The Effect of Innovative Culture, Organizational Commitment and Self-efficacy on Innovation Competence of SMEs' Managers in China

Jie Ma

majie@bpi.edu.cn

Beijing Polytechnic, Beijing, China

Abstract. SMEs play the role of innovation engines in China's economic and social development. Managers of SMEs plays a dominant role to innovation of their companies than those in large companies. So, it's important to examine the factors which effects innovation competence of SMEs' managers. This paper collect data from more than 600 SMEs in China through questionnaire survey and process the data with regression analysis. As a result, the impact of innovative organizational culture, organizational commitment, and self-efficacy on innovation competence of SMEs' managers are proved.

Keywords: Innovation competence, Innovative organizational culture, self-efficacy, Organizational commitment, SMEs' managers

1 Introduction

SMEs play the role of innovation engines in the economic and social development of China (Cardoza et al., 2015)[4]. Innovation capability is central to SMEs when they compete with larger companies which possess more resources (Saunila, 2020) [16]. Innovation competence of employees is significant to the sustainable competitive advantage of a company (Waychal et al., 2011) [18]. The managers in SMEs play more significant roles than those in large companies (Garcia-Morales et al., 2007)[5]. Thus, it's valuable to examine the determinants of innovation competence of managers in SMEs.

Innovation competence is defined as the introduction of new things, a met hod, an idea, or the improving existing status (Goffin & Mitchell, 2016)[11]. The aim of this study is to test the effects of innovative organizational culture, organizational commitment, and self-efficacy on innovation competence of managers in SMEs, China. Furthermore, the mediating role of organizational commitment and the moderating role of self-efficacy are to be examined.

2 Literature Review and Hypotheses

2.1 Innovative organizational culture and innovation competence

Innovative organizational culture is defined as a social and cognitive environment that expects and guides employees to innovate (Jassawalla & Sashittal, 2002)[8], which emphasizes creativity, opportunity seeking and risk-taking and encourages employees to carry out their

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jobs in new ways (Hogan & Coote, 2014)[6]. When the employees perceive innovative culture, they are encouraged to come up with creative ideas, then enhance innovation competence (Akgün et al. 2010)[1]. So, a hypothesis is proposed as follows:

H1. Innovative organizational culture has significant positive relationship with innovation competence of managers in SMEs of China.

2.2 Self-efficacy and innovation competence

Self-efficacy is a person's belief to successfully achieve an expected outcome in a specific situation. Much researchers found there is a positive relationship between self-efficacy and innovative work behaviors of individuals at work (Cai et al., 2019; Sethumadevan et al., 2020)[3][17]. High self-efficacy is one of the leading predictors of innovation as a competence for individuals (Waychal et al., 2011)[18]. It was proved that Self-efficacy significantly moderates the effects of innovative organizational culture on the creativity of employees (Jaiswal & Dhar, 2015)[7]. So, the following hypotheses are proposed:

H2. Self-efficacy has significant positive relationship with innovation competence of managers in SMEs of China.

H3. Self-efficacy positively strengthens the relationship between innovative organizational culture and innovation competence of managers in SMEs of China.

2.3 Organizational commitment and innovation competence

Organizational commitment is a state of psychological aspect that the employees commit and bind to their organization (Meyer & Herscovitch, 2001) [12], which consists of three dimensions: affective, continuance and normative commitment. It shows the degree of personal identification with and involvement in the organization. Organizational commitment has significant relationship with innovation (Rostami et al., 2012)[15]. Affective commitment and normative commitment has significant positive impact on innovation, and continuance commitment has significant negative impact on innovation (Ming & Ying, 2010)[13]. Moreover, organizational commitment has significant positive relationship with innovative organizational culture (Pa'Wan & Omar, 2018)[14]. So, the hypotheses are proposed as follows:

H4. Affective and normative commitment has significant positive relationship with innovation competence of managers in SMEs of China.

H5. Continuance commitment has significant negative relationship with innovation competence of managers in SMEs of China.

H6. Affective and normative commitment mediates the relationship between innovative organizational culture and innovation competence of managers in SMEs of China.

H7. Continuance commitment mediates the relationship between innovative organizational culture and innovation competence of managers in SMEs of China.

Fig. 1 shows the conceptual framework of this research.

