
Interaction between the Different Leadership Styles on Innovative Behavior based on Organizational Culture in Ecological Industry: Empirical Research from China

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Abstract

Owing to the accelerating of globalization in past years and the changeable technologies, a lot of companies positively promote innovation or personal creativity, expecting to achieve the sustainable management in the changeable environment. An enterprise has to constantly create new products, services, and processes to stand on the top. For this reason, innovation is regarded as a method of enterprise survival. There are certain risks for innovation. However, it would be dangerous for an enterprise remain the same, as the competitors might outperform with the development of more competitive innovation technology and the application of novel thinking. Innovation is inevitable in technology, service, and manufacturing industries, as an enterprise would not achieve the sustainable management without innovation. In the globally competitive environment, the size of an enterprise and the departments or staff in an enterprise should be innovated to maintain certain competitiveness and keep the leading status in the market. It is worth noticing that, among various factors in employees' innovation or creativity, leadership might be the essential factor in employees' creativity. In other words, a leader could establish situations and conditions to facilitate the subordinates' performance on creativity and further achieve the goal. Nonetheless, several studies on innovation focused on organizational innovation, but seldom studied employees' creativity and innovation capabilities. Since employees' creativity and innovation are the sources of organizational innovation, it is considered essential to study employee innovation. Aiming at the effect of leadership style on organizational culture and innovative behavior, ecological industry in Guangdong Province are sampled for the questionnaire survey. According to the statistical analyses, conclusions and suggestions are proposed, expecting to help ecological industry induce more innovative behaviors and performance of the employees.

Keywords: leadership style, organizational culture, innovative behavior, ecological industry

Wu J, Lin Y (2018) Interaction between the Different Leadership Styles on Innovative Behavior based on Organizational Culture in Ecological Industry: Empirical Research from China. *Ekoloji* 27(106): 643-649.

INTRODUCTION

The economic development has created various enterprises; however, lots of enterprises are eliminated in the competition due to the business cycle. The accelerating trend of globalization and the changing technology have many companies positively promote innovation or individual creativity, expecting to achieve the sustainable management in the changeable environment. An enterprise could lead the industry by constantly innovating products, service, and processes; for this reason, an ecological enterprise should regard innovation as the survival. Innovation presents certain degree of risks. However, an ecological enterprise not to make progress would be dangerous, as the competitor might develop more competitive innovative technology and apply novel thinking to stand out. Innovation is an inevitable element in technology, service, and manufacturing industries; an ecological enterprise lack

of innovation would not present sustainable management.

Innovation is an inevitable element in modern technology, service, and manufacturing industries. Without innovation, an ecological enterprise would not present sustainable management. In the globally competitive environment, departments and personnel in an enterprise, regardless the size, require innovation to maintain certain competitiveness and lead the market. It is worth mentioning that there are various factors in employees' innovation or creativity, and leadership might be the most influential factor in employee creativity. An ecological manager's behaviors would directly affect the members' behaviors and intention of knowledge sharing that he/she plays the critical role of a catalyst. A ecological leader's management styles as well as the attitudes and behaviors toward knowledge sharing and management, to cope

with the changing environment and further shape the employees' intention of new knowledge acquisition and value of sharing, have become the transforming agent between culture & climate and organizational members to enhance the members' behavioral intention to share personal knowledge through the reinforcement of the coherence and commitment to the organization. Nevertheless, much research on innovation focuses on organizational innovation, but seldom on employee creativity and employees' innovation capability. Employees' creativity and innovation performance are the sources of organizational innovation that it is necessary to study employee innovation. Aiming at the effect of leadership styles on organizational culture and innovative behaviors, an empirical research is proceeded in this study.

LITERATURE REVIEW

Leadership Styles

Robbins and Coulter (2017) defined leadership as the capability to affect a team achieving the objectives. Such an influential capability was perceived by people or teams. In this case, leadership was the interpersonal interactive process to affect the behaviors of a person or a group of people, under specific situations, to achieve certain group objectives (Jamielniak et al. 2015). Aga (2016) explained leadership as a leader guiding the organizational direction and objective and developing the influence to link members' will, utilize team intelligence, and induce and guide members' coherence to further achieve the organizational objectives. Newth (2016) regarded leadership as the process of a supervisor influencing subordinates' activity, including the selection of team or organizational objectives, the completion of work activity with preset objectives, the encouragement of subordinates' motivation to achieve the objectives, the maintenance of teamwork relationship, and the striving for support and cooperation of external groups and organizations. Byerly (2014) pointed it out as the interaction among organization teams to fulfill organizational objectives by combining organizational members' principles and opinions as well as fully applying organizational labors and objects.

