

Exogenous Factors of the Creative Process and Performance in the Culinary Profession

ABSTRACT

This study aims to develop and test a structural model that examines the exogenous factors of the creative process and performance in the culinary profession. Exploratory Factor Analysis and Confirmatory Factor Analysis for individual measurements of constructs yielded significant results on reliability and divergent validity tests. However, support for creativity was only related to three out of five stages of the creative process, namely, idea preparation, verification of artwork, and creative performance. Similar results for tolerance to difference was related to three stages only. Work demand was related to one stage in the process, namely, creative performance. Creative self-regulatory efficacy was also positively correlated with all the five stages in the creative process. All factors had a positive relationship with creative performance. Our findings should inform the decisions of executive chefs or management intent on improving the creative performance of chefs.

Keywords: creative climate, work demand, creative self-regulatory efficacy, creative performance, creative process, culinary

1. Background information

The economic growth of China has contributed to the growth of hospitality and tourism in Hong Kong. A well-known cuisine paradise, Hong Kong has more than 14,000 restaurants (Hong Kong Tourism Board, 2017). The catering industry has a pivotal role in a hospitality and tourism context, which is one of the pillars of industry, having contributed more than US\$ 166 billion in

2015 to Hong Kong's economy (Census and Statistics Department, 2017). Hong Kong is one of the few cities in Asia which has many Michelin-starred restaurants, a clear sign of a strong catering business. The quality of food and services are key factors to a successful restaurant operation. To maintain a competitive position in the catering industry, a chef's ability to appeal to diners' palates is crucial, and that ability depends on the chef's culinary creativity. Developing, encouraging, and supporting culinary creativity is essential to business strategy. The chef is a contemporary commercial artist who has to develop his/her creations to meet market demand as well as to achieve profitability (Lin & Baum, 2016). Thus, the level of a chef's culinary creativity is closely related to the working environment, the work demand, and the individual.

The literature on individual and organizational factors of the culinary creative process (CCP) is limited (Horng & Hu, 2009); also, the conceptualization and measurement of factors that influence creativity lack consistency. Scholars tended to identify the stages of the creative process (Horng & Hu, 2009; Ottenbacher & Harrington, 2007) or considered the creative process as a systematic model (Stierand, Dörfler, & MacBryde, 2014). Horng and Hu (2009) indicated a five-step process for creating food products or new dishes, especially for chefs with experience in competitions. Few scholars have studied the CCP (Shalley et al., 2009), and their studies did not fully address the inter-related factors of the five stages within the CCP. Albors-Garrigos, Barreto, García-Segovia, Martínez-Monzó, and Hervás-Oliver (2013) argued chefs engaged in their creative work more simply in two-stages: idea generation and implementation. This study adopted the model by Horng and Hu (2009) to explore the influences of creative environment, the work demand and the individual over the process.

Creative climate (CC) is an aspect of psychological climate theory, and it is known to influence employee behavior (James, James, & Ashe, 1990). CC consists of 2 items: company

support for creativity (CCSC) and tolerance of difference (CCTD) (Scott & Bruce, 1994). Both items support creativity and ensure that novel ideas are generated across the company. Similarly, Knight and Harvey (2015) argued that different tensions (knowledge, learning and motivation) arise in creative organizations between the exploration and exploitation stages of innovation. Lane and Lup (2015) also mentioned that chefs need to develop their own creative products. Therefore, the working environment directly influences employee behaviors. In addition, there has been a lack of consensus on the most reliable scale for measuring creative climate (Hunter, Bedell, & Mumford, 2007).

Customer demand and consumption habits are constantly changing, so production methods have to change as well. Chefs confront the challenges of sustaining and creating innovative cuisine by adopting various cooking methods. To some extent, work demand (WD) affects individual creative performance, such as autonomy, pressure (Mansfeld, Hölzle, & Gemünden, 2010), and job control (Wong & Pang, 2003). Although WD influences the effectiveness of creativity, previous studies did not yield consistent findings (Chiang, Birtch, & Cai, 2014; Young & Corsun, 2009), and they have not investigated the influences of each stage of the creative process.

Furthermore, individual factors are also important aspects of creativity, such as creative self-efficacy (CSE) and creative role identity (CRI). Employees' CSE drives their intention to utilize their advanced culinary expertise and technical skills, in menu creation and staff training. CSE means that an individual believes in their ability to create (Redmond, Mumford, & Teach, 1993). CRI refers to one's perceptions of oneself regarding whether they are creative persons. A unique menu is crucial to making the product distinct and consequently maintaining a competitive advantage for a catering company.

Studies of creativity have been conducted from different perspectives with a variety of frameworks in fields as diverse as manufacturing, medical, paramedics, and technology development. Only a few scholars have investigated the factors that affect the CCP of chefs (Horng & Hu, 2009). In addition, the individual effects of CSE and CRI on the CCP of chefs have not been sufficiently examined for each stage of the CCP. Both have positive effects on creativity in general, but their relationships to each underlying step of the creative process have not yet been recognized (Farmer, Tierney, & Kung-McIntyre, 2003; Wang, Tsai & Tsai, 2014).

This study proposes and tests an integrative conceptual model of the CCP (Fig.1). The model proposes that work factors (i.e., CC and WD) and personal factors (i.e., CSE and CRI) should influence the five steps of the CCP (i.e. IP, II, ID, VA and CP). The following sections concentrate on research questions regarding causal relationships in the CCP, as well as their proposed antecedents and consequences. Specifically, the research questions are as follows:

1. How does creative climate (CC) influence the creative culinary process (CCP)?
2. How does work demand (WD) influence the CCP?
3. How do creative self-efficacy (CSE) and creative role identity (CRI) influence the CCP?

