INFLUENCES OF INNOVATIVE CLIMATE AND AUTONOMY ON EMPLOYEES' CREATIVITY: THE MODERATING EFFECTS OF PSYCHOLOGICAL CAPITAL AND JOB COMPLEXITY

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Abstract - Employees' creativity is an important factor which contributes to increase competitive advantages of companies in the era of global competition. The influences of innovation climate and autonomy on employees' creativity were investigated in this research. Moreover, authors also examined the moderating effects of two factors: "Psychological capital" and "job complexity" on the relationship in the research model. Mixed method was used in this research with data collected from staff in Hochiminh city. Innovation climate and autonomy have positive impacts on employees' creativity. In theory, this research contributes to strengthen the judgments about the impacts of organizational environment on creative behaviors of staff. In practice, enterprises should build a creative atmosphere and provide more autonomy so that employees can have more creative behaviors at work.

Key words - Innovation climate; autonomy; employees' creativity; psychological capital; job complexity

1. Introduction

In the context of globalization and the technological boom of the 21st century, people operate in the professional working environment which features more and more intense competition. If a business or an organization wants to survive, develop, promote its potential or rejuvenate old products and services to meet the rapidly changing customer demands in the international and domestic competitive market, its employee creativity is a must-have. Viola known as an Executive Director states that it is creativity that keeps the business moving forward with fresh new ideas and innovation [1]. This encompasses more than new products or services, and it includes streamlining efficiency and productiveness. On these days, the demand for creative and innovative ideas in technological advancement for a company to grow is paid much attention by the recruiters as well as the board of directors, CEOs, Founders, and VCs. It is Boland Jones, CEO PGi Software that says: "Creativity leads to productivity". In Vietnam, both businesses and the government are aware of the importance of innovation. In the context where the Covid-19 pandemic is still complicated and has unpredictable impacts on socio-economy, creativity is a powerful and useful tool to help countries and businesses survive and thrive up. In 2021, Vietnam is one of four middle-income countries with an innovation index in the Top 50 countries in the world [2].

Because of its importance, many researchers have been much interested in studying factors affecting employee creativity in work performance. Çekmecelioğlu et al, for example, did research on the effects of autonomy and role stress on creative behaviors and job performance [3]. In addition, Wang et al researched transformational leadership and employee creativity through the influences of creative role identity, creative self-efficacy, and job complexity [4]. Leung et al studied exogenous factors of the creative process and performance in the culinary profession [5]. Also, in the same year, Guo et al did research on authoritarian leadership and employee creativity: the moderating role of psychological capital and the mediating role of fear and defensive silence [6]. In Vietnam, in 2019, Nguyen Duc Huy studied the influence of factors on employee creativity, including autonomy [7]. Moreover, Tran The Nam and Nguyen Thi Thoa analyzed the impacts of passion with job and of organizational citizenship behavior on employees' creativity [8]. It is essential to understand that innovation is not a product of people's brain, in fact, it comes from the interaction between person's thoughts and environment [9]. It can be said that the environment is definitely an essential factor that leads to innovation. The number of studies on influences of organizational environment such as innovative climate and autonomy on employee creativity is still limited, especially the moderating role of psychological capital and job complexity. Because of the above-mentioned reason, the study is carried out with a view to understanding the impact of innovative climate and autonomy on employee creativity and the moderating role of psychological capital and job complexity. The findings are expected to bring about useful information and data for businesses and researchers to serve various future purposes.

2. Background

2.1. Theoretical framework

The literature on organizational climate addresses an important phenomenon: The creation and influence of social contexts in organizations. Organizational climate is defined as employees' perception about organizational attributes such as procedures, practices, and rewarded behaviors [10]. Litwin and Stringer defined "organizational climate as the set of measurable properties of the work environment that is either directly or indirectly perceived by the employees who work within the organizational environment that influences and motivates their behavior" [11, p.13]. Organizational climate has influences on employees in several issues such as performance, productivity, satisfaction, and commitment. The impacts of organizational climate and enterprises innovation become popular subjects for researchers (e.g. [12], [13]).