Referring to Pan et al. (2017), different reaction appears on three types of leadership behaviors.

- (1) **Authoritarian:** Referring to a leader grasping the power and the subordinates absolutely obeying but not participating in the decision-making that it could easily result in bad organizational climate or subordinates' compliance in appearance.
- (2) **Democratic:** Referring to a leader rationally guiding, concerning, and respecting the subordinates, combining members' intelligence and team coherence, and cooperatively making efforts to achieve the team objectives.
- (3) **Laissez-faire:** Referring to a leader not grasping the power, nor taking responsibilities for management that the organization was operated naturally. The leader and the subordinates had little interaction and did not easily communicate that the team could easily form small groups and be separated.

Organizational Culture

Repetti and Wang (2017) pointed out organizational culture as the behavior norm and common value of a group of people. Behavior norm was the common and persistent behavior of people in a group, as team members would reward newcomers of following existing behaviors and resisting those not conforming to the norm. Arena et al. (2015) referred organizational culture to enterprise-related value, belief, and assumption formed and shared by employees in an enterprise, where corporate culture was cultivated in long period and naturally evolved among employees. Johnston and Marshall (2016) regarded organizational culture as the common principle of organizational members, i.e. some characteristics which were considered valuable in an organization, covering member commitment, emphasis on team, human orientation, unit integration, control, risk tolerance, reward standard, conflict tolerance, means-target orientation, and open system focus. Dartey-Baah (2015) pointed out organizational culture as the common value and behaviors of all members, which did not simply affect employees' inner thoughts but also influenced employee performance, and would be adjusted along with changing situations and environment.

Referring to Huang et al. (2016), three dimensions are contained in organizational culture in this study.

- (1) **Trust sharing:** Organizational members would actively share work experience, trust each other, cooperate among colleagues, and be willing to share and pass down experiences.
- (2) **Open harmony:** Information exchange channels in an enterprise are fluent that the members could freely exchange opinions and often solve problems with informal communications, the problem solving and opinion provision are professional knowledge oriented, the company offers sufficient

information or exchange channels for employees acquiring problem solutions, the climate in the enterprise is harmonious, the organization fully empowers the employees, and the employees are capable of solving problems independently.

- (3) **Innovative learning:** The supervisors and employees in an enterprise emphasize and positively innovate, and the employees are enthusiastic in learning and actively pursue new knowledge.

Innovative Behavior

Innovation is the specific tool of an entrepreneur, who could regard changes as opportunities to develop different businesses or provide distinct service. In this case, making changes of existing resource to create value could be considered as innovation. Innovation therefore was the field of learning and practice (Nieves et al., 2014). Barrientos and Reilly (2016) explained innovative behavior as individual innovation ideas, such as defining individual innovation with individual features and characteristics or through behaviors. Rana et al. (2016) mentioned that individual innovation was covered in individual creativity, while ideas might exist in different works and levels in an organization. Habaradas and Aure (2016) considered that individual innovation started from an employee generating creative ideas, which were normally induced by new tasks or no precedent to go by at work when individual innovation behaviors were used for modifying oneself or working environment in order to achieve work objectives (Robbins and Judge 2015). Mirić and Krstić (2017) pointed out individual innovation as individual ideas and acceptance attitudes toward innovation and changes that might enhance organizational innovation or result in benefits.

Referring to Yang et al. (2016), individual innovation behavior is divided into idea generation, idea promotion, and idea practice in this study.

- (1) **Idea generation:** novel and useful ideas generated at any work fields.
- (2) **Idea promotion:** promoting personal new ideas to seek for supervisor support and enhancing the new ideas being circulated in the organization.
- (3) **Idea practice:** being able to effectively apply to work role, team, or organization.

Research Hypothesis

Soane et al. (2015) considered that stronger leadership would benefit the formation of

organizational culture; strong leadership styles could benefit the establishment of organizational culture and the leader role and organizational culture were mutually affected, leader role presented remarkably positive correlations with and was an important predictor of organizational culture. Mook et al. (2015) pointed out the correlations between leadership behavior and organizational culture of a school. Tsai (2016) regarded the positive correlations between leader role and organizational culture of a school. Salanova et al. (2015) argued the better leadership behavior, the higher organizational culture. Pan et al. (2017) proposed that excellent leadership could help better shaping of organizational culture. Accordingly, the following hypothesis is proposed in this study.

H1: Leadership styles would affect organizational culture.