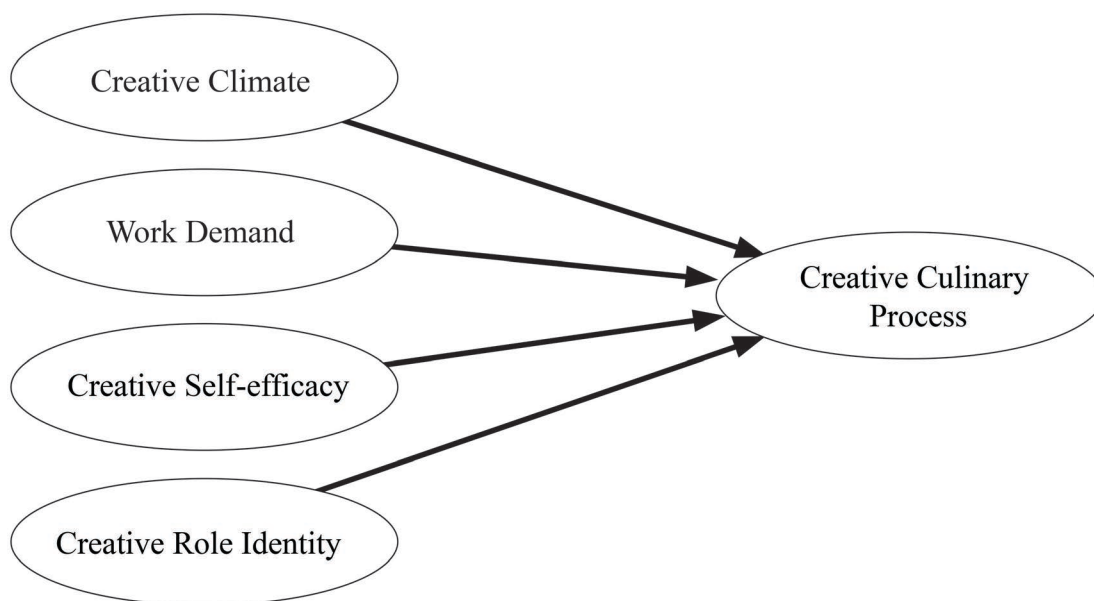


Fig.1 Hypotheses model for the study

2. Literature review

2.1. Stages of the creative culinary process

“Creativity” is a defining element of the occupational culture of chefs (Cameron, 2001). It is a development of ideas concerning products and services that are original and potentially useful to an organization (Oldham & Cummings, 1996; Shalley et al., 2004). Similar CCPs were developed for food service employees in Taiwan, Singapore and United States (Horng & Hu, 2009) as well as for Michelin-starred chefs in Germany (Ottenbacher & Harrington, 2007). Stierand et al. (2014) argued that creativity is a systematic view rather than a sequential development process by investigating the world class chefs from Europe. Chefs continuously work with collaborators such as customers and restaurant guides. Furthermore, chefs in Spain conceive of creative work as a two-stage process based on the generation and implementation of ideas that lead to innovation (Albors-Garrigos et al., 2013). Although extensive has been carried out on creative process, there is no general agreement about one exact creative process for chefs. According to the purpose of this research, CCP from Horng and Hu (2009) was adopted for investigation of general chefs’ creative process instead of a sepcific model for michelin starred chef. The process consists of idea preparation (IP), idea incubation (II), idea development (ID), verification of artwork (VA) and creative performance (CP) (Horng & Lee, 2009).

The development of ideas on products and services that are useful to an organization illustrates the creative behavior of employees (Shalley et al., 2004). Several researcher studying creativity pointed out work engagement (Gilson, 2008) and creative process (Horng & Hu, 2009; Tierney & Farmer, 2004) were both associated with performance. Such findings support the notion that when jobs are complex and when creativity is an important aspect of the job, CP should

positively influence overall job performance (Chang & Teng, 2017; Gilson, 2008). Different knowledge dynamics were found as drivers of each innovation process for chefs by Albors-Garrigós, Monzo, and Garcia-Segovia (2017); those drivers are symbolic, synthetic, and analytical knowledge. For instance, idea generation is a type of symbolic knowledge during the stage of exploration. Chefs employ their creative skills to create special cuisines to grow their business. The process is rewarding when chefs create unique dishes. Newly created dishes benefit not only restaurant operations; they also create awareness and attract new diners.

2.2. Creative climate

CC is a cognitive interpretation of an organization's situation, it comes from psychological climate theory, and it has been shown to influence employee behaviors (James et al., 1990). Parnes and Noller (1972) reported that the probability of generating creative ideas increases when employees are exposed to other related ideas. Encouragement to take risks and generate ideas in the organization contribute to the value of innovation for the entire organization (Kimberly & Evanisko, 1981). Sundgren, Dimenäs, Gustafsson, and Selart (2005) further looked into creative climate by using Ekvall (1996) ten-dimensional model, namely, trust/openness, idea support, freedom, playfulness, debates, dynamism/ liveliness, challenge, risk taking, conflicts, and idea time. However, most of the samplings were based on a group of pharmaceutical professionals, and not culinary chefs in particular. A positive relationship was found between creativity and creative working environment (Presbitero & Teng-Calleja, 2017; Yeh & Huan, 2017). Recently, Yeh and Huan (2017) found that the work environment strongly impacted the creativity of food service employees who worked in fine dining restaurants in Taipei. The workplace environment included social support, resources provided, freedom, and regulations. However, they investigated the

relationships to creativity in terms of quantity and quality instead of different stages. Therefore, the following hypothesis is proposed:

Hypothesis 1: CCSC and CCTD have a positive relationship on CCP in terms of IP, II, ID, VA and CP.

2.3. Work demand

WD refers to the quantity of assigned work by the company to the employees, or the expected workload for the staff during a specific period (Spector & Jex, 1998). When employees feel that they cannot deal with the WD, their performance is likely to weaken. Pousette and Hanse (2002) found that when WD is determined according to business demands instead of staff capabilities, the required performance may exceed their ability to exert more effort and meet that demand. In Hong Kong's hospitality industry, useful ideas are not always implemented for various reasons, such as limitations of time and resources (Wong & Pang, 2003). Robinson and Barron (2007) also found a high level of skill shortage that is exacerbated by high turnover rates, which are at least partly caused by excessive WD. Thus, WD is crucial for any job design.