So many scholars and researchers have been being attracted by the interesting creativity-related topic for many recent decades. These are definitions of creativity made from various aspects and analyses. Creativity involves the production of novel and useful ideas. Sharing the same ideas, Reiley stated that creativity is a mental and social process that is "used to generate ideas, concepts, and associations", so people can come up with new ideas [14]. Viola voiced his viewpoint: "creativity in the workplace is for everyone regardless of their position" and proposed three key benefits of fostering creativity in the workplace [1]. Firstly, creativity builds better teamwork, that is, creativity inspires employees to work with each other to seek new information, knowledge and new ways to do things. Secondly, creativity improves the ability to attract and retain employees, concretely when creativity is encouraged employees are more content with their jobs and are committed to remaining loyal to the company. Lastly, creativity increases problem-solving, it means that with the ability to think creatively and outside of the box, employees are more likely to come up with unique and innovative solutions to obstacles they encounter. This eagerness to solve problems can lead to new ways to accomplish tasks and adds to a more efficiently run business.

2.2. The research model and hypotheses

Innovation climate

In the knowledge-based economy, innovation climate is indispensable to create favorable conditions to optimize employees' vision, inner force and capability so that businesses can come up with great ideas, or bring out unique values, products and services as their competitive advantage. An organization's innovation climate is defined as a set of employee perceptions about the organization's work environment that encourages risk-taking behavior, allocates sufficient resources and provides a challenging work environment for using a creative approach at work [13]. In an innovative climate, employees are often required to anticipate changes, and they should always seek to recognize new and creative ideas. In reality, firms need creative employees to initiate organizational innovation. Innovation is regarded as an iterative process that seeks to tap into new opportunities by creating new inventions. In order for firms to stay innovative, members of the organization are encouraged to maintain an open flow of information, be focus-oriented in terms of organizational learning, promote flexibility in work routines, endorse reasonable and calculated risk-taking, and substantiate entrepreneurial values.

Meanwhile, some argue that the characteristics of innovative climate, such as freedom, openness and risk-taking are key to promoting creativity in the workplace [15]. Therefore, members working in an innovative climate will tend to share their ingenious ideas across the organization and enhance creativity among members. For example, Cerne et al. found that a supportive innovation climate holds the notion that stimulating a supporting and safe climate promotes employee creativity [16]. It is believed that individuals of groups that have successfully developed innovation climate are exposed to the policies and practices that welcome the expression of new ideas. Cerne et al. have indicated that support for innovation plays a significant mediating role in stimulating creativity among individuals [16]. As a result, Jaiswal and Dhar state that individuals working in a climate that values experimentation and tolerates occasional flaws, exhibits higher levels of creative behaviors [17]. Wang et al. also found that innovation climate predicts employee creativity more substantially when the innovation climate strength is high [4]. Moreover, Shanker et al. analyzed the influences of organizational climate on innovation with employees' innovative work behavior [18]. The impacts of innovative climate on individual improvisation is also studied in the work of Magni et al. [19]. It can be said that it is reasonable to propose that group's innovation climate will have a positive relationship with employee creativity. Therefore, we propose the following hypothesis:

H1: Innovation climate has a positive influence on employee creativity

Autonomy

Based on the perspective given by Patterson et al, autonomy is one dimension of organizational climate [20]. As stated by Mierlo et al, autonomy is basically described as the independence or freedom, as of the will or one's actions [21]. It is the degree to which an employee has freedom, independence, and discretion in carrying out the tasks of the job. Another famous definition cited in Maylett's article presents, "autonomy is the power to shape your work environment in ways that allow you to perform at your best" [22]. Hence, autonomy does not mean working in isolation, doing whatever employees like whenever they like, and working without a net or lack of guidance. In a well-run organization with high levels of autonomy, the employer defines the boundaries of the employee's control and decision-making power, creating the environment in which the employee can choose how autonomous he or she wishes to be. At the same time, autonomous employees receive strong, clear guidance from supervisors, established procedures, manuals and so on. From the same perspective, Osborne strongly states that an autonomous workplace is based on trust, respect, dependability and integrity [23]. Accordingly, in an autonomous organization, employees need to feel empowered to offer creative thinking. They want to know that all ideas would be heard and respected. This recognition results with increased self-confidence and increased creativity. Perez-Freije and Enkel share their opinion that autonomy is identified as a determinant of employee creativity and ultimately job performance [24]. Many other scholars have conducted effects of autonomy on creativity in different areas. Concretely, Çekmecelioğlu et al studied the impacts of autonomy on employees' creativity in Turkey [3]. In addition, the influences of autonomy with teachers' innovativeness are also confirmed in the research of Nguyen et al [25]. Consequently, we propose the following hypothesis:

H2: Autonomy has a positive impact on employee creativity.

