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Influence of work support on employee creativity: An empirical examination in the Peoples Republic of China

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Employee creativity makes an important contribution to organizational survival and development. Hence, researchers have become increasingly interested in identifying the conditions that influence employee creativity. One of these conditions is work support for creativity. In the PRC, work support has received more considerable research attention because it is related to “Guanxi” which plays a key role in organizational behavior. Unfortunately, the mechanism surrounding the support-creativity link is not well understood. To help address this situation, we examined the mediating roles of intrinsic motivation and positive mood in the effect of support from both supervisors and coworkers on employee creativity. Using data from 233 employees in the PRC, we hypothesized and found that (1) work support from both supervisors and coworkers was positively related to employee creativity, (2) intrinsic motivation mediated these relationships, (3) positive mood mediated the relationship between the support from supervisors and creativity, but not the relationship between support from coworkers and creativity. Implications of these results for research and practice were discussed.

Key words: Work support from supervisors, work support from coworkers, intrinsic motivation, positive mood, employee creativity.

INTRODUCTION

Considerable evidence suggests that employee creativity makes an important contribution to organizational survival and development (Amabile, 1983; 1996; George and Zhou, 2001). In the previous studies, creativity has typically been defined by ideas that are both novel and useful, regardless of the type of idea, the reasons behind its production, or the starting point of the process (Amabile, 1996; Shalley, 1991). This implies that, creativity can involve creative business strategies, creative solutions to business problems, or creative changes to job processes. In order to be considered creative, however, these outputs must have some level of uniqueness compared to other ideas, yet not be so bizarre that adoption or implementation is not feasible (Zhou and George, 2001). When employees perform creatively, they suggest novel and useful ideas, products or procedures that provide an organization with important

raw material for subsequent development and possible implementation (Amabile, 1996).

Given the important role of employee creativity in the organization, researchers have become increasingly interested in identifying the conditions that predict creativity of individual employees, including personal characteristics and contextual factors (Oldham and Cummings, 1996). Initial creativity research focused primarily on creativity as individual characteristics of highly creative people such as independence of judgment, autonomy and self-confidence (Barron and Harrington, 1981), but more recent perspectives on creativity tend to focus on how contextual factors can affect employee creativity. Some of these factors are the more objective type, such as the complexity of jobs (Oldham and Cummings, 1996), the evaluative context (Shalley and Perry-Smith, 2001), and the support from the group (George and Zhou, 2007); others are the more subjective type, such as the positive mood (George and Zhou, 2001), the job dissatisfaction (Zhou and George, 2001), and the intrinsic motivation (Shalley et al., 2004).

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Among these factors, the contribution of work support has received more considerable research attention (Zhang and Guo, 2003). It is found that work support from the group is more important in nonwestern cultures than in western cultures. In western cultures, people are viewed as independent and possessing a unique pattern of traits that distinguish them from other people (Markus and Kitayama, 1994), whereas people in nonwestern cultures view the self as inherently interdependent with the group to which they belong. Thus, most researchers think that nonwestern cultures (collectivism) is an impediment for creativity because individuals tend to maintain conformity in group and then hinder the generation of unique and novel ideas. However, if the group encourage and value new ideas and publicly recognize and reward them, the creativity will be easily fostered. This has been supported by Du and Wang (2009). With data from 305 Chinese students, they found that individuals with high collectivism would show higher creativity when organizational supports and demands for creativity was presented.

The source of work support can be from supervisors and coworkers. Although a related line of research on creativity suggested that work support, whether coming from supervisors (Tierney and Farmer, 2002; Oldham and Cummings, 1996) or coworkers (Madjar et al., 2002), was helpful for employee creativity. To date, little empirical work has systematically examined the effect of work support from both supervisors and coworkers on employee creativity. It is demonstrated that in Chinese context, the support from supervisors is mainly resource and financial support, while the support from coworkers is instructive ideas, feedback, and encouragement (Liu and Shi, 2009). Considering the distinct roles of supervisors and coworkers in the workplace, it is important to fully understand whether the support from them affects employee creativity in different paths.

