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Interactive Effects of Work Autonomy and Proactive Personality on Innovative Behavior

Koichi Takaishi[1], Kazuyo Sekiguchi[2], Hideko Kono[3] & Shoko Suzuki[4]

[1] Faculty of Business Administration, Asia University, Tokyo, Japan

[2] Faculty of Business Administration, Tokyo Keizai University, Tokyo, Japan

[3] Faculty of International Social Sciences, Yokohama National University, Yokohama, Japan

[4] General Education, Seikei University, Tokyo, Japan

Correspondence: Koichi Takaishi, Professor, Faculty of Business Administration, Asia University, 5-24-10 Sakai, Musashino-shi, Tokyo, 180-8629 Japan. Tel: 81-422- 36-1375. E-mail: takaishi@asia-u.ac.jp.

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Abstract

This study investigates the effects of three facets of work autonomy (i.e., method, schedule, and criteria) on employees' innovative behaviors. In addition, it examines the effects of each facet of work autonomy on innovative behavior in line with the self-determination theory. Furthermore, based on the trait activation theory, this study explores the interacting influences of the different facets of work autonomy with proactive personality on innovative behavior. Data were collected from the sample of 502 employees and 102 supervisors working for a forging factory in Japan. The results confirm the validity of work autonomy scales. It also finds that innovative behavior is independently affected by work method autonomy and work schedule autonomy as well as work criteria autonomy interacting with proactive personality. These findings are discussed in terms of promoting employees' engagement in innovative behavior.

Keywords: autonomy, proactive personality, innovative behavior

1. Introduction

Organizational innovation necessitates employees' proactive contributions (Burris, 2012; Shalley, Gilson, & Blum, 2000; Zhou & George, 2001). Thus, scholars have extensively examined antecedents, effects, and the process of individual innovative, creative and other forms of change-oriented behaviors (Scott & Bruce, 1994; Yuan and Woodman, 2010). Innovative or creative behavior has been investigated to determine its associations with individual factors such as intrinsic motivation (Amabile, 1996), creative self-efficacy (Tierny & Farmer, 2002), and innovative expected positive outcomes (Yuan and Woodman, 2010). Moreover, the impacts of situational factors such as mood (To, Fisher, Ashkanasy, & Rowe, 2012), social network (Hirst, Van Dyne, Zhou, Quintane, & Zhu, 2015), organizational climate for innovation (Scott & Bruce, 1994), and job complexity and supervisory style (Oldham & Cummings, 1996) have been studied to determine their association with innovative or creative behavior.

Among various situational factors, scholars and practitioners have acknowledged the importance of work autonomy as an influential variable on employees' challenge-oriented behavior (i.e., Amabile, 1988; Parker, Williams & Turner, 2006). In line with the self-determination theory that posits that autonomy perceived by individuals leads to an increased frequency of behavior (Deci & Ryan, 1985; Gagné & Deci, 2005; Ryan & Deci, 2000), we consider that autonomy may be a critical situational determinant of employees' innovative behavior. However, we propose that specifying the content of work autonomy is necessary to enhance understanding its effects on innovative behavior as discussed later.

On the other hand, the trait activation theory (Tett & Burnet, 2003) signifies the importance of trait-relevant situations under which a personality trait manifest. Among the personality traits, we focus on proactive personality (Bateman & Crant, 1993) since it has been shown to have strong associations with various change-oriented behaviors (Fuller & Marler, 2009; Thomas, Whitman, & Viswesvaran, 2010).

Then, the purpose of this study is to identify the mechanism by which individual proactive personality, through

interacting with work autonomy, influences employees' innovative behavior. Particularly, we assess whether different facets of work autonomy have a stronger effect on innovative behavior for those with high proactive personality than for those with low proactive personality.

First, athough autonomy has been theoretically and extensively developed in the context of job characteristic theory and widely considered to be unidimensional, Breaugh (1995) proposed three different facets of autonomy (i.e., method, schedule, and criterion) by which the content of autonomy becomes more specific and meaningful. Although autonomy has been widely and intensively researched, only a few studies have used such a measure of multidimensional work autonomy. Thus, we explore to confirm the validity and effect of the three separate facets of work autonomy.

Second, we predict that proactive personality and innovative behavior are related, and individual employees differ on their proactive orientation. Accordingly, we expect that employees with higher proactive orientation tend to engage in more innovative behavior, such as revising work procedures, generating new ideas for products or services, or implementing ideas, compared with employees with low proactive personality.