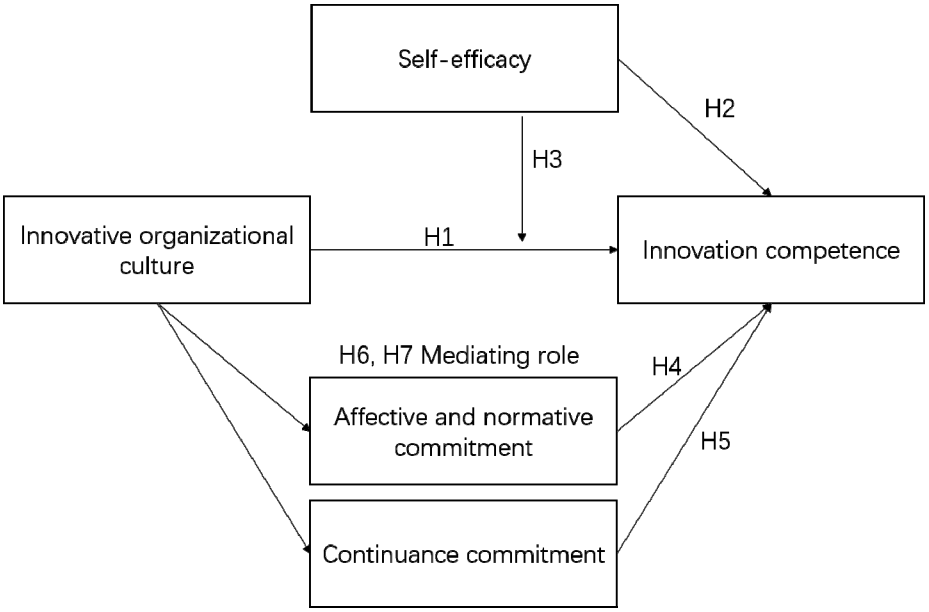

Fig. 1. Conceptual framework

3 Methods

3.1 Sample

The population of this research is managers in SMEs of China. The survey questionnaire was sent to more than 700 respondents of enterprise employees in 26 provinces and municipalities in China. We received 607 valid questionnaires of junior (25%), middle (42.3%) or senior (32.7%) managers from different SMEs. There are innovative activities or needs for innovation in all these SMEs with 27.5% of efficiency-driven innovation, 34.9% of customers-centered innovation, 23.1% of engineering technology innovation and 14.5% of scientific research innovation.

3.2 Measures

To assess innovation competence at individual level, innovative organizational culture, organizational commitment, and self-efficacy, we referred to several scales addressed by former researchers as shown in Table 1. Items in the scales were rated by five-point Likert scale.

Table 1. Measurement scales for reference

Variable measured	Scales referred	Source
Innovation competence	FINCODA model includes five determinants: Creativity, Critical Thinking, Initiative, Teamwork and Networking.	Adapted from Andreu-Andres et al, 2018[2]
Innovative organizational culture	Innovative culture scale	Adapted from kerlavaj & Lee, 2010[9]
Organizational commitment	Organizational commitment scale	Authorize to use Meyer & Herscovitch, 2001[12]
Self-efficacy	Self-efficacy scale	Adapted from Sethumadevan, et al, 2020[17] and Kinard & Webster (2010)[10]

Reliability analysis was conducted. Cronbach α coefficient value is 0.9, which indicates that the overall reliability is high. Validity analysis was conducted. Those items with common factor variance less than 0.4 were deleted, then validity analysis was conducted repeatedly until common factor variance of the rest of items are all more than 0.4. Through analyzing the correspondence of items and factors, those with serious deviation were deleted. Then, the result of Confirmation Factor Analysis showed good discriminant validity. The detailed items are shown in Table 2.

Table 2. 8 factors measured by 17 items after reliability and validity analysis

Factors		Items
Innovative organizational culture		Management actively seeks innovative ideas. Managers tend to welcome and support innovative ideas, experimentation and innovation processes.
Self-efficacy		It's easy to stick to and achieve the goals for me. I know how to deal with unexpected situations. When I have a problem, I can easily find a solution.
Affective and normative commitment		I am glad to develop my career in this organization. I feel guilty if I leave this organization now. Working hard for the success of this organization is important to me
Continuance commitment		It is too costly for me to leave this organization now. I can't risk not putting in enough effort as the organization needs.
Innovation competence	Critical thinking	I purposefully ask "why," "why not," and "what if... What will happen?"
	Initiative	I challenge the status quo. I take acceptable risks to support new ideas.
	Creativity	I will come up with novel ideas. I devise or experiment with new methods to solve the problem.
	Teamwork and Networking	I engage with people with various ideas and perspectives to expand my field of knowledge. I give constructive feedback and show cooperation to the teammates, or coach or help them.

Factors	Items
Total items	17
Number of samples	607

3.3 Regression analysis

First, linear regression was conducted on Innovation competence (as dependent variable, DV) and Innovative organizational culture, self-efficacy, Affective and normative commitment, Continuance commitment (as independent variables, IV.) to test the effects of each IV on DV. Then the moderating role of self-efficacy and the mediating role of commitment was examined by multiple regression.

