from a longer measure by Frayne (1991): successful relapse management after forgetting to monitor, and implement the rest of the plan. Four other items were specifically about behaviors taught in the intervention: seeking alternative solutions, successfully overcoming barriers, amount of monitoring, and positive reinforcement. All items were answered on five-point scales, and each item had different labels on the answer points. For example, the item "How actively did you seek alternative solutions to pursue your plan?" had the response categories 1 - *not at all active* to 5 - *very active*.

In the first part of the study, the full measure could not be used, because the four items specific to the intervention would not have made sense to participants; that is, items referring to a plan for the comparison group are irrelevant when a plan has not yet been formulated. For the antecedents part of the study, therefore, only the two more generic items on seeking alternative solutions and amount of monitoring were administered.

The plans were individually tailored, and therefore each plan differed, but the total number of action items from the plan were divided into the number of items that the participants had already implemented at t3 and multiplied by 100 to calculate a percentage. This percentage indicated the degree of *career plan implementation* at t3, regardless of the content or difficulty of any single action item. Due to data collection difficulties and subsequent missing data, this percentage of career plan implementation variable could be obtained for only 133 participants.

Organizational responsiveness was measured with the *Organizational Career Management Scale* (Sturges, Guest & Mackenzie Davey, 2000).

Participants indicated the percent of their *pay increase* since training (No increase, or 10, 20, 30, 40, or more percent increase). Because some participants refused to give detailed information and others were unaware of the nature or amount of their actual pay increase, scores could only be obtained for $n = 126$ participants at t4. Due to the nature of the sample, with multiple intraorganizational groups, data bases, and sites involved, collection of corporate records data was not feasible.

Speed in job transition was measured as the reverse score of the number of months between workshop attendance and job transition. The number of valid answers at t4 for this variable was 160. Participants were asked when they experienced the job transition, and number of months between the workshop and job transition was calculated.

Career satisfaction was measured on the 5-item scale developed by Greenhaus, Parasuraman and Wormley (1990).

As noted earlier, variables were measured at different times. Self-knowledge, goal commitment, and quality of the career self-management plan were measured directly after the intervention (t2). Active career self-management behaviors, organizational responsiveness and career plan implementation were measured three months after the intervention (t3). Pay increase and speed in job transition were measured nine months after the intervention (t4). The ultimate criterion, change in career satisfaction was measured at t4 and at t1 and was residualized, controlling for career satisfaction at t1.

Research Design

We used an institutional cycle design (Cook, Campbell & Peracchio, 1993), with cohorts starting training at different times. Each cohort spent over 9 months to complete the study. Twenty-one training sessions (10 employees each) from which data were collected were staggered over a period of three years.

Antecedents: Quasi-experiment of the effects of the intervention on career self-management and mediators.   After the data collection, individuals' data were randomly assigned to an experimental or comparison group, and the posttest scores of the experimental group were compared with the pretest scores of the comparison group. On average, the data collection for the pretest scores of the comparison group was done at the same time as the data collection of the posttest scores of the experimental group. This is not a true experiment, however, primarily because the experimental group had a pretest and the comparison group did not. This quasi-experiment controlled for potential effects of timing, history, selection, and maturation, but not testing (Cook et al., 1993). We computed a path analysis in order to simultaneously test effects of the interventions and the hypothesized model of the antecedents of career self-management (Figure 1a).

Consequences: Examination of relationships of career self-management behaviors with career outcomes. For testing the relationships of active career self-management behaviors and consequences, path analysis tested the hypothesized model of consequences of career self-management (Figure 1b). Because some participants had missing data on some variables, we used an imputation technique that estimated missing data with a maximum likelihood estimation in AMOS, a procedure that uses all information of the observed data in order to impute missing data.

<div align="center">Results</div>

Antecedents to Career Self-Management Behaviors

First, consistent with the model predicting career self-management (Figure 1a) , correlations in Table 1 show that self-knowledge measured at two time periods was related to plan quality at time 2, goal commitment at time 2 was related to time 2 plan quality, and plan quality at both time periods was related to active career self-management at time 3.