Third, however, we argue that the aforementioned three facets of work autonomy interact with proactive personality, thereby influencing innovative behaviors. The degree and type of work autonomy that enables employee's latitude or discretion for implementing their work differ among organizations and according to job type. In terms of the trait activation theory (Tett & Burnet, 2003), we investigate the interacting effects of work autonomy and proactive personality on innovative behavior. Employees with high proactive personality may respond to autonomous situations and engage in more innovative behavior than those with low proactive personality. Conversely, even when high autonomy is allowed for those who are passive or low in proactive tendencies, their effects may be null or weak.

Finally, we focus on the effects of proactive personality with the interacting influences of the three facets of work autonomy on innovative behavior. Expectantly, this study will contribute to an understanding regarding the effect and roles of specific features of work autonomy. More specifically, we expect to assess which facet of the work autonomy has an association with innovative behavior and which facet is recognized as forming strong or weak situations for employees.

2. Theory and Hypotheses

2.1 Autonomy and the Self-determination Theory

Many researchers and practitioners have long studied autonomy in the context of Hackman and Oldham's (1975) job characteristic theory. Spector (1986) conducted a meta-analysis and demonstrated that autonomy is associated with individual perception and behaviors, such as job satisfaction, organizational commitment, emotional distress, absenteeism, job performance turnover, etc. Autonomy has been one of the most extensively studied factors by researchers (Breaugh, 1989; Haas, 2010; Langfred and Moye, 2004; Spector, 1986). Most practitioners also believe that in today's contemporary society, giving latitude or control to individual employees or teams can provide beneficial results such as increased motivation and performance.

Furthermore, relatively recent development of the self-determination theory (Ryan & Deci, 2000) has confirmed the importance of autonomy. According to the self-determination theory, autonomy appears to be one of the critical factors that enhance self-motivation and health psychological development. Gagné & Deci (2005) proposed that in organizational settings, motivation varies in the degree to which it is autonomous (versus controlled) as fully autonomous work is characterized with enjoyment and interest, whereas work with controlled regulations can create a state of amotivation (i.e., lack of motivation).

Regarding the definition and measurement of autonomy, many researchers have adopted Hackman and Oldham's (1975, p.162) definition of autonomy as follows: "The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out." In this study, however, for the reason mentioned below, we adopt Breaugh's (1985) definition of autonomy, which is "the degree of control of discretion a worker is able to exercise with respect to work methods, work scheduling, and work criteria" (p.556).

2.2 Three Facets of Autonomy

Breaugh (1985) questioned the validity of Hackman and Oldham's (1975) commonly used measurement scale of autonomy and proposed as well as operationalized work autonomy scales comprising three facets of autonomy measures. Compared with the global construct of Hackman and Oldham's (1975) measures, Breaugh's (1985) measures comprise three separate subscales: work method, work scheduling, and work criteria. Work method autonomy is the degree of discretion that employees possess regarding their work procedures. Work scheduling

autonomy means the extent to which employees have control in scheduling their work. Finally, work criteria autonomy is the ability of employees to modify or choose the criteria used for evaluating their performance (Breaugh, 1985). Notably, the subscales of both work method and work scheduling autonomy are parallel with the definition and measurement scale of Hackman and Oldham (1975), whereas work criteria autonomy is unique in Breaugh's (1985) measurement scale. These work autonomy scales have been thoroughly validated through rigorous examinations (Breaugh, 1989; Breaugh & Becker, 1987). Breaugh (1985) revealed that the three facets of work autonomy were related with job involvement, satisfaction, performance quality ratings, and absenteeism.

Despite the valid feature of Breaugh's (1985) work autonomy scales, the frequently used measure for autonomy is the one by Hackman and Oldham (1975) (e.g. Den Hartog & Belschak, 2012: Morgeson, Delaney-Klinger & Hemingway,2001). Surprisingly, few researchers have utilized Breaugh's (1985) measurement scales. Among the few researchers, Sadler-Smith, El-Kot, & Leat (2003) validated Breaugh's (1985) scales in Egypt and found that work schedule autonomy was related with job commitment while work criteria autonomy was associated with job satisfaction. In addition, Denton and Kleiman (2001) examined the moderating effects of job tenure between the three facets of work autonomy and job satisfaction. Based on these limited findings, more research is necessary to verify the impacts of the three facets of work autonomy on innovative behavior.