Furthermore, the literature suggests two general factors that might be used to explain the effect of work support: intrinsic motivation and mood states (Amabile, 1996; Woodman et al., 1993; George and Brief, 1992; Isen, 1999). However, few empirical studies have integrated the mediating roles of both of them in the relationship between support and employee creativity to provide a more precise understanding of their relationship. It is clear that both mood and motivational states are experienced in the workplace. So the examination about their roles in the effect of work support is crucial.

The goal of the present study was to address these important yet relatively unstudied issues. In addition to examining the effect of support from supervisors and coworkers on employee creativity, we investigated the mediating roles of intrinsic motivation and positive mood in the relationship between supervisors'/coworkers' support and employee creativity in the PRC, which has rarely been done in the literature. That is to say, this study examined the independent and joint contributions supervisors and coworkers and two measures of

personal factors - intrinsic motivation and positive mood, to the explanation of employee creativity.

THEORETICAL BACKGROUND AND HYPOTHESES

Support from supervisors and creativity

Kozlowski and Doherty (1989) argued that supervisors are the most salient representatives of management actions, policies, and procedures, so subordinates tend to generalize their perceptions of supervisors to their organization at large. When supervisors encourage subordinates to come up with new ideas or serve as creative models, the subordinates will perceive their organization as providing great autonomy, decision-making latitude, and supportiveness. In this settings, subordinates are encouraged to find alternative means of solving problems, to use nontraditional approaches, and to be persistent which are likely to lead to high levels of creativity (Amabile et al., 1996).

George and Zhou (2007) considered three alternative ways in which supervisors could enhance employee creativity: through providing developmental feedback, through displaying interactional justice, and through being trustworthy. More specifically, developmental feedback instills a learning/improvement orientation that is vital for creativity; interactional justice ensures that subordinates will have the knowledge and information they need to be creative and will be treated with respect even if their ideas do not pan out; and trust reassures them that their hard work and risk taking are well worth the effort because supervisors have the competence and professionalism to follow through on creative ideas. Likewise, Piccolo and Colquitt (2006) concluded that there were four dimensions of leader's influence on employee creativity, including idealized influence, inspirational motivation, intellectual stimulation and individualized consideration.

Several studies have demonstrated a positive relationship between support from supervisors and employee creativity. For example, Oldham and Cummings (1996) found that supportive supervision made a significant contribution to the number of patent disclosures employees wrote over a two-year period. Frese et al. (1999) showed that the more supervisors were encouraging of employees, the more creative ideas they submitted to an organization's suggestion program. Additionally, Andrews and Farris (1967) showed that teams of scientists produced the most creative outcomes when their supervisors provided substantial freedom at work and many opportunities to influence important decisions. On the basis of the evidence reviewed above, we hypothesize that:

H₁: There is a positive association between supervisors' support and employee creativity.

Support from coworkers and creativity

Researchers have typically studied the effect of coworkers' support at the group level of analysis, using group outcomes or group innovation as the dependent variable (Madjar et al., 2002). To date, the influence of coworkers' support on employee creativity has received minimal attention in the literature.

As another social context factor with the potential to shape employee creativity (Woodman et al., 1993), the support from coworkers can influence employee creativity through encouragement, support, open communication and informational feedback (Zhou and George, 2001). On one hand, the encouragement and support for creativity can motivate employees to innovate. On the other hand, mutual openness to ideas may operate on creativity by exposing individuals to a greater variety of unusual ideas; such exposure has been demonstrated to positively impact creative thinking (Zhou and George, 2001). Since coworkers are typically more similar to a focal individual than is the supervisors, social information provided by coworkers is likely to have a greater influence on individual innovation (Festinger, 1954).

In addition, several researchers have concluded that coworkers may be a salient referent for creativity expectations informing an employee's sense of creative role identity (Scott and Bruce, 1994). In this context, the employees perceiving that their coworkers expect them to be creative may define themselves as creative and more likely to take risks and freely explore and experiment with ideas and approaches. Thus, we suggest that when coworkers support an individual in ways that allow innovation to emerge, offering cooperation and collaboration, the individual is more likely to be creative.

H₂: There is a positive association between co-workers' support and employee creativity.

