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A STUDY ON HOW TO ELEVATING ORGANIZATIONAL CREATIVITY OF DESIGN ORGANIZATION

Wen-chih Chang[1] and Zun-Hwa Chiang[2]

Graduate School of Design, National Taiwan University of Science and Technology, wchang@maul.ntust.edu.tw
Department of Industrial design, Ming-Chi University of Science and Technology,zchiang@ccsun.mit.edu.tw

Abstract:
This research focuses on exploring which factors influence organizational creativity the most, and what actions is the most effective to enhance organizational creativity of design firms and units. The survey showed that the most influential five factors to organizational creativity are in the order of design environment, team climate, group /organization culture, design process and motive of work, the survey also showed that the most effective ways of improving organizational creativity are in the order of effective knowledge / experience sharing among colleagues, visiting foreign design companies, accumulations of team design experiences, visiting domestic and foreign design exhibitions and diversified design work experiences. After the data from the questionnaire were further analyzed by t-test, one-way ANOVA and Scheffé post hoc multiple comparisons, the most effective ways of improving organizational creativity are in the significant different order according to demographic variables such as gender, employees' educations, professional training, age and working experiences. This implies that the most effective ways of improving organizational creativity can be different under

different situations.

Keywords: design management, organizational innovation, creativity

1. INTRODUCTION

In a market that emphasizes uniqueness and differentiation, executives of major corporations have been gradually recognizing the importance of creative behavior for a company's prosperity. Most management admits that encouraging employee's creative behaviors could boost creative ability and it is a necessary means to obtain commercial success and competitive advantages (Burnside, 1990; Shalley, 1995). The results of creativity management related research pointed out that employee's creativity had positive correlation with innovations of organizations, efficiency of organizations and sustainable operations of corporations (Amabile, 1996; Nonaka, 1991). However, the management has to face challenges of how to create necessary conditions that may extend the creativity and then effectively apply it to valuable results (Mumford, Scott, Gaddis, & Strange, 2002). Although creativity did not necessarily meet the requirements of all work types, the managers and executives still recognized that creativity and innovative capacity were much more important than those in the past (DeVanna & Tichy, 1990; Van Gundy, 1987). In order to respond to the pressure of competitive environment, the firms recognize that the employee's creativity must be stimulated to increase the overall creativity of organization (Amabile, 1988; Shalley, 1991). On the other hand, many cognitive psychologists have also discussed the necessity of creativity performance in human beings' growing course in their studies (e.g. Rank, 1932, 1936; Rogers, 1961; Maslow, 1962; White, 1959). The work content with space for the fulfillment of creativity and environment tend to allow the individuals to have more work efficiency and work satisfaction (Amabile, 1983). Thus, elevating the creativity of different levels in the company will provide the overall profits for individuals, groups and organizations. However, for the companies, the results of creativity tend to be more important than creativity. Innovation is defined as the process or realization of creativity. Only having creativity cannot be regarded as innovative since it cannot reach the corporate targets of pursuing the economic benefits. Therefore, currently, most of the studies

related to organizational creativity issues attempt to explore how to effectively apply and manage creativity, and further apply creativity to create new opportunities in the market (Drazin, Glynn & Kazanijan, 1999). Although creativity is such an important issue for the companies, in real society, there is always the gap between ideal and realistic situations. The way of practicing innovation may be different because of the difference of corporate or industry ecology. Besides, because of different positions, the individuals' perception to creativity will change with time and experience. In order to further probe into the relationship between the organization and creativity, we not only explore the organizational creativity factors in organizational behavior, but also should consider the background of the units to find the proper methods for elevating organizational creativity. Therefore, this research will further probe into the view difference of the influences of different design environments on the elevation of organizational creativity.

2. LITERATURE REVIEW

2. 1. BASE OF ORGANIZATIONAL CREATIVITY

Individual creativity was the basic element of organizational creativity and the valuable creativity results were the concrete performance of organizational integration of individual creativity. Woodman (1993) defined organizational creativity below: the individual in the complicated social system created valuable new products, services, ideas or business processes by mutual cooperation. Scholars indicated that organizational creativity theory was a kind of interaction that tended to be constructed on two variables: team characteristics and organizational structure. After introducing institutionalism in sociology and combining it with the creativity theory in psychology, Ford (1996) found that organizational environment and domain knowledge would affect individual creative behavior. Ford further confirmed that organizational creativity was the new and valuable results generated from certain specific goal and action and it could be subjectively judged by the related professional knowledge field. In terms of knowledge accumulation in the organization, knowledge could be divided into implicit and explicit knowledge. Explicit knowledge consisted of the facts and it was a kind of declarative knowledge.