Woodman (2016) found out the notably positive correlations between transformational leadership and employees' innovation behaviors, i.e. the higher transformational leadership of supervisors, the higher innovation behaviors of employees. In the research on transformational leadership, transactional leadership, and employees' innovative behaviors, Tamannaifar and Golmohammadi (2016) discovered the significantly positive correlations between personalized concern and employees' innovation behaviors. Nasruddin et al. (2014) indicated that a leader could directly affect the subordinates' intrinsic motivation and higher-level needs; such intrinsic motivation and higher-level needs were the primary sources of creativity; and, intrinsic motivation would affect creativity as ones with intrinsic motivation tended to solve problems with novel methods. Huang et al. (2016) revealed that there were lots of factors in employees' innovation or creativity, among which leadership might be an important situational factor in employee creativity. Robbins and Judge (2016) pointed out the correlations between initiating-structure leadership and incremental innovation in an organization. As a result, the following hypothesis is proposed in this study.

H2: Leadership styles would affect innovative behaviors.

Tian and Smith (2014) proposed that organizational culture was the feature of an independent and stable social unit; for this reason, organizational culture was the value sharing pattern and behavior norm in an organization, would affect the development of the organization, and played a critical role in the innovative behavior development of an organization. Nieves and

Table 1. Factor analysis

variable	factor dimension	eigenvalue	α	cumulative variance explained
organizational culture	trust sharing	2.435	0.82	76.553
	open harmony	1.851	0.87	
	innovative learning	1.462	0.85	
innovative behavior	idea generation	3.173	0.84	80.266
	idea promotion	2.433	0.88	
	idea practice	2.194	0.81	

Segarra-Ciprés (2015) found out the remarkably positive correlations between organizational culture and innovative behavior of an organization. Yang et al. (2016) proposed four factors in innovation, namely personnel traits, organizational structure, organizational climate and culture, and environment. Schultz & Schultz (2016) pointed out the notably positive relations between corporate culture and individual innovation capability, such as innovative behavior, overcoming obstacles, excellent achievement, and control cognition, as well as positive and significant relations with innovation capability of an organization, e.g. production innovation and technology innovation. Consequently, the following hypotheses are proposed in this study.

- H3:** Organizational culture shows remarkably positive effects on idea generation in innovative behavior.
- H4:** Organizational culture reveals notably positive effects on idea promotion in innovative behavior.
- H5:** Organizational culture appears significantly positive effects on idea practice in innovative behavior.

RESEARCH METHOD

Measurement of Research Variable

Organizational culture

Referring to Tsai (2016), organizational culture contains three dimensions of (1) trust sharing, (2) open harmony, and (3) innovative learning.

Innovative behavior

Referring to Chen and Hou (2016), it includes (1) idea generation, (2) idea promotion, and (3) idea practice.

Research Object and Sampling Data

The employees of an ecological industry in Guangdong Province are proceeded the questionnaire survey. Total 306 valid copies are retrieved, with the retrieval rate 68%; each retrieved copy is regarded as a valid sample. The questionnaire data are analyzed with SPSS, and factor analysis, reliability analysis, regression

analysis, and analysis of variance are used for testing various hypotheses.

Analysis Method

Analysis of variance is applied to discuss the difference of leadership styles in organizational culture and innovative behaviors in this study, and regression analysis is utilized for understanding the relations between organizational culture and innovative behavior.

ANALYSIS RESULT

Reliability and Validity Analysis

With factor analysis, organizational culture and innovative behavior are separately extracted three factors.

Effects of Leadership Styles on Organizational Culture and Innovative Behaviors

Variance analysis of leadership styles in organizational culture

Analysis of variance is used for discussing the difference of leadership styles in organizational culture, i.e. analyzing and explaining leadership styles of democratic leadership, authoritarian leadership, and laissez-faire leadership. From **Table 2**, different leadership styles present significant differences in trust sharing, where democratic leadership shows higher trust sharing than laissez-faire leadership and authoritarian leadership. Moreover, distinct leadership styles reveal remarkable differences in open harmony, where democratic leadership appears higher open harmony than authoritarian leadership and laissez-faire leadership. Finally, various leadership styles present notable differences in innovative learning, where authoritarian leadership shows higher innovative learning than democratic leadership and laissez-faire leadership.