Support, intrinsic motivation and creativity

In addition to exploring the effects of work support, we also examined how such support influenced employee creativity. Because intrinsic motivation is one of the key ingredients of creativity (Amabile, 1983), much of the contemporary research on creativity has been guided by intrinsic motivation perspective (Zhou and Oldham, 2001; Shalley et al., 2004). Intrinsic motivation refers to the motivational state in which employees are attracted to and energized by a task itself, instead of merely by the external outcomes that doing the task might yield (Amabile, 1996). Previous research has demonstrated that individuals are the most creative when they experience a high level of intrinsic motivation (Zhou and Oldham, 2001; Shalley et al., 2004). Since creativity requires a great deal of mental activity, individuals need to be motivated to work hard for the sake of the activity itself to achieve breakthroughs (Shin and Zhou, 2003).

According to intrinsic motivation perspective, the context in which an individual performs a task influences his or her intrinsic motivation, which in turn affects individual creativity (Amabile, 1996). Therefore, we expect that supervisors' and coworkers' support, as two kinds of social context exert influence on creativity via intrinsic motivation (Amabile, 1983; Shalley et al., 2004). The mediating role of intrinsic motivation can be explained in two ways.

First, supervisors and coworkers can provide emotional support which has an impact on employee creativity via intrinsic motivation. Social exchange theory demonstrates when supervisors show individualized consideration to their followers and encourage them to perform creatively; employees will realize that their creative potential and contributions are valued. Consequently, their intrinsic motivation is boosted (Zhou and Oldham, 2001), which, in turn, lead to high levels of creativity (Amabile, 1996). Moreover, given the emotional support from coworkers, employees are free of extraneous concerns and are likely to take risks, to explore new cognitive pathways (Shalley et al., 2004).

Secondly, when supervisors focus on developing employees' capabilities by providing information and challenging, interesting work, as well as articulating a compelling vision to encourage subordinates to innovate or when coworkers expose individuals to a greater variety of unusual ideas, employees' cognitive or motivational processes are enhanced in such a way that they exhibit high creativity (Oldham and Cummings, 1996; Festinger, 1954). On the basis of the evidence reviewed above, we hypothesize that:

H₃: Intrinsic motivation mediates the relationship between supervisors' support and employee creativity.

H₄: Intrinsic motivation mediates the relationship between co-workers' support and employee creativity.

Support, mood states and creativity

"Mood" refers to a pervasive generalized affective state that is not necessarily directed at any particular object or behavior. Previous work suggests that mood consists of two independent dimensions: positive (characterized by emotions ranging from high to low excitation and elatedness) and negative (characterized by feelings of distress and fear) (Burke et al., 1989).

Mood-as-information theory suggests that mood provides people with information about situations and that the effects of mood on cognitive processes and behavior can be understood in terms of their informative effects (George and Zhou, 2007). According to this theory, several authors have suggested that individuals' mood states played an important role in explaining creativity (Isen, 1999; Madjar et al., 2002). However, the relationship between positive mood and creativity is still unclear.

Some studies have failed to support the positive relationship between them after considering the interactive effects of positive and negative mood (Kaufmann and Vosburg, 1997), but the vast majority of earlier studies strongly support this link (Madjar et al., 2002). Given the laboratory experiments have shown participants in positive mood, demonstrates divergent thinking, fluid ideation, and flexible categorization, make unusual associations, and heuristic problem-solving tasks, we argue that positive mood can promote employee creativity.

George and Brief (1992) showed that as relatively transient states that were experienced over the short run and fluctuated over time, positive mood was affected by contextual conditions. Thus, we argue that support from others in the workplace influences creativity via its effect on employees' positive mood. Through encouraging employees to voice their own concerns, providing developmental feedback, and displaying justice, supervisors had an important impact on employees' positive mood (Moyer and Salovey, 1999). According to George and Zhou (2001), when employees experienced positive mood, they were likely to be excited about their work activities and interested in completing the activities, which is then expected to foster creative achievements at work.

Tierney and Farmer (2002) found that coworkers' support was also closely related to employees' mood states. More specifically, coworkers' support not only stands for good relations between employees and cohesive atmosphere in workplace, but also means the respect from coworkers. Based on the important role of "Guanxi" in organizational behavior in the PRC, we suppose employees in good relationships with their coworkers would receive more work support. In this supportive context, employees would find their work enjoyable which may lead to positive mood. On the basis of evidence reviewed above, we hypothesize that:

H₅: Positive mood mediates the relationship between supervisors' support and employee creativity.

H₆: Positive mood mediates the relationship between coworkers' support and employee creativity.