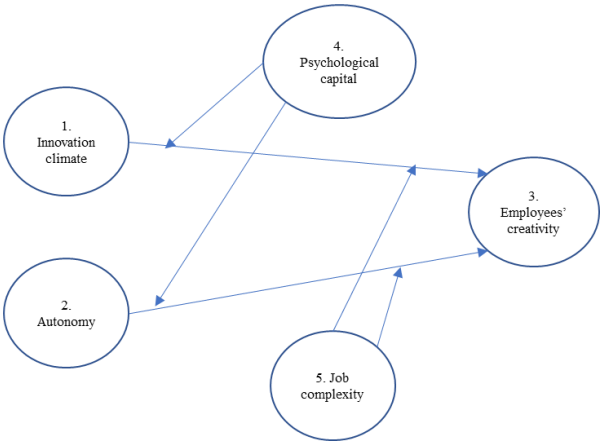

Figure 1. *The proposed research model*

Psychological capital

Psychological Capital (PsyCap) refers to an individual's positive psychological state of development in terms of using his/her motivational and cognitive resources to achieve a high level of performance [26]. This personal characteristic includes four main aspects: self-efficacy (individuals' confidence in successfully mobilizing their efforts to generate desired outcomes), hope (individuals' motivations and pathways to accomplish their tasks), optimism (individuals' expectancy and positive attribution towards positive outcomes) and resilience (individuals' ability to bounce back from risks or failures and to adapt to dynamics and success) [26]. Accordingly, individuals' psychological attributes determine how they respond to work environments [27]. Thus, high PsyCap employees not only have a perception that utilizing positive psychological resources to attain creative results is favorable but also benefits from supervisors' support to realize creative achievements with fewer risks and greater comfort. Consequently, PsyCap influences achievement, promotes supervisors' support and guidance and enhances employees' self-confidence in their assigned tasks to motivate their creativity better. Specifically, when employees with high PsyCap mean that individuals' great efforts to generate desired outcomes; motivations to accomplish their tasks; expectancy and positive attribution towards positive; and ability to bounce back from risks or failures and to adapt to dynamics and success enable individuals to obtain great encouragement, motivation, energy, self-confidence and adaptability; therefore, they become less afraid of failure, be willing to share information, endorse reasonable calculated risk-taking and effective cooperation and to be more open to generating new ideas or even breakthrough. In 2018, Guo et al found that PsyCap had moderating effects with authoritarian leadership and employee creativity [6]. Furthermore, in 2021, Khliefat et al. analyzed the moderating effects of PsyCap with interpersonal citizenship behaviors [28]. There is also indirect support for our proposition about the influences of PsyCap. The research of Rego et al. confirmed the impacts of Psycap with employees' creativity [29]. Thus, we hypothesize:

H3: Psychological Capital moderates the relationship between Autonomy and Employee Creativity and that relationship is stronger when PsyCap is higher.

H4: Psychological Capital moderates the relationship between Innovative Climate and Employee Creativity and that relationship is stronger when PsyCap is higher.

Job complexity

Oldham and Cummings state that job complexity is an important contextual factor that influences employee creativity [30]. The nature of the job itself and motivation are two major drivers of creativity [30]. In all the work environment factors enhancing creativity, job complexity has the most immediate and critical effect on employee creativity. Employees in complex jobs tend to express greater intrinsic motivation to foster creativity than those in routine and simple jobs. Complex jobs can help employees achieve their work goals [31]. In other words, employees have complex and challenging tasks such which are characterized by high autonomy, self-confidence, feedback, skill variety, cooperation, and information-sharing, they tend to express greater intrinsic motivation to develop creative outcomes find out optimal solutions and handle difficult situations with the best results than those carrying out routine and simple tasks. Specifically, front line employees have the most direct contact with customers and require more autonomy and skill variety at work, while back office workers deal with more routine jobs and have fewer interactions with customers. In particular, employees in complex jobs, such as front-line work, can have a more creative role identity with regard to being creative workers, have more creative self-efficacy and a high level of confidence in their creativity, and thus act more creatively in their jobs. However, employees in routine jobs, such as back office work, may have less recognition of their creative role identity, have lower levels of confidence in their creative self-efficacy, and have more constraints with regard to the development of their creativity. Prior studies have provided empirical support for these arguments. For instance, Wang and Cheng showed that employees with more job complexity and autonomy can enhance the positive relationship between leadership and creative role, based on a sample of 167 supervisor and employee dyads [32]. Tierney and Farmer found that the joint influences of job complexity and supervisor behavior can foster employee creativity, based on a survey of 536 full-time employees [33]. Shalley, Gilson and Blum also revealed that job complexity can strengthen employee creative performance using a survey of 1430 workers in the United States [27]. Previous research also provides support for the relationship between job complexity and creativity [32]. Shalley et al. suggest that jobs that are complex enhance employees' excitement about their work activities and their interest in completing these activities; this excitement can foster creativity [28]. Besides, Wang et al. found that job complexity had moderating effects on the relationship between transformational leadership and employee creativity [4]. Therefore, we present the following hypotheses:

H5: Job Complexity moderates the relationship between Autonomy and Employee Creativity and that relationship is stronger when Job Complexity is higher.