On the contrary, implicit knowledge could not be concretely described and it was a kind of non-declarative knowledge. Through exploring the process of implicit and explicit knowledge transformation, Nonaka &Takeuchi (1995) suggested that knowledge must be transformed to create organizational knowledge which responded to the ultimate goal of facilitating organizational knowledge creation and further liven organizational creativity. An organization with creativity tended to be having high degree of knowledge and techniques as well as social and political complicated system. In order to transform creativity into innovative results, the organization must coordinate the knowledge generated from individuals, groups and organizations, balanced the difference of corporate capacity and individual creativity to integrate it into the results meeting organizational or corporate benefits. Therefore, organizational innovative capacity was usually to find the balanced relationship between risk taking and decision making.

2. 2. THE FACTORS THAT AFFECTED ORGANIZATIONAL CREATIVITY PERFORMANCE

With regard to the influence of managerial model on the subordinates' creativity and the overall performance of organizational creativity, we could explore it from two major directions: creative work environment and individual creativity performance. Establishing creative work environment must include various factors such as organizational culture, frameworks and rules which could support creative activities as well as the scope related to the subordinates' autonomy. On the other hand, with regard to the individual creativity performances, although there were clear evaluation and reward systems in the organizational management, in real operation, they were hard to define because of the diversity of creativity and individuals' profiles. However, they could directly facilitate the employees' creativity performance. By any means, when elevating innovative capacity through management, we still relied on individuals as the sources of new ideas. As to the issues extended from two major factors affecting organizational creativity, there have been many researchers suggesting their views from two principal fields: management and psychology. Several major factors affecting organizational creativity and the related studies were described briefly as follows:

a) Organizational culture -- In Furnham's study (1993), he mentioned that organizational culture functioned as the tool for internal integration and coordination which may help organization reach its goal. Positive and open organizational culture could stimulate creative behaviors and produce satisfactory results (Amabile et al., 1996). Through effective coordination and integration, a company or organization could easily accept creative behaviors and establish stability of organizational system that was helpful to sustainable operation (Martins, 2000). Thus, organizational culture represented a commonly shared system that would be the basis for internal exchange and mutual understanding in organization to reach consensus and further fulfill the force of organizational creativity (Furnham, 1993).

b) Team climate –- Comparing with organizational culture, team climate was closer to interpersonal relationship. Ekvall & Arvonen(1983) indicated that positive team climate was helpful to the mutual trust of members in the organization and either directly or indirectly affected innovation and growth of organization. Many organizational factors were related to team climate. These factors could influence the problem-solving methods in the team (Burke & Litwin, 1992; Schneider, Brief & Guzzo, 1996). Some reasons in teaming process may damage the development of creativity, including excessive socialization, inability to solve problems in times, insufficient communication or over-control caused by authoritarianism of structure of organization. When such factors that limited development of the team were controlled, the team could show high creativeness (Guastello, 1998; Siau, 1995; Sosik et al., 1998). In addition, there was the significant relationship among cooperative climate in a team, such as timing factors (for example, how long the cooperation will sustain?) and ranking system (the difference of powers held by team partners). Effective exercise of team climate could fuse these imbalances and reduce the factors hindering creativity (Abra, 1994).

c) Leadership -- The leaders' behavior and employees' performance were greatly connected. The positive relationship between the managers and employees was helpful to the development of organizational creativity (Liden, Wayne & Stilwell, 1993). In addition, when the leader could effectively solve problems in creative way, the employees would have performance of better creativity (Redmond et al., 1993). Therefore, meeting expectation from leaders was helpful to develop higher level

relationship between executives and employees that would lead to higher standard performance (Wayne,Shore & Liden, 1997). In an environment needing creative ideas, there was positive correlation between the leaders' supportive attitude and employees' creativity. The employees' creativity was related to the managers' attempt to understand the employees' feelings and emotion (Stahl & Koser, 1978; Oldham & Cummings, 1996).

d) Motive of work -- The incentive factors in creative behaviors could be divided into external and internal factors. The results may lead to two major types of creative behaviors: passive and positive (Crutchfield, 1962; Heinzen, 1994), and the latter had more effects and was persistent. High degree of internal motive was a kind of agitation in an individual's heart caused by conducting an activity without reward purposes. It was a necessary factor that may drive creative achievement (Amiable, 1996; Shalley & Oldham, 1997). The confidence of employees was the core of motive. When employees demonstrated their creativity in works, they always stuck to the belief that they could achieve the initial goal they have expected since effective self-recognition would maximize the attractiveness of their work (Ford, 1996; Bandura, 1997).