2.3 Effects of Work Autonomy on Innovative Behavior

Innovative behavior is an extra-role and a change-oriented behavior. Thus, by its nature, it necessitates that an employee must behave autonomously. We contend that an employee who is not allowed to work autonomously has difficulties in generating and implementing ideas. To the best of our knowledge, no studies have clarified the mechanisms between autonomy and innovative behavior. However, evidence has been accumulated to demonstrate the relations between autonomy and creativity and proactive behavior that share many similarities with innovative behavior. Proactive behavior is defined as anticipatory actions taken by employees that impact themselves and/or their environment (Grant and Ashford, 2008), whereas creativity refers to the production of novel ideas for process and products (Amabile, 1988). For example, Amabile, Conti, Coon, Lazenby, & Herron (1996) indicated that autonomy (freedom) is related to creativity. Belschak and Den Hartog & Belschak (2012) found the interacting effect of autonomy and role breadth self-efficacy between transformational leadership and proactive behavior. Furthermore, Parker et. al. (2006) indicated the direct as well as indirect effects of job autonomy through proactive cognitive-motivational states on proactive work behavior.

These literatures have led us to contend that autonomy directly impacts innovative behavior. Moreover, although the aforementioned studies have used a unidimensional measure of autonomy, we demonstrate that each separate facet of Breaugh's (1995) work autonomy mentioned above is related with innovative behavior. Thus, the following hypothesis is posited:

Hypothesis 1: Work autonomy affects innovative behavior such that work method autonomy (a), work schedule autonomy (b), and work criteria autonomy (c) affect innovative behavior.

2.4 Proactive Personality

Proactive personality is defined as "a construct that identifies differences among people in the extent to which they take action to influence their environments" (Bateman & Crant, 1993). In this regard, a proactive employee has a relatively stable tendency to take initiatives that affect changes, possess a strong will to make contributions, identify opportunities, and act (Crant, 2000). Many studies have indicated that a proactive personality is associated with job performance (Crant, 1995), leadership (Bateman & Crant, 1993), career and job satisfaction (Li, Liang & Crant, 2010; Ng, Eby, Sorensen, & Feldman, 2005), team performance (Kirkman & Rosen, 1999), and organizational citizenship behavior (OCB) ((Li, Liang & Crant, 2010). Furthermore, meta-analyses have showed that proactive behavior is related with challenge-oriented behavior such as voice, personal initiatives, and taking charge (Fuller & Marler, 2009; Thomas et.al, 2010).

The findings from these literatures lead us to speculate that proactive personality affects innovative behavior. Thus, the following hypothesis is posited.

Hypothesis 2: proactive personality affects innovative behavior.

Conversely, there have been some criticisms that more theoretical and empirical investigations are required to understand and verify the mechanism existing between proactive personality and extra-role behaviors (Li, et al., 2010; Parker, et al., 2006). For example, Li, et al. (2010) found the moderating effect of procedural justice climate between proactive personality and OCB. In addition, Parker et al. (2006) indicated that proactive personality and proactive work behavior are associated via role breath self-efficacy.

2.5 Trait Activation Theory

Langfred and Moye (2006) proposed the motivational model of task autonomy as both general individual personality traits and situational factors assume differences in individual reactions to work autonomy, which is in line with the trait activation theory. According to the trait activation theory (Haaland & Christiansen, 2002; Lievens, Chasteen, Day, & Christiansen, 2006; Lievens, Schollaert & Keen, 2015; Tett & Burnett, 2003), trait and situational factors interactively work. Based on the situational specificity of personality and job performance relations, Tett and Burnett (2003) proposed that a personality trait manifests in work behavior under trait relevant situations. Their theory posits the concepts of situation trait relevance and situation strength. A situation is considered to be relevant to a trait when the situation elicits a particular response of a person's trait. Situation strength is the degree that people place on situational demands. A strong situation implies the negation of individual differences in response, whereas a weak situation occurs when more variability in individual responses is observed. One of the situational features related with personality expression is constraint, which restricts a cue for its expression, thereby negating the impact of a trait. Work characterized as high in autonomy is considered to be low in constraint (Ng and Chan, 2008; Tett and Burnett, 2003).