The path analysis for the antecedents model in Figure 1a was generally supportive predicting active career self-management ($\chi^2 = 3.54$, df = 2, p = 0.17, root means square residual [RMR] = .01; root mean square error of approximation [RMSEA] = .07; normed fit index [NFI] = 0.99; relative fit index [RFI] = 0.93; comparative fit index [CFI] = 0.99). The intervention was related to significant gains in self knowledge, plan quality, and goal commitment, which supports Hypothesis 1, demonstrating the intervention was reasonably successful in affecting these mediating variables in the model. The effects described in Figure 1a translate into d's of 0.69 for goal commitment, 0.88 for self-knowledge, 1.54 for plan quality and 0.76 for active career self-management behaviors, respectively. Knowledge and goal commitment, in turn, were also significantly related to the gain in plan quality, which supports Hypothesis 2. Plan quality was the only mediator with a significant direct path to active career self-management behaviors, supporting the model in which the effects of the other two mediators occur through plan quality. Thus, Hypothesis 3 was fully supported.

Consequences of Career Self-Management Behaviors

In the second part of the study, path-analysis examined the potential effect of career self-management behaviors on the final outcome, career satisfaction, via three

different paths. We controlled for gender and age influences by residualizing the variables prior to AMOS analysis.

Table 2 shows means, standard deviations, and correlations for all variables involved in this analysis, controlling for age and gender. Consistent with the model, career self-management is correlated with organizational responsiveness, career plan implementation and career satisfaction, and pay increase is related to career satisfaction. Speed in job transition is not, however, related to career satisfaction. Overall, path analysis of the hypothesized model (Figure 4) revealed good fit ($\chi^2 = 4.67$, df = 8, p = 0.79, root mean square error of approximation [RMSEA] = .00; normed fit index [NFI] = 0.92; relative fit index [RFI] = 0.79; comparative fit index [CFI] = 1.00).

Employees who executed more active career self-management behaviors were more satisfied with their progress and careers six months later (nine months after the training; $\beta = .29$), supporting the idea that proactive involvement to control one's job transition is important for career satisfaction. Thus, the results of both correlations and path analysis support Hypothesis 4.

Employees who self-managed their career plans also experienced a higher degree of organizational responsiveness ($\beta = .23$). Organizational responsiveness was positively related to pay increase ($\beta = .23$), which in turn was positively related to career satisfaction ($\beta = .24$). Thus, both organizational responsiveness and pay increase partially mediated the relationship between active career self-management behaviors and career satisfaction, supporting Hypothesis 5.

Employees who executed more active career self-management behaviors also had implemented their plans to a higher degree three months after the training ($\beta = .28$). This

was, in turn, positively related to a higher speed in job transition (β =24). However, obtaining better jobs more quickly was not positively related to career satisfaction (β =-.05). Career plan implementation and speed in job transition did not mediate the path from active career self-management behaviors to career satisfaction, and therefore Hypothesis 6 was not supported.

Overall, active career self-management behaviors appear to have the strongest direct influence on career satisfaction changes, followed by environmental feedback influences in terms of organizational responsiveness and pay.

Discussion

The present study showed that action regulation theory (Frese & Zapf, 1994; Hacker, 1985) can explain employees' behaviors regarding the control of their own careers. Furthermore, it is possible to induce people to engage in such self-regulatory behaviors by expanding self-management principles from more specific behaviors (e.g., attendance) to self-control of more global, complex goal-directed actions needed in career building.

A second contribution to research was to clarify the role and importance of career self-management behaviors for consequences related to career building. Career self-management was strongly linked to a subsequently measured, subjective indicator of successful careers: career satisfaction. In fact, self-management behaviors appeared to have the strongest effect on career satisfaction. There was both a direct path from career self-management to career satisfaction and a path mediated by organizational responsiveness and pay increase. However, the path from career self-management to career satisfaction via the mediators career plan implementation and speed in job

transition was not confirmed. This suggests that pay increase might be a more important indicator of career success than anticipated, more important than job transitions. This possibility needs more study.