METHODS

After adopting the model to explain the relationship of work support and employee creativity, we conducted semi-structured interviews to refine constructs and their interrelations for application to Chinese culture. Later, one of the co-authors visited each participant and distributed the questionnaires to them. The participants were instructed to put their completed questionnaires into provided return envelopes and to seal them. On the next visit, the co-authors collected the sealed envelopes. Complete confidentiality was guaranteed. We told participants that the study was designed to assess the support from supervisors and coworkers and we did not indicate that creativity was the focus of the research.

Out of 300 questionnaires distributed, 233 usable questionnaires were returned, for an overall response rate of approximately 63%.

Respondents included 112 female (48%) and 121 male (52%). Most respondents (92%) were in their 20 or 30 s, with average age in the early 30 s. More than 91% respondents had graduated from university. Their functions included R and D (62%), comprehensive management (15%), production (11%), marketing (8%) and other functions (4%). The employees were from 233 enterprises including state-owned enterprises (37%), privately-owned enterprises (26%), foreign-invested enterprises (19%) and other kinds of enterprises (18%). The percentage of employees from high-tech enterprises was 39%.

MEASURES

We used five-point Likert-type scale for all the substantive variables in this study. Most of items were rated on a scale that ranged from "strongly disagree"(1) to "strongly agree"(5). For all the English items, the translation and back-translation procedures were employed. Slight modification was made to render the items to be consistent with the present research context.

We adopted six items to measure supervisors' support based on Oldham and Cummings (1996) scale. Sample items were: "My supervisor praises good work."; "My supervisor encourages me to develop new skills"; and "My supervisor keeps informed about how employees think and feel about things". Cronbach's alpha on this scale was 0.92.

Coworkers' support was measured using seven items from Podsakoff et al. (1997). Sample items were: "My coworkers other than my supervisor share our knowledge"; "My coworkers other than my supervisor give me useful feedback about my ideas concerning the workplace" and "My coworkers other than my supervisor are always ready to help me if I lag behind them." Cronbach's alpha on this scale was 0.90.

Intrinsic motivation was measured using seven items from Amabile (1996) scale. Sample items were "I am currently engaged in my tasks (1) because I enjoy finding solutions to complex problems and (2) because I enjoy coming up with new ideas for products." Cronbach's alpha on this scale was 0.91.

We measured positive mood using ten items from Watson et al. (1988) scale that ranged from "very slightly or not at all" (1) to "extremely" (5). The items were "active," "strong," "enthusiastic," and so on. Cronbach's alpha on this scale was 0.95.

The measurement of employee creativity was adopted from Tierney et al. (1999) with seven items. Sample items were "Comes up with new and practical ideas to improve performance" and "Comes up with creative solutions to problems." Given the modest characteristic of Chinese, we ignore two items which are too outstanding, such as "Served as a good role model for creativity" and "Generated ideas revolutionary to our field". Cronbach's alpha on this scale was 0.88.

We also collected data for controls likely to provide alternative explanations for creativity. Control variables were suggested by previous research (e.g., Oldham and Cummings, 1996; Tierney and Farmer, 2002), including employees' gender, age, education level, and functions. Additionally, the types of the company were also controlled.

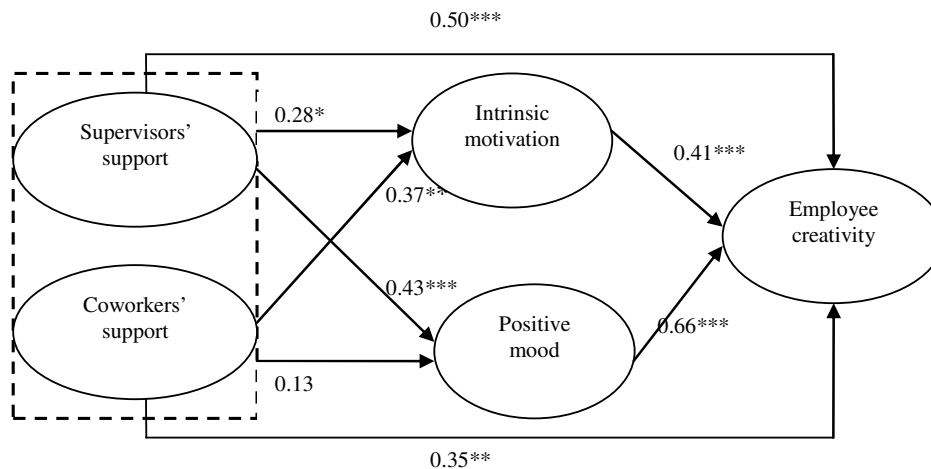
RESULTS

Table 1 presents means, standard deviations, and correlations among all variables. It demonstrated that the support from supervisors and coworkers was significantly and positively correlated with employee creativity, intrinsic motivation and positive mood. Intrinsic motivation and positive mood were also significantly and positively