No empirical study has assessed the interactive effects of proactive personality and the three facets of work autonomy on innovative behavior. Expectantly, proactive personality can enhance innovative behavior when work autonomy is perceived as more salient. Conversely, proactive personality does not increase innovative behavior when work autonomy is perceived as low or absent. Thus, the following hypotheses are posited:

Hypothesis 3a: Work method autonomy moderates the relation between proactive personality and innovative behavior.

Hypothesis 3b: Work schedule autonomy moderates the relation between proactive personality and innovative behavior.

Hypothesis 3c: Work criteria autonomy moderates the relation between proactive personality and innovative behavior.

Exploring the effects of the three facets of work autonomy on innovative behavior and determining different reactions of each facet of work autonomy depending on proactive personality to innovative behavior are our main concerns.

3. Method

3.1 Sample

Data were collected from a forging company located in the Tokai region of Honshu, Japan. The company currently employs about 800 people and is known as an extremely innovative, medium-sized forging company among Japanese manufacturing businesses. We administered two separate questionnaires: one was for the employees and the other was for their supervisors who assessed their subordinates' innovative behaviors.

All the employees were asked to participate in the study; 636 employees and their 102 direct supervisors completed the survey, among them, innovative behavior of 502 employees were fully assessed by their supervisors, yielding a response rate of 80%. The sample comprised different divisions, including accounting, design, product development, maintenance, planning, etc., as well as different hierarchical levels. 96.2% of the respondents were male, 36.2% were aged between 40 to 49 years, and 34.3% had over 20 years of tenure.

3.2 Measures

This study used a multi-item scale, as shown in the Appendix. The ratings were based on a five-point Likert-type scale ranging from 1 ("to a very small extent") to 5 ("to a great extent"). All the instructions and items were in Japanese, which were translated and back-translated by bilingual professionals. The items composing each construct were averaged to create a measure of variables.

3.2.1 Dependent Variables

Work autonomy: Work autonomy was measured using Breaugh's (1995) work autonomy scales, which comprise three subscales (i.e., work method autonomy, work schedule autonomy, work criteria autonomy). An example of work method autonomy is "I am allowed to decide how to go about getting my job done" while an example of work schedule autonomy is "I have control over the scheduling of my work." Moreover, an example of work criteria autonomy is "I have some control over what I am supposed to accomplish." The internal consistency (Cronbach's α) of work method autonomy, work schedule autonomy, and work criteria autonomy were 0.94, 0.90, and 0.80, respectively.

Proactive personality: Proactive personality was measured with six items adapted from Bateman and Crant's

(1993) scale. Examples of the items included: "If I see something that I don't like, then I fix it" and "Regardless of the odds, if I believe in something, then I will make it happen." Cronbach's α was 0.84.

3.2.2 Independent Variable

Innovative behavior: This variable was measured using Scott and Bruce's (1994) six-item innovative behavior scale. Through the discussion with the senior manager of personnel department of the company, we decide to drop one item ("investigate and secure funds required to implement new ideas") from the list since the item is considered to be irrelevant among the employees of this company. We combined with the remaining five to create an overall scale of innovative behavior. Examples of the items include "I search out new technologies, processes, services, and/or product ideas" and "I generate creative ideas." Cronbach's α was 0.95, and items were rated on the scale that ranged from 1 ("never") to 5 ("always").

Control variables: Drawing on previous studies, this study included age and gender as control variables.

4. Results

4.1 Preliminary Analysis

We conducted confirmatory factor analyses to test the discriminant validity of the three constructs of work autonomy scales. As shown in Table 1, we examined the fit of the three-factor model (i.e., work method autonomy, work schedule autonomy, and work criteria autonomy) and found that it fit the observed covariance matrix well (x 2 (24)＝145.03, p < .01; root-mean-square error of approximation (RMSEA)＝ .08; comparative fit index (CFT) ＝.98; and Tucker－Lewis Index (TLI) ＝.97).

We compared the fit of this three-factor model with three other nested models (Model 2: work method and work schedule combined into one factor; Model 3: work schedule and work criteria combined into one factor; Model 4: work method and work criteria combined into one factor; Model 5: all the items loaded into one factor). The three-factor model was shown to provide a significantly better fit to the data. Thus, the three facets of work autonomy scales are distinct from one another.