4 Results and Discussion

The linear regression result shows that Innovative organizational culture, self-efficacy, Affective and normative commitment, Continuance commitment all has significant positive relationship with Innovation competence, as shown in Table 3. The regression model is Innovation competence=1.462 + 0.208*Innovative organizational culture + 0.172*Self-efficacy + 0.137*Affective and normative commitment + 0.079*Continuance commitment, R2=0.328, which means these four independent variables can interpret 32.8% reasons for change of Innovation competence. All VIF values are less than 5, which shows that there is no collinearity problem. And the D-W value is around 2, indicating that the model does not have auto-correlation and the model is good. The model passes the F test (F=73.582, p=0.000<0.05), which shows that the model building is meaningful. Thus Hypothesis 1, 2, 4 have been approved, but Hypothesis 5 has been denied. Among these factors, Innovation organization culture effects the most on Innovation competence of managers in SMEs. Although Continuance commitment has positive relationship with Innovation competence of managers of SMEs, the effect extent is small.

Table 3. Linear regression analysis results (n=607)

	Non-standardized coefficient		Standardized coefficient	*t*	*p*	VIF
	B	S	*Beta*			
Parameter	1.462	0.116	-	12.618	0.000**	-
Innovative organizational culture	0.208	0.023	0.318	9.185	0.000**	1.075
Self-efficacy	0.172	0.025	0.244	6.763	0.000**	1.164
Affective and normative commitment	0.137	0.026	0.195	5.298	0.000**	1.210
Continuance commitment	0.079	0.023	0.119	3.486	0.001**	1.048

	Non-standardized coefficient		Standardized coefficient	*t*	*p*	VIF
	B	S	*Beta*			
R^2			0.328			
Adjusted R^2			0.324			
F			*F* (4,602) =73.582,*p*=0.000			
D-W			2.086			

DV: Innovation competence

Then the moderating role of self-efficacy was tested by multiple regression. Table 4 shows that the interaction of Innovative organizational culture and Self-efficacy does not appear significance (t=-1.230, p=0.219>0.05). So, for the effect of Innovative organizational culture on Innovation competence, the magnitude of the impact of self-efficacy at different level is consistent. Thus Hypothesis 3 is denied, which means improving innovative organizational culture works consistently to enhance innovation competence of managers in SMEs at any level of self-efficacy.

Table 4. Moderating effects analysis result (n=607)

	Model 1					Model 2					Model 3				
	B	S	t	p	β	B	S	t	p	β	B	S	t	p	β
Parameter	3.391	0.022	152.259	0.000**	-	3.391	0.021	162.386	0.000**	-	3.396	0.021	160.434	0.000**	-
Innovative organizational culture	0.274	0.024	11.392	0.000**	0.420	0.238	0.023	10.399	0.000**	0.365	0.237	0.023	10.307	0.000**	0.362
elf-efficacy						0.228	0.025	9.174	0.000**	0.322	0.231	0.025	9.254	0.000**	0.326
Innovative organizational culture*Self-efficacy											-0.032	0.026	-1.230	0.219	-0.043
R^2			0.177					0.277					0.279		
Adjusted R^2			0.175					0.275					0.276		
F Value	F (1,605) =129.779, p=0.000					F (2,604) =115.888, p=0.000					F (3,603) =77.829, p=0.000				
△R^2			0.177					0.101					0.002		
△F *Value*	F (1,605) =129.779, p=0.000					F (1,604) =84.158, p=0.000					F (1,603) =1.513, p=0.219				

DV: Innovation competence

* p<0.05 ** p<0.01

Affective and normative commitment was tested to partly mediate the relationship of Innovative organizational culture and Innovation competence with effects proportion of 15.319%. So did Continuance commitment with effects proportion of 3.999%, weaker than affective and normative commitment (see Table 5). So, Hypotheses 6 and 7 are approved.

Table 5. Mediating effects analysis result (n=607)

Item	c	a	b	a*b	a*b (95% BootCI)	c'	Result	Effects proportion
Innovative organizational culture=>Affective and normative commitment=>Innovation competence	0.274**	0.218**	0.193**	0.042	0.038 ~ 0.090	0.221**	Part mediating	15.319%
Innovative organizational culture=>Continuance commitment=>Innovation competence	0.274**	0.122**	0.090**	0.011	0.005 ~ 0.032	0.221**	Part mediating	3.999%

5 Conclusion

This paper examined the role of innovative organizational culture in predicting innovation competence of managers in SMEs, China. It also studied the mediating role of organizational commitment, which is divided into affective and normative commitment, continuance commitment, and the moderating role of self-efficacy. The findings approve the positive effects of innovative organizational culture, self-efficacy, organizational commitment on innovation competence of managers in SMEs. Innovative organizational culture works the most and is partly mediated by organizational commitment. No matter the managers are at what level of self-efficacy, innovative organizational culture effects consistently on innovation competence. In conclusion, it's effective for SMEs in China to improve innovation competence of managers by building tolerant and encouraging climate to innovate and enhancing commitment of employees, especially affective and normative commitment.

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