Studies on chefs suggest that they often work in stressful, highly bureaucratic, unsociable, unstable, and unpleasant work environments (Jung, Yoon, & Kim, 2012; Meloury & Signal, 2014; Rowley & Purcell, 2001). However, the literature has presented different measurements to gauge work demand or job control (Jackson, Wall, Martin, & Davids, 1993; Young & Corsun, 2009). Five determinants of job demand relate to employee attitudes and job performance (Jackson et al., 1993), namely, control in terms of time, method, monitoring, problem solving, and productive responsibility. Previous studies found a relationship between WD and CP (Kinicki & Vecchio, 1994; Shalley et al., 2000). Tongchaiprasit and Ariyabuddhiphongs (2016) recently discovered that

job satisfaction is the mediator between creativity and intention to leave, a problem which has received scant attention in the research literature. This study hypothesizes the relationship between WD and CCP as follows.

Hypothesis 2: WD have a positive relationship on CCP in terms of IP, II, ID, VA and CP.

2.4. Creative self-efficacy

CSE indicates that a person believes he or she can accomplish task-specific goals and objectives (Redmond et al., 1993). It has a positive relationship with creativity and it is an indicator of whether an employee believes that he or she is capable of delivering creative results (Tierney & Farmer, 2002, 2004). CSE may increase as a result of past successful performance (Tolli & Schmidt, 2008). Transformational leadership can enhance CSE by encouraging independent thinking. Creative role identity (CRI) and CSE both mediate between leadership style and chefs' creativity in the organization (Wang et al., 2014). Individuals with strong CRI also tend to have high CSE. They are likely to be motivated to perform creatively to showcase their ability. No previous study has investigated the relationship between CSE and the creative process in the culinary field. This study hypothesizes the relationship between CSE and CCP as follows:

Hypothesis 3: CSE have a positive relationship on CCP in terms of IP, II, ID, VA and CP.

2.5. Creative role identity

Previous studies argued that CRI may drive CP (Fisher, 1997). CRI indicates whether one perceives oneself as a creative person (Farmer et al., 2003). Employees with a high CRI can see themselves as innovative and active in finding creative solutions to particular problems, and thus have higher CSE. Strong CRI should strengthen the linkage between benevolent leadership and

creativity (Wang & Cheng, 2010), and encourage employees to seek work of a more innovative nature. Such employees are more willing to exert creative effort and are sensitive to the contextual support that management leaders offer for their creative roles. They tend to perceive benevolent leadership as supportive of their creative behaviors. CRI was described by several factors, including self-views of innovative behaviors and coworker creativity expectations (Farmer et al., 2003). However, if employees with high levels of CRI anticipate a negative response to their work behaviors, they become more likely to avoid this kind of creative behavior so as to protect themselves in their current positions. CRI was found to be one of the mediators between transformational leadership and creativity of Taiwanese chefs (Wang, Tsai, & Tsai, 2014). Very little attention has been paid to the role of creativity in every step of the CCP. Therefore, the following hypothesis is proposed:

Hypothesis 4: CRI positively influences the CCP in terms of IP, II, ID, VA and CP.

3. Methodology

3.1. Sampling procedures

A pilot test was conducted to explore and identify the desired measurement models with a panel review, as well as translation and back translation. A set of questionnaires in both Chinese and English versions were distributed to culinary students, chef lecturers, and chefs in Hong Kong. Forty questionnaires were collected. This was to test whether there are common problems among respondents in order to identify potential issues and to make adjustments. The aim was to identify potential difficulties and to remedy any problems with the initial instruments, including ambiguities, biases, and awkward or unclear wording. Thus, some confusing wordings were identified and revised to ensure the validity and reliability of the questionnaire.

This study was conducted by convenience sampling. One of the authors has a strong industry connection and serves in a management position in a culinary association in Hong Kong. The survey respondents were mainly from industry operations and culinary schools. Survey packages were sent to 35 catering operations, including restaurants, hotels, private clubs, as well as culinary schools. No restrictions were placed on the distribution process. Out of the 35 packages sent, 30 were returned, with 255 surveys in total (72.9% participation rate). Due to missing data, 40 surveys were eliminated. Therefore, 215 usable questionnaires were obtained, with a 61.4% net response rate. This rate translated into approximately 8 returns per kitchen or 85% response rate per kitchen. The data collection included demographic data such as gender, age, educational background, job tenure, job classification, as well as cuisine type and restaurant type.

A follow up study consisting of one-to-one interviews was conducted to verify the results of the Structural Equation Modeling (SEM). A total of nine chefs were interviewed, consisting of two female chefs and seven male chefs, with ages ranging from 25 to 54. Their working experience ranged from 7 to 25 years in Western cuisine, with the position of chef de partie or above (profile in Appendix 1). Based on the key findings of the SEM, semi-structured questions were developed. Some examples of those questions were, “How often do you create a dish?”, “How do you feel the company supports or encourages the employees’ creativity? Give some examples.” and “What are the obstacles that affect your creativity?” Probing questions were used based on the actual dialogue progress. The length of each interview was around 30 minutes.

3.2. Measurement scales

Based on the literature, the main constructs included in this paper were CCP, CC, WD, CSE and CRI. Items with a 7-point Likert-type scale for each construct were identified according

to the relevant literature. The questionnaire was then sent to an expert panel for review. Cronbach's alpha, average variance extracted (AVE), and composite reliability (CR) were indices used to test the internal consistency of the data, convergent and discriminant validity, as well as reliability of the constructs. The Cronbach alpha coefficient should be higher than 0.6 (Malhotra, 2007) or 0.7 (Nunnally, 1978) for the research to be considered as meaningful and preferable, respectively. The suggested AVE is 0.5 (Fornell & Larcker, 1981), but there are some researchers (Bagozzi & Yi, 1988; Yeh & Huan, 2017) who accepted 0.4. A minimum Cronbach's alpha of 0.6 is needed for CR to indicate an acceptable level of internal consistency, though an alpha of 0.7 or above is recommended (Fornell & Larcker, 1981).