Table 1. Confirmatory factor analysis: Model comparison and fit statistics

Model	Description	χ^2	*df*	CFI	TLI	RMESA	Change from Model 1	
							$\triangle\chi^2$	$\triangle df$
Model 1	3-factor model	145.03	24	.98	.97	.08		
Model 2	2-factor model[a]	253.66	26	.95	.93	.12	108.63**	2
Model 3	2-factor model[b]	303.01	26	.93	.90	.15	157.98**	2
Model 4	2-factor model[c]	510.13	26	.90	.86	.18	365.10**	2
Model 5	1-factor model[d]	593.02	27	.88	.84	.18	447.99**	3

Note. CFI= comparative fit index; TLI= Tucker-Lewis Index; RMESA=root-mean-square error of approximation.

[a] Work method autonomy and Work shedule autonomy combined into one factor, Work criteria autonomy

[b] Work shedule autonomy and Work criteria autonomy combined into one factor, Work method autonomy

[c] Work method autonomy and Work criteria autonomy combined into one factor, Work shedule autonomy

[d] all items loading onto one factor

** p <.01

Table 2 summarizes the means, standard deviations, reliabilities, and correlations among the study variables. A statistically significant positive relation was shown between proactive personality and innovative behavior (r = .25, p < .01). Hypothesis 2 predicted that proactive personality affects innovative behavior. This hypothesis was partially supported by this correlation. The three facets of work autonomy (i.e., work method criterion autonomy, work schedule autonomy, work criteria autonomy) were all positively correlated with innovative behavior (r = .35, p < .01; r = .33, p < .01; r = .21, p < .01, respectively). However, there were very high inter-correlations among the three facets of work autonomy, although these high intercorrelations were anticipated from the previous studies (Breaugh, 1995; Breaugh &Becker, 1997, Breaugh, 1989). The average correlation among the three facets in this study was .76, and we considered that this figure was too high compared with the Breaugh's average correlations of .35 (Breaugh, 1995), .43(Breaugh &Becker, 1997), and .51(Breaugh, 1989).

Table 2. Means, standard deviations, correlations, and interitem reliabilities

	M	*SD*	1	2	3	4	5	6	7
1.Gender	0.04	0.19	—						
2.Age	4.06	1.42	.05	—					
3.Proactive personality	3.10	0.72	-.08	-.04	(.84)				
4.Work methos autonomy	3.23	0.96	-.02	.01	.45 **	(.94)			
5.Work schedule autonomy	3.11	0.89	.05	.02	.47 **	.86 **	(.90)		
6.Work criteria autonomy	2.81	0.86	.00	-.04	.49 **	.68 **	.73 **	(.80)	
7.Innovative Behavior	2.83	0.86	-.19 **	-.01	.25 **	.35 **	.33 **	.21 **	(.95)

Note. Gender (0 = male, 1 = female).
Age (1= younger than 24 years old, 2= 25 to 29 years old, 3= 30 to 34 years old, 4= 35 to 39 years old, 5= 40 to 49 years old, 6= older than 50 years old)
n = 502
** p < .01

These high correlations among the variables may result in multicollinearity. Then, we verified their variance inflation factor (VIF) to test for multicollinearities. All the VIFs were found to be less than 10, thus indicating the unlikelihood of multicollinearities.

4.2 Hypotheses Testing

We used hierarchical regression procedures recommended by Aiken and West (1991) to test the hypotheses. We standardized proactive personality and the three facets of work autonomy and multiplied them to create interaction terms. Table 3 summarizes the hierarchical regression results. After controlling for sex and age in Step 1, in the regression model, we entered proactive personality in Step 2, and the three facets of work autonomy in Step 3. In Step 4, we added the interactions of proactive personality with each of the three work autonomy. In Step 2, accounting for the control variables, proactive personality significantly predicted innovative behavior ($\beta = .24$, $p < .01$), thereby supporting Hypothesis 2.

Table 3. Summary of regression analysis results on innovative behavior

		b	R^2	$\Delta R2$	Adjsted R^2	Model *F*
Step 1						
	Sex	-.19**				
	Tenure	.00	.04	.04	.03	8.87**
Step 2						
	Proactive Personality	.24**	.09	.06	.09	31.78**
Step 3						
	Work Method Autonomy	.19*				
	Work Schedule Autonomy	.22**				
	Work Criteria Autonomy	-.13*	.17	.08	.17	16.32**
Step 4						
	Proactive Personality × Work Method Autonomy	-.07				
	Proactive Personality × Work Schedule Autonomy	.00				
	Proactive Personality × Work Criteria Autonomy	.16*	.18	.02	.18	3.46*