H6: Job Complexity moderates the relationship between Innovative Climate and Employee Creativity and that relationship is stronger when Job Complexity is higher.

3. Methodology

The quantitative approach was used to assess the relationship of variables. Items of innovative climate were adopted from the research of Scott and Bruce [13]. Items of autonomy were withdrawn from Patterson et al. [20]. The research of Rice provided items of employee creativity [34]. The psychological capital' items were adopted from Luthans et al. [35]. Finally, items of job complexity were adopted from the study of Wang et al. offered the item for job complexity [4]. All items are translated from English into Vietnamese and then reviewed by some experts who have much experience in human resources management.

A form of questionnaire was built in order to collect data from employees working in Ho Chi Minh City (HCMC) – the largest city in Vietnam. The survey was conducted in March 2022 and authors used convenient method to collect databases. Thanks to working at university, authors sent questionnaires to ex-students who were working in different industries in HCMC, and also, the authors had circulated questionnaires to their colleagues. Through social network sites such as Zalo, Messenger, Viber and so on, authors can remind respondents to complete the questionnaires. The survey had two stages. Initially, a pilot of 50 respondents was done to verify the reliability and validity of items. The outer loading value of all 23 items in the pilot are greater than 0.4, which means that all items can be used for the official survey [36], however, some items continue to be adjusted to become better. Finally, the official survey was done and a total of 138 questionnaires was collected to analyze. Partial least squares structural equation modeling (PLS-SEM) was used by using SmartPLS version 3.2.8.

4. Results

Most respondents are younger than the 35-year-old (76%) and were holding bachelor's degree above (81%). 54% respondents answered that they regularly interacted with customers.

The assessment of research model has two stages: (1) Assessing the measurement model in order to check the suitability between constructs and their items; (2) Assessing the structural model in order to verify hypotheses.

4.1. Assessment of the measurement model

The items' reliability, the internal consistency, the convergent validity and discriminant validity of constructs are needed to check first. The item which has outer loading value lower than 0.4 should be removed and the item which has outer loading higher than 0.7 should be kept [25], [26]. Moreover, the item which has outer loading value between 0.4 and 0.7 should only be dropped when dropping it leads to the improvement in the composite reliability or the average variance extracted.

From information in the Table 1, it can be said that all variables achieve the internal consistency when all composite reliability values are not lower than 0.7. The convergent validity of variables is satisfied when AVE values are not lower than 0.5 [27]. According to the Fornell-Larcker criterion, all variables achieve discriminant validity when the square root of the AVE of each construct should be higher than the construct's highest correlation with any other construct in the model [28]. (Table 2).

Table 1. *Variables' information*

Variables	Outer loading	Composite reliability	AVE
1. Innovation climate (1.IC)		0.891	0.577
1IC1; 1IC2; 1IC3; 1IC4; 1IC5; 1IC6	0.766; 0.794; 0.732; 0.801; 0.741; 0.719		
2. Autonomy (2.AT)		0.748	0.505
2AT1; 2AT2; 2AT3	0.860; 0.551; 0.687		
3. Employees' creativity (3.EC)		0.837	0.514
3EC1; 3EC2; 3EC3; 3EC4; 3EC5	0.821; 0.728; 0.805; 0.496; 0.687		
4. Psychological capital (4.PC)		0.890	0.505
4PC1; 4PC2; 4PC3; 4PC4; 4PC5; 4PC6; 4PC7; 4PC8	0.730; 0.708; 0.628; 0610; 0.765; 0.746; 0.774; 0.705		
5. Job complexity (5.JC)		1.000	1.000
5JC1	1.000		

4.2. Assessment of the structural model

The assessment of four issues: Collinearity issues, the significance and relevance of the structural model relationships, the level of R^2, the f^2 effect size is necessary.

Collinearity issues do not happen when all inner VIF values are smaller than 5.