The CCP was measured by using 36 statements for the five stages (IP, II, ID, VA and CP) so as to test the path model of the CCP (Horng & Hu, 2009). For example, "I will photograph or otherwise record successful artworks for analysis," was classified under IP. The items for CP tended to rely on the self-reporting of respondents with three additional statements adopted from Oldham and Cummings (1996). In summary, 14 items (2 items from IP, 3 items from II, 5 items from ID, 4 items from VA) were deleted due to high cross loading or low factor loadings. Each construct ranged from 3 to 6 items, which was more than the minimum three (Hair, Black, Babin, & Anderson, 2010). Cronbach's alpha for the constructs were 0.680 (IP), 0.871 (II), 0.827 (ID), 0.868 (VA), and 0.870 (CP). AVE ranged from 0.457 to 0.731, and CR ranged from 0.769 to 0.931.

CC was measured with two components CCSC (8 items) and CCTD (8 items), both from previous scholars (Scott & Bruce, 1994; Siegel & Kaemmerer, 1978), and more recently (Jaiswal & Dhar, 2015; Presbitero & Teng-Calleja, 2017; Yeh & Huan, 2017). Personal commitment was excluded as previous research showed ambiguity in finding differences between innovative and non-innovative companies (Scott & Bruce, 1994; Sundgren et al., 2005). An example of support

for innovation was, “Our ability to function creatively is respected by the leadership.” 7 items were deleted due to high cross loading and low factor loadings. Cronbach’s alpha for the CCSC and CCTD constructs were 0.854 and 0.807, with an AVE of 0.490 and 0.574, and a CR of 0.793 and 0.801, respectively.

WD (4 items) was measured by using a scale ranging from far too little (1) to far too much (7) (Young & Corsun, 2009). The Cronbach’s alpha on this measure was 0.761, with an AVE of 0.690, and a CR of 0.896. The current study adopted three items each from several scholars to measure CSE (Wang et al., 2014; Farmer et al., 2003; Bandura, 1997) and creative role identity (CRI) (Tierney & Farmer, 2002; Wang et al., 2014). Five out of six statements were not dimensions but components of a one-dimensional scale. One item was deleted due to high cross loading. The new variable, named “creative self-regulatory efficacy” (CSRE), had a Cronbach’s alpha of 0.808, an AVE of 0.538, and a CR of 0.851.

To test the hypotheses, data were analyzed following the principles and procedures of SEM, which analyzes structural relationships between latent constructs or variables (Nachtigall, Kroehne, Funke, & Steyer, 2003) using the AMOS 23.0 software program.

4. Results and analysis

4.1. Descriptive Statistics of Measurement Scales

Measurement items that had a mean value over the midpoint of 4.0 indicated that respondents agreed with the statement to some extent. 46 items out of 62 had mean values greater than 5.0, indicating that respondents generally agreed with the statements, especially for WD, CSRE, and CCP. Four items of WD had mean values greater than 4.0, indicating that the respondents had a fairly high level of working pressure. Six CP items had means over 4.0, implying that the respondents were generally satisfied with their creative performance.

4.2. Characteristics of respondents

The majority of the respondents were male (82.8%) and mainly Chinese, primarily citizens of Hong Kong (74.0%). For professional chefs, they were commis (28.4%) and executive chefs (18.1%), followed by chef de partie (15.8%), sous chef (11.2%), and chef de cuisine (4.2%). Most of them were from fine-dining restaurants (48.8%) and culinary schools (19.1%), followed by central preparation kitchens (14.4%), casual dining (9.8%), and café and fast food operations (7.9%). Respondents mainly specialized in Western cuisine (61.4%) while others specialized in mixed international cuisine (17.2%). The majority had a total working experience between 6 to 10 years (26.0%), and 21.4% had been working for 1 to 5 years. More than half of the respondents worked over 51 hours per week (51.2%).

4.3. CFA results of each measurement model

CFA was performed to assess the structure of each measurement model, namely, two factors of CC, WD, CSE, and CCP. Results showed that each measurement model fit the data for the culinary profession (Anderson & Gerbing, 1988) (Table 1).

Table 1

CFA results of each measurement model

Constructs	GFI	CFI	NFI	RMSEA	χ^2 (df)	p
CC	0.964	1.000	0.960	0.000	9.333 (13)	0.747
WD	0.999	1.000	0.999	0.000	0.172 (2)	0.917
CSRE	0.998	1.000	0.998	0.000	0.594 (1)	0.441
CCP	0.896	1.000	0.925	0.000	146.603 (159)	0.751

Note: CC includes the two factors of creative climate (CCSC and CCTD); WD=Work Demand; CSRE=Creative Self-Regulatory Efficacy; CCP includes the five stages of the creative culinary process.

4.4. Overall measurement model validation

The overall measurement model ($n=215$) was explored by inputting all five constructs in the analysis ($\chi^2= 1118.789$, $df= 629$, CFI= 0.898, $p<0.000$, GFI= 0.790, RMSEA= 0.060, PNFI= 0.713, PCFI=0.803). The model fit of the data was unsatisfactory. CFI was less than 0.9, GFI was less than 0.8, and RMSEA was larger than 0.05. All the factor loadings estimated exceeded 0.6 (Table 2), and 27 out of 38 items exceeded 0.7. Ten items were above 0.6, and one item from work demand was 0.56. CR values were all above 0.7, and all AVEs were greater than 0.5, except for IP (0.471). CR was higher than 0.6, and the convergent validity of the construct was still adequate (Fornell & Larcker, 1981). Overall construct was considered acceptable in convergent and divergent validities.