This latter finding, regarding the apparent irrelevance of a relationship from speed in job transition to career satisfaction contradicts a macrolevel assumption that overall speed in career progress should be linked to career satisfaction. Successful careers usually entail job improvements or changes, and indicators of such transitions are often used as criteria in career research (e.g., Beehr, & Juntunen, 1990). Although speed in job transition might be strongly linked to career satisfaction for vertical managerial careers, these were not the sole focus of the sample and the intervention. It is possible that in order to feel satisfied with their careers, employees placed more importance on compensation, on their own involvement in the transition process, and possibly also on the qualitative features of the new job, rather than on pure speed in job transition. Future research should examine these possible explanations.

It is important that career self-management was linked to two objective factors of career building: pay increase (via organizational responsiveness) and speed in job transition (via career plan implementation). These results show that self-managing one's career plan is an important topic for future career research and that personal control of careers is indeed beneficial for employees as well as organizations.

Limitations, Theory, and Future Research Directions

Except for the intervention itself, which was a key variable in the first part of the study, the other variables were measured with self-reports. While career management research might benefit from a multi-method approach, a good reason for reliance on self-

reported data is the confidential nature of career building itself; also, employees are the best source of information for psychological variables such as career satisfaction or goal commitment, because only they have direct access to these inner states. In addition, there is often no adequate outside observer available for the active career self-management behaviors or organization responsiveness. Spouses, managers or coworkers, for example, do not necessarily know the employees' entire career management plan and behavior. Kazdin (1974) noted that self-observation provides more complete data than outside observers, due to the range of target behaviors known only to one's self. Furthermore, some of the variables were probably less subject than others to distortion based on self-reports, but it would have been desirable to measure plan quality more objectively than via self-report. To measure pay increase, employees calculated difference scores of their pay compared to how much they earned prior to the training; self-reported pay measures could suffer from distortion (e.g., exaggeration), but self-reports of salaries and salary data from company records are strongly correlated (Jenkins, Nadler, Lawler, & Cammann, 1979). Self-report data still must be interpreted with caution, however (Godat & Brigham, 2001). Respondents possibly may have felt obliged to acknowledge a change for the better due to the employer supporting their training.

A second limitation is that the study used a quasi-experimental design rather than a true experiment, making causal inferences less certain. The experimental group received a pretest, whereas the comparison group did not. Random assignment controlled for some threats to internal validity (e.g. history effects), but others, particularly priming (testing effects; Cook et al., 1993), halo related to ratings from others, and Hawthorne effects cannot be ruled out.

On a theoretical level, three observations can be made. First, active career management behaviors aiming at increasing personal control have largely been overlooked in career research. The present study showed that employees' active career self-management behaviors are a core variable for career satisfaction, affect career satisfaction in two ways, and should be strongly considered as a predictor in further studies, because they explain a large amount of variance. Second, the action regulation theory and its process model (Frese & Zapf, 1994) have merit not only with regard to self-regulatory functions of individuals, but also with regard to the design of interventions. The combination of goal-setting, information collection, and planning affects behavior, and especially with the underlying concepts of personal initiative and active orientation, seem a promising avenue for further research. Third, organizational responsiveness may contribute to employees' career satisfaction indirectly rather than directly, especially through its effects on pay. Organizational responsiveness may signal employees that the organization expects more from them and that they make a valuable contribution, but this might need to be followed by a pay increase.

On a practical level there are two conclusions. First, organizations can benefit from embracing a self-management approach in their career training, in which they support employees fostering their own careers and thereby becoming more satisfied with their careers. Employees might even take some of the responsibility for employee development from the supervisor's and HR manager's workload. Second, self-management might also be applied to other areas of corporate training, such as leadership development. Overall, the development and application of implementation plans is likely to ensure training transfer in almost every field of skill development.