Note. n = 502
** p < .01

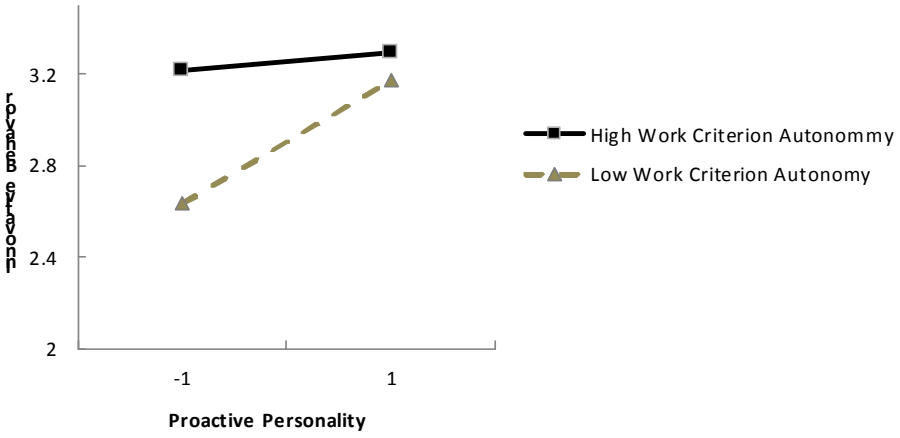

Figure 1. Effect of the Interaction between proactive personality and work criterion autonomy on innovative behavior

In testing Hypothesis 3 in which the three facets of work autonomy moderates the relation between proactive personality and innovative behavior, only one significant interaction was detected between proactive personality and work criteria autonomy in predicting innovative behavior ($\beta = .16$, $p < .05$), whereas no significant interaction between proactive personality and work method autonomy or work schedule autonomy was detected ($\beta = -.07$, ns; $\beta = .00$, ns, respectively). We plotted the interaction between proactive personality and work criteria autonomy, as shown in Figure 1.

We expected that proactive personality would enhance innovative behavior under high work autonomy conditions. However, it was shown that when an employee perceived low work criteria autonomy, proactive personality was related with innovative behavior ($\beta = .36$, $p < .01$). In addition, when an employee perceived high work criteria autonomy, no significant relation was detected between proactive personality and innovative behavior ($\beta = .05$, ns).

Furthermore, a relatively high innovative behavior was maintained regardless of the degree of proactive personality under the condition of high work criteria autonomy.

Thus, Hypotheses 3a and 3b were not supported while Hypothesis 3c was supported, although the interaction pattern regarding the latter differed from our expectation.

We examined Hypotheses 1 in which work autonomy affects innovative behavior such that work method autonomy (1a), work schedule autonomy (1b), and work criteria autonomy (1c) affect innovative behavior. In Step 3, work method autonomy and work schedule autonomy predicted innovative behavior ($\beta = .19$, $p < .05$; $\beta = .22$, $p < .01$, respectively). Thus, Hypotheses (1a) and (1b) were supported. Since the interaction between proactive personality and work criteria autonomy in Step 4 was significant, the single effect of work criteria autonomy in Step 2 was not interpreted.

5. Discussion

This study examined the effects of autonomy on employees' innovative behavior. It extended previous job autonomy models as it explored the role and effects of the three facets of work autonomy rather than the global construct of unidimensional job autonomy between proactive personality and innovative behavior.

First, this study suggested that autonomy comprises three different dimensions. The results of the confirmatory factor analysis using the sample of Japanese employees showed the discriminant validity of the three facets of work autonomy, as found in preceding studies in both Western and Arab countries.

Second, it clarified how the three facets of work autonomy affect innovative behavior. It was found that both work method and work schedule autonomy predicted innovative behavior. Both seem to be powerful generators for employee innovation.

Third, it demonstrated that work criteria autonomy per se was not directly associated with innovative behavior, whereas work criteria autonomy was found to moderate the relation between proactive personality and innovative behavior. However, as opposed to our prediction, the occurrence of innovative behavior was associated with proactive personality when work criteria autonomy is low rather than high. As shown in Figure 1, under the condition of high work criterion autonomy, employees engage in relatively frequent innovative behaviors regardless of their proactive personality, whereas proactive personality enhances innovative behavior when work criteria autonomy is low.