Table 2

Result for the measurement model

Construct	Items	Standardized Estimate	t-value*	SMC	Cronbach's α
CCSC	SC1	0.740	Fixed	0.547	0.854
	SC2	0.773	9.981***	0.598	
	SC3	0.680	8.969***	0.463	
	SC4	0.687	9.053***	0.472	
CCTD	TD1	0.881	Fixed	0.777	0.807
	TD2	0.793	10.028***	0.630	
	TD3	0.613	8.476***	0.376	
WD	WD1	0.800	Fixed	0.640	0.761
	WD2	0.876	13.842***	0.767	
	WD3	0.816	12.697***	0.666	
	WD4	0.578	8.474***	0.334	
CSRE	CSE1	0.706	Fixed	0.498	0.808
	CSE2	0.682	9.296***	0.465	
	CSE3	0.877	11.649***	0.769	
	CSE4	0.688	9.114***	0.446	
	CSE5	0.706	9.615***	0.499	
IP	IP1	0.676	Fixed	0.457	0.680
	IP2	0.726	8.631***	0.528	
	IP3	0.655	7.976***	0.429	
II	II1	0.760	Fixed	0.577	0.871
	II2	0.824	12.368***	0.680	
	II3	0.762	11.331***	0.581	
	II4	0.823	12.343***	0.677	
ID	ID1	0.771	Fixed	0.595	0.827
	ID2	0.687	10.271***	0.471	
	ID3	0.706	10.604***	0.498	
	ID4	0.802	12.299***	0.642	
VA	VA1	0.784	Fixed	0.615	0.868
	VA2	0.846	13.715***	0.715	
	VA3	0.887	14.573***	0.786	
	VA4	0.785	12.462***	0.616	
	VA5	0.797	12.709***	0.635	
CP	CP1	0.755	Fixed	0.569	0.870
	CP2	0.696	10.273***	0.485	
	CP3	0.672	9.876***	0.451	
	CP4	0.826	12.447***	0.683	
	CP5	0.817	12.290***	0.668	
	CP6	0.834	12.576***	0.696	

* t -values are equal to the critical ratio: $\chi^2 = 1118.789$, $df = 629$, $CFI = 0.898$, $p < 0.000$, $GFI = 0.790$, $RMSEA = 0.060$, $PNFI = 0.713$, $PCFI = 0.803$. *** $p < 0.001$

4.5. SEM analysis

4.5.1. Initial model test

After the measurement instruments were evaluated to have good fitness, SEM was applied to test the relationships between the variables. Table 3 presents the inter-correlations among all the attributes. The model fit indices ($\chi^2 = 1118.789$, $df = 589$, CFI = 0.898, $p < 0.000$, GFI = 0.790, RMSEA = 0.060) indicated that the fitness of data for the model needs to improve because the p -value was significant, CFI and GFI were not larger than 0.9, and RMSEA was larger than 0.5.

Table 3

Inter-correlations among examined attributed

Constructs	1	2	3	4	5	6	7	8	9
1. CCSC	0.721								
2. CCTD	-0.243**	0.770							
3. CSRE	0.464***	0.006*	0.732						
4. WD	0.210*	-0.027*	0.335***	0.776					
5. IP	0.439***	0.093*	0.638***	0.172*	0.686				
6. II	0.298***	0.075*	0.637***	0.279***	0.638***	0.793			
7. ID	0.394***	0.028*	0.813***	0.315***	0.793***	0.835***	0.743		
8. VA	0.353***	0.015*	0.612***	0.197*	0.636***	0.800***	0.782***	0.821	
9. CP	0.513***	0.031*	0.580***	0.366***	0.676***	0.640***	0.588***	0.629***	0.769
Mean	5.06	4.35	5.32	5.44	5.14	5.51	5.61	5.50	5.07
SD	1.29	1.53	1.29	1.45	1.27	1.10	1.11	1.08	1.06
AVE	0.520	0.594	0.855	0.851	0.727	0.871	0.831	0.911	0.896
CR	0.812	0.811	0.602	0.535	0.471	0.629	0.552	0.674	0.592

Note: The numbers in bold in the diagonal row are square roots of the average variance extracted; AVE=Average Variance Extracted; CR=Composite Reliability; CCSC=Support for Creativity; CCTD=Tolerance of Difference; WD=Work Demand; CSRE=Creative Self-Regulatory Efficacy; IP=Idea Preparation; II=Idea Incubation; ID=Idea Development; VA=Verification of Artwork; and CP= Creative Culinary Performance.

* $p < 0.05$; *** $p < 0.001$.

4.5.2. Hypothesis testing

The relationships among factors were hypothesized and evaluated with standardized coefficients and t -values, as shown in Fig. 2. The coefficients demonstrated a change in several

exogenous variables in relation to a unit change in an endogenous variable, whereas all other exogenous variables remained unchanged. The sign of the coefficient value represented positive or negative relationships between two variables. The model fit indices $\chi^2 = 1769.295$, $df = 650$, CFI = 0.766, $p < 0.000$, GFI = 0.667, RMSEA = 0.090) showed CFI of less than 0.9, GFI of less than 0.8, and RMSEA of larger than 0.05. This suggests that the model could be improved.