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Table 1

Intervention to affect active career self-management: Correlations

Variable	Alpha	1	2	3	4	5	6	7	8
1. Self-knowledge at t1	.56	----							
2. Self-knowledge at t2	.69	.25**	----						
3. Goal commitment at t1	.75	.09	.02	----					
4. Goal commitment at t2	.76	.02	.15	.60***	----				
5. Plan quality at t1	.96	.21**	.06	.34***	.23**	----			
6. Plan quality at t2	.77	.18*	.29***	.11	.24**	.30***	----		
7. Active career self-management behaviors at t1[a]	.58	.21**	.03	.15	.07	.48***	.15*	----	
8. Active career self-management behaviors at t3[a]	.30	.14	.12	.18*	.20*	.33***	.21**	.37***	----

Note. N = 156.   * p < .05.   ** p < .01.   *** p < .001. [a] Active career self-

management behaviors were measured with two items.

Table 2

Outcomes of active career self-management: Means, standard deviations

(unresidualized), and partial correlations for all variables controlling for age and

gender by residualization

Variable	Alpha	M	SD	1	2	3	4	5	6
3 months after intervention (t3)									
1. Active career self-management behaviors[a]	.67	2.98	0.57	----					
2. Organizational responsiveness	.72	2.83	0.79	.23**	----				
3. Career plan implementation	----	40.84	24.97	.28**	.07	----			
9 months after intervention (t4)									
4. Pay increase	----	0.88	0.58	.05	.23**	.02	----		
5. Speed in job transition	----	4.39	2.94	.07	.02	.24**	.00	----	
6. Career satisfaction change	.72	0.01	0.65	.30*	.12	.07	.25**	-.03	----

Note. * $p < 0.05$ ** $p < 0.1$ *** $p < .001$. Overall N = 197. [a] Active career self-

management behaviors were measured with six items. Correlations controlled for age and

gender. Career satisfaction at t4 was residualized (career satisfaction t1 was controlled)

and, therefore, this variable can be considered a change from t1 to t4 career satisfaction

variable.

Figure Caption

Figure 1. Path Analyses of (1a) Intervention to Develop Active Career Self-Management

Behaviors and of (1b) Consequences of Active Career Self-Management Behaviors.

Figure 1a: In this model, goal commitment, self-knowledge, and plan quality were measured directly after the intervention (t2). Active career self-management behaviors were measured three months after the intervention (t3). The link from the intervention to active career self-management behaviors was not in the hypothesized model. It was included here to show, (with its nonsignificance) that there was no evidence for partial mediation rather than full mediation.
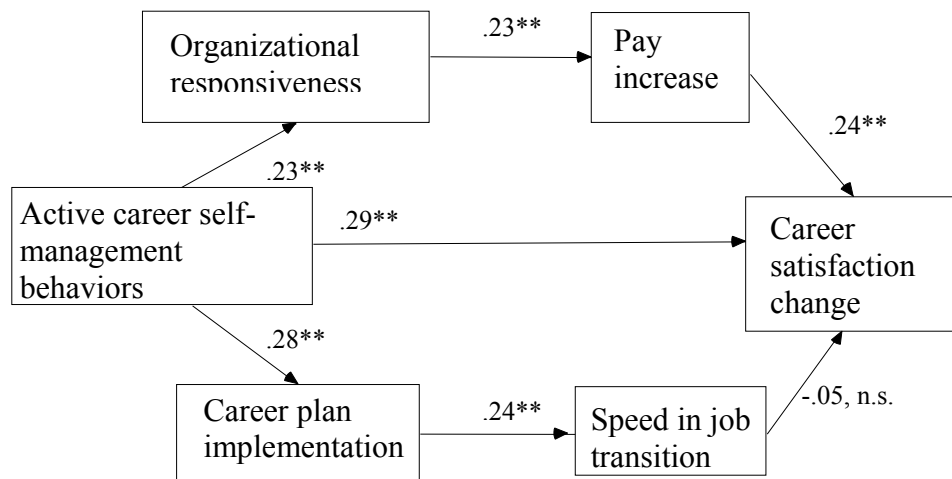

Figure 1b: In this model, active career self-management behaviors, organizational responsiveness and career plan implementation were measured three months after the intervention (t3). Pay increase and speed in job transition were measured nine months after the intervention (t4). Career satisfaction change was residualized, controlling for career satisfaction at t1.