Table 1. Means, standard deviations and correlations among all variables^a.

	Mean	Standard deviation	1	2	3	4	5
Supervisors' support	3.39	0.98					
Coworkers' support	3.81	1.16	0.47**				
Intrinsic motivation	4.09	1.02	0.34**	0.34**			
Positive mood	2.82	1.18	0.57**	0.32**	0.36**		
Employee creativity	3.83	0.99	0.40**	0.37**	0.73**	0.42**	

^a N = 233; *p < 0.05; **p < 0.01.

**Figure 1.** The hypothesis model and the results.

correlated with the employee creativity. Thus, hypothesis 1 and 2 were supported. Work support from both supervisors and coworkers is positively related to employee creativity.

To test the hypotheses, we conducted structural equation model (SEM) analysis. The proposed relationship model of Figure 1 fitted the data fairly well ($\chi^2/df = 1.57$, RMSEA = 0.09, GFI = 0.86, CFI = 0.92, NFI = 0.89). Figure 1 demonstrated that except coworkers' support was not correlated with positive mood, the other supposed relationships were examined. Thus, all the five hypotheses were supported but hypothesis 6.

DISCUSSION

This study examined the role of contextual factors in employee creativity and suggested a variety of mechanisms through which the supportive context influenced creativity. Specifically, the perspective described in this study provided more insight into the positive role of supportive context in employee creativity. We identified two contextual variables - the support from both supervisors and coworkers. It was found that creativity was more likely to be fostered if support for new ideas

and their implementation was provided by supervisors and coworkers. This was consistent with prior research on the contribution of work support to creativity (Oldham and Cummings, 1996; Madjar et al., 2002).

Furthermore, we extend what has been, until now, peripheral attention to the mechanisms of supportive context influenced creativity literature. As hypothesized, intrinsic motivation mediated the contribution of work support (from supervisors and coworkers) to creativity partially. This was consistent with Shalley et al. (2004) who found that all the contextual factors influenced employee creativity via intrinsic motivation. What's more, positive mood also mediated the relationship between supervisors' support and creativity, which was consistent with Shalley et al. (2004) and Madjar et al. (2002). But the relationship between coworkers' support and creativity was not mediated by positive mood. This finding was out of our expectations and not consistent with Madjar et al. (2002) assertion that positive mood mediated the support-creativity associations. A possible explanation for this seemingly implausible finding was the context of this study. Most of our respondents were knowledgeable workers whose tasks were relatively independent. It was examined that intra-group task interdependence may mediate the relationship between team-member exchange

and affective responses (Perrow, 1967). It is possible that, when the task inter-dependence is low, the relationship between coworkers' support and creativity is weaker than it will be when the task interdependence is higher. It made employees' mood states depend less on their coworkers' attitudes and support.

IMPLICATIONS AND LIMITATIONS

Implications

This study examined the independent and joint contributions of two measures of supportive context - support from supervisors and coworkers and two measures of personal factors - intrinsic motivation and positive mood, to the explanation of employee creativity. The findings are almost consistent with prior research (Amabile et al., 1996; George and Zhou, 2001). However, our study made several contributions to the literature.

First, this study contributes to a growing literature on employee creativity in organizations (George and Zhou, 2002). Although prior studies have examined the mechanisms of supportive environment in enhancing employee creativity, most of them have treated support from supervisors and coworkers as the same. Our results show that support from both supervisors and coworkers has important effect on employee creativity in different ways. The second and more important contribution of our study is that this study is the first to empirically integrate the role of intrinsic motivation and positive mood in explaining the support-creativity association in Chinese context, which has rarely been done in the literature. Finally, we conducted the research with the sample in the PRC rather than in one of the Western countries that often serve as the context for creativity studies. With different cultural, political and economic systems between the PRC and the western countries, the present study will enrich our understanding of how to promote employee creativity in global context.