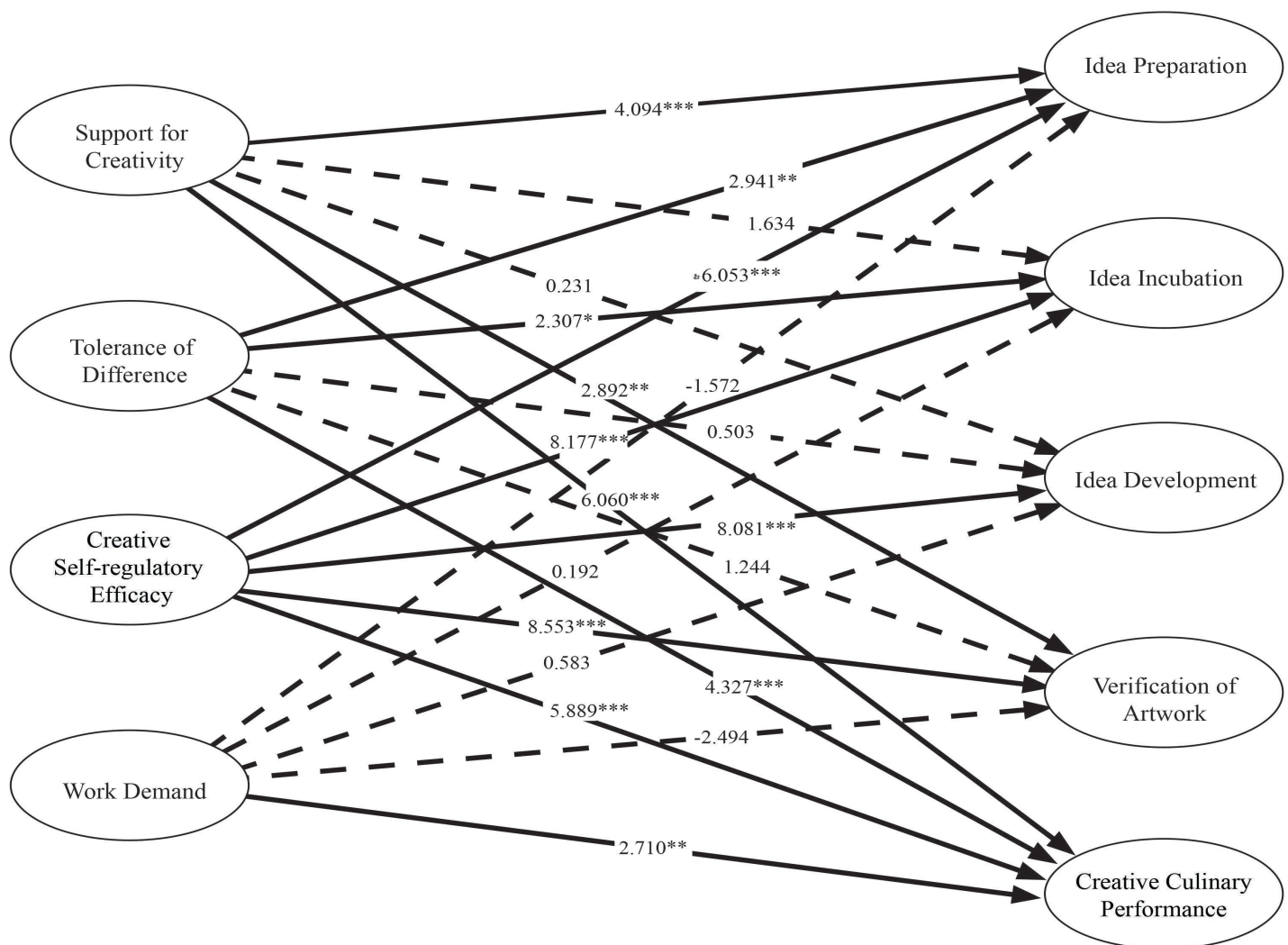


Fig. 2 Research Framework (N=215)

Remarks: *Significant at $p < 0.05$; **Significant at $p < 0.01$; ***Significant at $p < 0.001$; the dashed line indicates a path coefficient insignificant at the 0.05 level.

4.5.3. Results of the qualitative study

Based on the findings of the SEM analysis, a qualitative study was conducted to verify the results; the study consisted of three parts, namely, creative climate-support for creativity, creative climate-tolerance of difference, as well as work demand and creative self-regulatory efficacy.

Creative climate – support for creativity

Several interviewees emphasized company support for creative behaviors. Four different types of support have been identified, which were sufficient resources, encouragement, sufficient labor, and adequate time for holidays (R1, R2, R3 & R6). All the interviewees indicated that those kinds of support were important for preparing ideas (IP), for verifying the artwork (VA), as well as for creative performance (CP). Various personnel, including employees, supervisors, board directors, or even restaurant managers, normally verified their creative dishes. R3 described one memorable experience which happened during his work, that aroused his creative thinking:

Our company assigned a budget for us to taste the food in other restaurants every month. We could choose a fine-dining restaurant to taste and evaluate the dishes together in order to generate new ideas. We would record the good and bad dishes. It helped the employees to develop the ability and attitude to create. (R3)

However, idea incubation (II) and development (ID) are problem-solving processes which refer to an individual's perspective and knowledge. The openness of the company makes no difference during these two stages; instead, employees need to solve the problem by themselves through reading books and testing recipes (R6), according to Lane and Lup (2015). This finding supported the results of the SEM study. =

Creative climate – tolerance of difference

Tolerance of difference was found to be associated with IP, II and CP. Given the organizational culture, there were some limitations and boundaries that affected employee creativity in terms of IP, II and CP. R2 mentioned that limitations of budget and resources affected the preparation and incubation of ideas, consequently affecting creative performance.

Due to budget limitations, we as chefs need to create dishes with the resources from existing suppliers. Sometimes, we might look for new ingredients from a new supplier. However, this may increase the workload of the purchasing department due to the need to audit a new supplier. Therefore, seeking resources and ingredients from a company's existing suppliers is highly recommended. (R2)

R3 mentioned that company encouragement assisted the employees in developing new ideas. "Chefs encouraged us (including demi chef and commis) to join the creative process, to taste the new dishes and to give comments for improvements. And to take photographs of the new dishes for reference and standard." Several interviewees stated that, "The creative process is undertaken simultaneously at work, home or even daily life" (R2, R4 & R7). R2 further provided examples:

For instance, when there is a new idea, I take into consideration whether it is too complex to apply during service hours. In that situation, I probably observe the workload of the employees during service hours in order to check if they are able to implement it smoothly. (R2)

ID and VA are the final stages of the creative process. The product was developed, assessed, and was found to be affected by more than just the organizational perspectives on tolerance of difference. It is not enough for a product to satisfy a guest's palate; service perspectives, such as the food delivery process, also need to be considered. R2 echoed this view:

I received comments on my dishes from colleagues and supervisors. Meanwhile, I also received comments from the restaurant manager. He or she is the one who understands the process of food service delivery as well as guest preferences. For instance, if we create a dish with a very light edible decoration, he or she might be aware of this issue for food delivery, and then we improve the final product. On the other hand, he might also give comments on the taste of the food with respect to the general preferences of the guests.