Table 2. Variance analysis of leadership styles in organizational culture

variable		F	P	Scheffe post hoc
leadership style	trust sharing	7.152	0.000**	democratic>laissez-faire>authoritarian
	open harmony	6.835	0.000**	democratic>authoritarian>laissez-faire
	innovative learning	9.551	0.000**	authoritarian>democratic>laissez-faire

Note: * stands for $p < 0.05$, ** for $p < 0.01$

Table 3. Variance analysis of leadership style in innovative behavior

variable		F	P	Scheffe post hoc
leadership style	idea generation	12.371	0.000**	democratic>authoritarian>laissez-faire
	idea promotion	15.226	0.000**	authoritarian>laissez-faire>democratic

Note: * stands for $p < 0.05$, ** for $p < 0.01$

Table 4. Analysis of organizational culture to innovative behavior

dependent variable → independent variable ↓	innovative behavior					
	idea generation		idea promotion		idea practice	
organizational culture	β	P	β	P	β	P
trust sharing	2.211**	0.000	1.924*	0.003	2.315**	0.000
open harmony	2.042**	0.000	2.073**	0.000	2.277**	0.000
innovative learning	2.327**	0.000	2.162**	0.000	2.423**	0.000
F	18.375		24.162		29.553	
significance	0.000***		0.000***		0.000***	
R2	0.176		0.238		0.279	
adjusted R2	0.132		0.195		0.241	

Note: * stands for $p < 0.05$, ** for $p < 0.01$.

Data source: Self-organized in this study

Variance analysis of leadership styles in innovative behavior

The difference of leadership styles in innovative behaviors, according to analysis of variance, is discussed in this study, i.e. analyzing and explaining leadership styles of democratic leadership, authoritarian leadership, and laissez-faire leadership. From **Table 3**, different leadership styles reveal significant differences in idea generation, where democratic leadership appears higher idea generation than authoritarian leadership and laissez-faire leadership. Furthermore, various leadership styles present remarkable differences in idea promotion, where authoritarian leadership shows higher idea promotion than laissez-faire leadership and democratic leadership.

Correlation Analysis of Organizational Culture and Innovative Behavior

Correlation analysis of organizational culture and idea generation

To test H3, the analysis results, **Table 4**, reveal notable effects of trust sharing ($\beta = 2.211^{**}$), open harmony ($\beta = 2.042^{**}$), and innovative learning ($\beta = 2.327^{**}$) on idea generation that H3 is supported.

Correlation analysis of organizational culture and idea promotion

To test H4, the analysis results appear significant effects of trust sharing ($\beta = 1.924^*$), open harmony

($\beta = 2.073^{**}$), and innovative learning ($\beta = 2.162^{**}$) on idea promotion that H4 is supported.

Correlation analysis of organizational culture and idea practice

To test H5, the analysis results present remarkable effects of trust sharing ($\beta = 2.315^{**}$), open harmony ($\beta = 2.277^{**}$), and innovative learning ($\beta = 2.423^{**}$) on idea practice that H5 is supported.

CONCLUSION

The research findings show that subordinates in an ecological business perceiving supervisors' leadership styles would show positive effects on employees' creative ideas, as they understand that good creativity is encouraged in the organization. The management meaning lies in the importance of corporate culture to the internal organization, as it could reinforce supervisors' leadership styles and further affect innovative behaviors and the overall organizational performance. It reveals that, when a supervisor in an ecological business could often pay attention to the subordinates' needs, present empathy, support subordinates' enterprise, and, as a coach, offer encouragement for subordinates' morale, the employees could better perceive the supervisor's empathy to propose and practice creativity and ideas at work. When a supervisor stresses on the attainment of organizational objectives, instructs working methods, confirms work roles, pays attention to work planning

and coordination, and gives pressure to output performance, i.e. definitely making regulations and procedures for subordinates' role positioning and working method, the employees could save more time for understanding self-role and positioning or spending time on being familiar with working procedures. In this case, employees in ecological businesses could more easily get into working conditions and familiarize work contents so as to enhance the innovative behaviors with more time and opportunities.

RECOMMENDATIONS

Aiming at above research results, the following suggestions are proposed in this study.

1. In addition to strengthening the education training of employees, an ecological business, during the development, should pay more attention to the education training of supervisors and reinforce the leadership and management capability. Regardless the leadership styles, supervisors would benefit employees' innovative behaviors. Besides, when a supervisor realizes the application of carrot and stick to the leadership styles, e.g. stressing on the job

performance when highly concerning about employees, the employees could receive the concerns from the supervisor and perceive the challenge of job performance. It could best enhance employees' innovation capability in ecological businesses.

2. In the changeable environment, leadership styles should be flexibly and mutually used, instead of applying single leadership. For educating employees, a leader should also take employees' education background and age into account to induce the innovation capability or performance.
3. Relevant strategies could be established in an ecological business to encourage employees, enhance the commitment, as well as reward those finding mistakes, proposing improvement, and further modifying programs. Moreover, regular meetings and discussions could be held to confirm the improvement of problems and cohere with organizational culture to further promote organizational commitment and innovative behavior.

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