Results of our study have some clear implications for the management of creativity. First, they suggest that it may be possible to boost all employees' creativity if supervisors and coworkers are trained and encouraged to provide support. In addition, considering the mediating role of intrinsic motivation and positive mood, management should consider both personal and contextual factors to enhance creativity in organizations. Specifically, they should pay more attention to employees' psychological and emotional response to the supportive environment. By doing so, managers may be better able to direct the influence of supportive environment to proper psychological and emotional processes, and ultimately to obtain greater creativity. Implementing other strategies that have been shown to enhance intrinsic motivation and positive mood, such as reward system and clear goals, should also have desirable effects.

Although the findings reported here provide some guidance for creativity management, they also pose a whole new set of questions for researchers. What is the joint effect of work support from supervisors and coworkers on creativity? What are their effects if one of them exists and the other does not? The answers to these questions await further study. Moreover, as discussed above, task interdependence may be moderate as the relationship between coworkers' support and creativity which makes positive mood have no mediating role between them. Thus, do other task characteristics (e.g., task routine and task complexity) moderate support-creativity link? Study of these relationships is a potentially fruitful avenue for future research.

Limitations

A few limitations of this study should be noted. First, we conducted the research in the PRC rather than in one of the Western countries (such as the U.S. and U.S.A) that often serve as the context for creativity studies. Although it will enrich our understanding of how to promote employee creativity in the PRC, it may be that different results would be obtained in different countries (Madjar et al., 2002). Thus, the conclusions established in our study should be interpreted with care when establishing generalizations.

Another limitation is that since employees provided ratings of support, intrinsic motivation and mood states, it is possible that relations among these constructs were inflated via common method variance. Future work should obtain independent assessments of these variables (Madjar et al., 2002). An additional limitation is that the data are cross-sectional rather than longitudinal. As noted earlier, we defined mood as a transient state that captured an individual's experience over a relatively short period of time. We asked employees to describe mood states by indicating their feelings during the past week. The literature suggests that mood states are less stable than affective traits. Longitudinal studies should be made so as to examine the evolution of this variable throughout time to ensure its stability and representation.

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APPENDIX

Scales and items

Work support from supervisors

- (1) My supervisor encourages me to develop new skills.
- (2) My supervisor keeps informed about how employees think and feel about things.
- (3) My supervisor encourages employees to participate in important decisions.
- (4) My supervisor praises good work.
- (5) My supervisor encourages employees to speak up when they disagree with a decision.
- (6) My supervisor rewards me for good performance.

Work support from coworkers

- (1) My coworkers other than my supervisor are always ready to help me if I lag behind them.
- (2) My coworkers other than my supervisor share our knowledge
- (3) My coworkers other than my supervisor try to act like peacemakers when other members have disagreements.
- (4) My coworkers other than my supervisor are willing to give of their time to help members who have work-related problems.
- (5) My coworkers other than my supervisor "touch base" with other members before initiating actions that might affect them.
- (6) My coworkers other than my supervisor encourage each other when someone is down.
- (7) My coworkers other than my supervisor give other members useful feedback about their ideas concerning the workplace.

Employee creativity

- (1) Demonstrated originality in his/her work.
- (2) Took risks in terms of producing new ideas in doing job.
- (3) Found new uses for existing methods or equipments.
- (4) Solved problems that had caused other difficulty.
- (5) Tried out new ideas and approach to problems.
- (6) Identified opportunities for new products/processes.
- (7) Generated novel, but operable work-related ideas.

Intrinsic motivation

- (1) I enjoy finding solutions to complex problems.
- (2) I enjoy tackling problems that are completely new to me.
- (3) I want my work to provide me with opportunities for increasing my knowledge and skills.
- (4) What matters most to me is enjoying what I do.
- (5) It is important for me to have an outlet for self-expression.
- (6) I prefer work I know I can do well over work that stretches my abilities.
- (7) No matter what the outcome of a project, I am satisfied I feel I gained a new experience.

Positive mood

How you felt during the past few weeks:

Enthusiastic, interested, determined, excited, inspired, alert, active, strong, proud, attentive.