Work demand

Since the creative process is taking place simultaneously, WD in the organization does not affect chefs' creative behaviors in the first four stages. The respondents indicated that creative ideas may come from the internet, books, or even daily practices which may not be completely affected by WD. However, a heavy workload may affect employees' creative performance; for instance, "If I had more time to prepare, I could create a better dish. With the time limit, I can just create what I know would satisfy the chef." (R6)

In addition, several respondents (R3, R6 & R7) mentioned that "creativity occurs spontaneously, it cannot be forced. It comes out over time with relevant skills and work experience." This finding echoed the idea that work demand is not associated with IP, II, ID and VA, but only related to CP.

Creative self-regulatory efficacy

All the interviewees mentioned that "creativity" is an essential aspect of the chef profession. Five out of nine chefs stated that, "If there is no creativity, then you do not need to work as a chef." (R4, R5, R6, R8 & R9). These comments supported the results of this study in regarding the creative

process and performance. Employees with high creative self-regulatory efficacy (CSRE) perceived themselves as creative. R3 and R6 further mentioned that:

I always come up with new ideas in daily life. For instance, when I see some interesting food videos on Facebook, I might try to implement the ideas the next day at work or at home for my colleagues or family members. (R3)

No matter how creative you are, you must perform creatively at your best, otherwise, it is difficult to attract customers. For example, if we had all the same menu and dishes across ten different hotels, it would become commoditized. (R6)

R7 also indicated his perspective on work. “Creativity is mandatory for chefs. Even chefs who loaf around, they need to come up with efficient ways to make the best use of their time.” CSRE is a personal characteristic in which the employee perceives himself or herself as a creative employee. Creative behaviors consist of any situations which involve problem solving in the kitchen, including creating new dishes or even thinking of new methods of how to be more efficient during services or preparation. Based on the results, interviewees had confidence in their ability to solve problems creatively.

5. Discussion

5.1. Effect of CC

Both factors of creative climate indicated relationships among the three stages of the creative process. This finding fits in with previous literature on the antecedents of creativity (Amabile, 1997). High levels of support for creativity in the workplace are associated with higher levels of IP, VA, and CP. Support for creativity is crucial for employees to start their own creative processes of preparing ideas and verifying culinary work. However, support for creativity had no significant relationship to idea incubation and development. The respondents did not perceive

themselves as receiving support for creativity in terms of idea incubation and development. CCSC was associated with CP in this study, which fits in with the findings of previous scholars (Madjar, Oldham, & Pratt, 2002). There was no evidence of a relationship between idea incubation and idea development.

Higher levels of tolerance of difference from the company were associated with higher levels of IP, idea incubation, and creative performance, but not with idea development or verification of artwork. The tolerance of difference is a critical point that encouraged employees to perform creatively. Employees did not perceive their companies as allowing them to be different at all the stages in the creative process. The respondents had not perceived enough tolerance of difference regarding idea development and verification of culinary work. This finding is a new contribution to the literature.

5.2. Effect of WD

WD in problem solving influences creativity (Zhou, Hirst, & Shipton, 2012) at different stages. This has been explored in Hypothesis 2. Results showed that work demand does not link strongly with the first four stages in the creative process, namely, IP, II, ID, and VA.

WD can cause stress during work; however, the degree of pressure may not always have a negative effect. In fact, higher work demand can have a positive effect on creativity. We found a significant relationship between WD and CP, which was in line with previous studies (Shalley et al., Jackson et al., 1993; 2000). Simply put, higher levels of WD can lead to higher levels of creative performance.

5.3. *Effect of CSRE*

Hypothesis 3 proposed CSRE to be related to the creative process. Results demonstrated high correlations between creative self-regulatory efficacy and the five individual stages of CCP, namely, IP, II, ID, VA and CP, with standardized coefficients 0.844, 0.988, 0.999, 0.978, and 0.411 respectively. The results from this study are consistent with Bandura (1997) with respect to the positive relationship between creative self-regulatory efficacy and creativity. Further, this finding is consistent with those of Tierney and Farmer (2002, 2004) and Wang et al. (2014). Chefs with high levels of CSE performed creatively as they believed in their ability to achieve innovative results.

The relationships of the linkages to CSE and CRI are interrelated, and this finding is consistent with previous research (Tierney & Farmer, 2011; Wang et al., 2014). When employees are equipped with CSRE, they perceive themselves as creative persons and trust their ability to perform and accomplish the goals and objectives of their assigned tasks throughout the entire CCP.

6. **Theoretical implications**

First, a reliable instrument for each variable was identified in this study. The instrument was refined from theoretical and analytical methods and customized to respondents in Hong Kong. This instrument integrated a scale for each construct and demonstrated good reliability, as well as convergent and divergent validities. This study removed numerous measurement items to achieve higher reliability during factor analysis due to high cross loading (>0.4) in EFA (20 items) and low factor loadings (<0.5) in CFA (4 items). For example, the statements regarding creative climate yielded different results in this study compared to previous literature (Jaiswal & Dhar, 2015; Presbitero & Teng-Calleja, 2017; Siegel & Kaemmerer, 1978; Yeh & Huan, 2017). Some

statements of support for creativity loaded onto the factor of tolerance of difference, and vice versa. This result might have occurred because the sample data generated from respondents in Hong Kong might not have been consistent with samples from previous studies which sampled respondents in other countries. For example, “This organization is open and responsive to change” was found to measure tolerance of difference (Siegel & Kaemmerer, 1978). However, this statement falls under support for creativity in this study. In other words, the openness to change is perceived as a kind of support for creativity of chefs who work in Hong Kong. Similarly, three statements from support for creativity (Jaiswal & Dhar, 2015; Scott & Bruce, 1994) were identified as a second factor (tolerance of difference) during factor analysis. For example, “In our company, a person can get in a lot of trouble by being different.”, “The best way to get along in this organization is to think the way the rest of the group does.” and “A person cannot do things that are too different around here without provoking anger.” These statements reflect the organizational climate regarding tolerance of difference and how the consequences of being innovative may be to get an employee in trouble or to provoke anger.