The trait activation theory (Tett & Burnett, 2003) proposed five different features relevant to trait expression (i.e., job demand, distractors, constraints, releasers, and facilitators). At the beginning of our study, it was implied that the absence of work criteria autonomy was a constraint for employees to express their proactivity. However, the data indicated that under the conditions of low work criteria autonomy, the frequency of innovative behavior increased as the proactive personality level increased. Then, to interpret this, we reason that the presence of work criteria autonomy, rather than the absence of work criteria autonomy, may be perceived as a situational cue. That is, it may be more suitable to recognize presence of work criteria autonomy as a facilitator for employees to maximize their innovative behaviors based on their proactivity.

In sum, work criteria autonomy includes situation trait relevance under which a proactive personality manifests and enhances innovative behavior. The presence of high work criterion autonomy is considered to be a strong situation in which individual differences in response are negated. Moreover, the absence or low work criterion autonomy is considered to be a weak situation where more variability in individual responses is observed.

5.1 Implications for Practices

The results of this study have important managerial implications. Increasing autonomy has long been implemented through organizational and job design, training and development, empowerment, and participative management. However, the above findings suggest that it is important for managers and practitioners to recognize the specific features of work method, schedule, and criteria autonomy. In addition to the commonly held view about autonomy, which emphasizes work method and work schedule autonomy, organizations may consider the designs to increase work criteria autonomy in their work settings. Strengthening work criteria autonomy in work settings might be effective for employees' innovative contributions, especially when their proactive personalities are at questionable levels. Generally, organizations do not allow high work criteria to lower level employees such that those who are not matured in terms of their skills and minds should not set their own goals nor evaluate their own performance. Nonetheless, we consider that though deliberate introduction of participative goal setting, empowering, self-managed team work and the likes are likely to enhance employees' innovative behavior.

Organizations should also remember that autonomy also includes null or negative effects. Under certain circumstances, increasing autonomy may elicit cognitive distractions, violations of organizational rules and norms (Langfred & Moye, 2004), and the possibility of isolation (Haas, 2010). Moreover, increasing autonomy for every employee may bring negative outcomes for both individuals and organizations. Finally, it should be noted that we are not in a position to assert if Breaugh's (1995) work autonomy scales are superior to Hackman and Oldham's (1975) scale.

5.2 Limitations and Directions for Future Research

The result of this study showed that the effect size between work autonomy and innovative behavior was modest. This result is consistent with those of previous studies (Langfred & Moye, 2004; Spector, 1986). Langfred and Moye (2004) presented the notion of utility of task autonomy based on employees' perceptions of benefits and costs. Greater autonomy may result not only in productivity, psychological health, or learning progress, etc. but also more involvement in aversive decision making, heavy responsibility, stress, etc. (Langfred & Moye, 2004). Thus, this perceived utility may weaken the appearance of the relation between work autonomy and innovative behavior.

In addition, the results should be interpreted with caution. Although confirmatory factor analysis was conducted to verify the structure of the three separate facets, the correlations among them were very high. These high intercorrelations among the three facets were expected as shown in previous studies, and thus we examined and ascertained the unlikelihood of multicollinearity. Nonetheless, theoretical and statistical approaches in future

studies need to solve the problems of endogeneity.

Finally, notwithstanding its limitations, this study is the first to examine the process of the effects of the three facets of work autonomy on innovative behavior. However, future research needs to confirm the results.

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Appendix

Measurement Scales

Innovative behavior

Searches out new technologies, processes, techniques, and/or product ideas.

Generates creative ideas.

Promotes and champions ideas to others,

Develops adequate plans and schedules for tbe implementation of new ideas.

Is innovative."

Work Autonomy scale

Work Method Autonomy

I am allowed to decide how to go about getting my job done.

I am able to choose the way to go about my job.

I am free to choose the method to use in carrying out my work.

*Work Schedule Autonom*y

I have control over the scheduling of my work.

I have some control over the sequencing of my work activities.

My job is such that I can decide when to do particular work activities.

Work Criteria Autonomy

My job allows me to modify the normal way we are evaluated so that I can emphasize some aspects of my job and play down others.

I am able to modify what my job objectivities are.

I have some control over what I am supposed to accomplish.

Proactive personality

If I see something I don't like, I fix it.

No matter what the odds, if I believe in something I will make it happen.

I love being a champion for my ideas, even against others' opposition.

I am always looking for better ways to do things.

If I believe in an idea, no obstacle will prevent me from making it happen.

I excel at identifying opportunities.