With significance = 5%, only two p-values are accepted, thus, H1 and H2 are supported whereas H3, H4, H5 and H6 are rejected. The results in the Table 3 show that innovation climate and autonomy have positive influences on creative behaviors of staff. The research result supports Jaiswal and Dhar's conclusion about the impacts of innovation climate on employees' creative behaviors [17]. This study focused on employees in different industries in HCMC while in Jaiswal and Dhar' research, feedbacks were collected from workers in tourism. Both studies, however, have similar coefficients (0.267 and 0.330). The accepted hypothesis H2 consolidates the research of Çekmecelioglu and Günsel [3], nevertheless, the coefficient in this research is over double in comparison with previous research (0.325 in compared with 0.143). All hypotheses about the moderating effects of psychological capital and job complexity are rejected. According to experienced researchers, defining effects of moderating variables is interesting topic but it is not easy to confirm the effects of moderating variables due to the complexity of algorithm. Thanks to coefficient's values in the Table 3, it can be said that autonomy has stronger influences than innovation climate on employees' creativity.

Table 2. *Fornell-Larcker, VIF, R^2 values*

Variables	Fornell-Larcker value					VIF values	R^2
	1.IC	2.AT	3.EC	4.PC	5.JC		
1.IC	**0.768**					1.114	
2.AT	0.266	**0.687**				1.123	
3.EC	0.349	0.343	**0.735**				23%
4.PC	0.241	0.255	0.646	**0.721**		1.155	
5.JC	-0.034	-0.034	-0.119	-0.205	**1.000**	1.045	

The value of R^2 ranges from 0% to 100%. The higher R^2 value is, the higher-level predictive accuracy the research model has. R^2 values of 75%, 50%, or 25% for dependent variables can, as a rule of thumb, be respectively described as substantial, moderate, or weak but it is difficult to define the ideal level of predictive accuracy because it depends on the research model [25]. The R^2 of value of employees' creativity is 23%, meaning that the two independent variables "innovation climate" and "autonomy" accounts for 23% in order to interpret the movement of the dependent variable "employees' creativity".

Furthermore, the difference of independent variables in explaining the movement of dependent variables is an important issue. This measure is referred to as the f^2 effect size. Three values of 0.02, 0.15 and 0.35, respectively, express small, medium, and large effects of the independent variables [30]. The results from Table 3 showed the fact that autonomy has medium effect on employees' creativity while innovation climate has small effect influence on employees' creativity. The research result supported Amabile's idea that employees can be creative when they have the right to think differently and to do new things [37]. Therefore, leaders' permission for staffs to work flexibly is very essential to increase employees' creative behaviors.

Table 3. *Path coefficient, p-value and f^2 value*

Hypothesis	Coefficient	P Values	Conclusion	f^2	Level of predictive accuracy
H1	0.276	0%	Supported	0.092	Small
H2	0.325	0%	Supported	0.128	Medium
H3	-0.156	6%	Rejected		
H4	-0.023	71%	Rejected		
H5	-0.011	83%	Rejected		
H6	0.009	89%	Rejected		

5. Conclusions and recommendations

5.1. Theoretical implications

The research is conducted to test the relationship between two antecedents: innovation climate, autonomy and employees' creativity. Also, the research aims to find out how psychological capital and job complexity affect the relations between independent variables and dependent variables. Two supported hypotheses about positive influences of innovative climate and autonomy on employees' creativity consolidated results of previous studies about the critical impacts of organizational environment with workers' innovative behaviors. Although hypothesis about moderating effects of psychological capital and job complexity is rejected, at least, this research paved the way for future studies in order to identify moderators.

5.2. Practical contributions

Thanks to the results, it can be said that organization can improve employees' creativity if they can offer innovation climate and provide more autonomy. Firstly, managers should offer more freedom for employees in carrying out the tasks of the job. Very often, staff like to feel empowered to work more confidently. Secondly, authorities should create an innovative climate in the organization. Contests that encourage creativity at work are good solutions. Building a working environment where employees can share their thoughts without fear of criticism is necessary.

5.3. Limitations and further researches

Like other studies, this research also has some limitations. Firstly, only two independent variables (innovation climate; autonomy) are tested in this research. In fact, there are other important factors which have critical impacts on employees' creativity. Secondly, hypotheses about the moderating effects in this research are rejected. Therefore, further research can check again these hypotheses. Moreover, only staff in HCMC were asked to collect information, which brings about chances for further research.

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