Several studies of creativity have been carried out previously. Within the broader topic, creativity can be divided into five stages or processes. However, limited research has been done to evaluate the factors influencing the different stages within the creative process. This study suggests that support for creativity from the organization can strongly influence IP, VA, and CP. This finding is supported by previous literature on creativity (Amabile, 1997) and creative performance (Madjar et al., 2002). However, no link was found to idea incubation and development. The same result was obtained for tolerance of difference as this factor influenced only some of the stages of the creative process, namely, IP, II, and CP. This study suggests that factors influencing creativity may not influence all the stages within the CCP. Both factors within the creative climate had

positive associations with IP and CP. Other than support for creativity and tolerance of difference that might affect the creative process, other underlying factors might have been present for influencing creative climate, such as perception of reward (Scott & Bruce, 1994) and personal commitment. However, Siegel and Kaemmerer (1978) failed to find a difference in personal commitment between innovative and non-innovative organizations.

The relationship between WD and CP was consistent with previous studies (Jackson et al., 1993; Kinicki & Vecchio, 1994; Shalley et al., 2000). However, further investigation of the effects of WD on the first four out of five stages in the creative process is recommended. Young and Corsun (2009) reported that there is more than one measure for assessing work demand. Jackson et al. (1993) developed a scale to measure job control or work demand. The scale was divided into five determinants, namely, time control, method control, monitoring control, problem-solving control, and productive responsibility. The results might have been different had these measures been used in this study. Thus, future research is recommended to find out if more relationships are possible in the creative process. This study contributes to the literature by reporting that no relationships were found among IP, II, ID, and VA. WD may also need to be broken down further into positive (challenge) and negative (excessive workload) influences to evaluate the direct relationships in each stage of the process.

Three items of creative self-efficacy and role identity were found to have good reliability and validity in previous studies (Farmer et al., 2003; Tierney & Farmer, 2002; Wang et al., 2014). However, the statements applied in the sample of this study could not distinguish between those two factors. The justification is implied in the sample data or in the perception of the respondents that both statements are considered as one factor. Further investigation is recommended to define a clear measurement to evaluate creative self-efficacy and role identity individually. This result is

new to the literature and particular to the culinary profession. Research is suggested in other countries or in other professions to see if our findings generalize to other cultures.

7. Practical implications

The catering industry in Hong Kong has many limitations, such as the high cost of rent, labour, and imported ingredients. Consequently, restaurants tend to operate long hours in order to maximize profit. Therefore, employee satisfaction and development are often neglected. The chefs in Hong Kong do not only work for money; they also have passion and enthusiasm towards their chosen occupation. Compared to the study of Horng and Hu (2008), the chefs in our sample were in a healthy working environment; however, this study suggests that there is room for improvement in the development of human resources in the catering industry. Restaurants are more likely to succeed if they can provide more support for the creativity (CCSC) of their staff. To create a better climate for creativity, companies need to find ways to support employee performance, especially during the stages of idea incubation and development. Although a degree of support might already be present, staff members are not always provided with sufficient support needed to perform creatively. More training for staff is recommended. Training may involve learning new techniques, working with guest chefs, or joining overseas training programs. In addition, several studies have suggested that supportive feedback on new ideation (Hon, Chan, & Lu, 2013) and recognition of creative behaviors are important aspects of encouragement from the organization (Yeh & Huan, 2017).

CCTD was found to positively influence IP, II, and CP. This was reflected in the case of respondents from Hong Kong, where tolerance of diversity was related to idea preparation, incubation, and creative performance (steps 1, 2, and 5 of the CCP, respectively). Nevertheless, II

and ID are also important for the creation of novel dishes. People without incubation or development stages are less likely to produce creative dishes. Several ways could be adopted to improve the situation in Hong Kong so as to ease the resistance to change in the hospitality industry (Chiang, 2010). If companies were willing to be more open minded by tolerating differences in idea incubation and development, creative talent could be better nurtured. This could lower the turnover rate as employees would feel more encouraged and empowered to perform creatively. In the long term, as companies establish a creative culture, staff retention should improve.

WD was positively associated with creative performance. It was found to have a positive effect on creativity, which agreed with Janssen (2000). Workers may not be able to meet expectations when work demand becomes excessive (Pousette & Hanse, 2002). Few researchers have considered the possibility of workload pressure negatively affecting creativity, while a degree of stress can positively influence creativity. For example, if suddenly told to finish a task in short notice, individuals may perceive the work as challenging (Amabile, 1988). When there is high workload, , employee creative behaviors still increase dramatically as long as there is a balance between effort and reward fairness (Janssen, 2000). Companies are advised to give more attention to recognizing employee creative performance.

CSRE has a positive effect on CCP. Companies should hire people with these traits to ensure creative work performance. People with high creative self-efficacy balance personal and contextual factors in their creative behavior better. In addition, a more effective way to encourage improvement is consistent assistance to staff rather than constant negative feedback. Communication between supervisors and staff is essential for brainstorming creative ideas on better performance.

8. Limitations and direction for future research

This study has some limitations. First, this study might not generalize to other business contexts. Mainly, culinary creativity is unlike creativity in design or music. It involves not only the individual, but also the organizational culture and work demand; in other industries, the creative individual can be far more independent and may even work alone. Thus, the findings of this study may not apply to other industries. Second, the conceptual model needs refinement by analyzing underlying factors exogenous to the creative process so as to understand better the emergence of culinary creativity within the stages in the process. In this study, several factors had an insignificant effect on several stages in the creative process. However, this outcome may have been due to the limitations of the sampling of respondents. Future research should replicate and extend the proposed conceptual model by collecting a wider sampling in different culinary areas, such as hotels, restaurants, and culinary schools. A wider scope will allow determining and identifying the underlying factors influencing the creative process. This will assist in developing a more accurate model of the CCP and thus better inform the decisions of chefs and management in their quest to boost culinary creativity.

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