e) Structure of organization -- Structure of organization and the organizational process had certain influence on organizational creativity (Burns & Stalker, 1961). The model of stereotyped and centralized in mechanical structure of organization would restrain organizational capability of innovation (Burns & Stalker, 1964; Damanpour, 1991). A well constructed organizational framework provided certain mechanism to lead to the members' development of differentiation and allowed the process of sharing new ideas to be easier (Amabile, 1996). The enhancement of differentiation among members of organization could result in stronger motive and willing of cooperation (Dunbar's, 1995). In addition, establishment of a new branch of organization and merge of organization or restructure of organization meant to elevate positive innovation in an organization (Burgleman, 1983; Strebel, 1987).

f) Evaluation system -- Generally speaking, the evaluation of performance of creativity was different from evaluation of ordinary expectation which was usually to examine daily regular works (Amabile, 1979; Shalley, 1995). Therefore, the evaluation system of creative ideas should be reasonable and not to

be confined to a single standard (Oldham and Cummings, 1996). The results caused by a single external evaluation could easily damage an individual self-motivation and may reduce internal motives and restrain creativity (Deci, 1985). Overemphasize on causes and effects may damage internal harmony in organization (Neely, 2000). In the other hand, too good results of evaluation would also damage individual creativity (Parloff & Handlon, 1964; Carson& Carson, 1993; Shalley, 1995). The reward system extended from evaluation system usually included two sides: providing external reward could upgrade and continue individual creativity. The research result showed that returns had positive effect on creativity (Eisenberger, Armeli, & Pretz, 1998; Eisenberger & Rhoades, 2001). However, over use of substantial and external returns could, in fact, gradually, reduce individual internal motive and further reduce creativity (Amabile, 1996).

g) Targets and process -- For the companies or organizations, any work content should target at concrete and clear goals, but inappropriately over-depending on presetting goals would not bring creative ideas in full play (Locke, Shaw, Saari, & Latham, 1981). For example, production or manufacturing-oriented targets and overly careful evaluation would lead to the restriction of innovation (Shalley, 1991). Therefore, overly pursuing concrete goals may not produce any breakthrough idea (Mehr & Schaver, 1996). In the process of creative work, effective guidance would be better than clear explanation of target results (Scott, 1995).

The factors affecting organizational creativity explored above will be the core issues of further in-depth interview, and we also include the factors of design professional field as the basis of the questionnaire design in the next stage.

3. Research Method

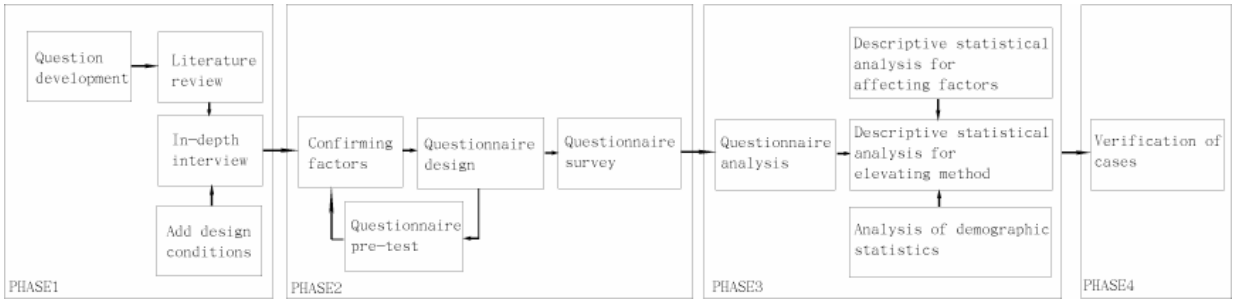

Figure 1: Research framework

This research focused on in-depth interview and questionnaire survey. The major steps (Fig. 1) started from question development, literature review, and in-depth interview. After confirming the factors affecting design organizational creativity, the research established the questionnaire of concrete measures elevating design organizational creativity upon these factors. After pretest, the researcher conducted questionnaire survey. The questionnaire content was edited mainly upon the results of literature review and in-depth interview. The targets of in-depth interview included the design executors of 8 major design companies and the design units in the companies. The researcher transformed the oral data into team/organizational culture, team climate, leadership, motives of work, structure of organization, evaluation system, decision model, design environment and design process. The first part of the questionnaire was to inquire for the respondents' subjective opinions with regard to the levels of the influences of these 9 major factors on organizational creativity. The second part listed the questions related to the factors and there were totally 47 proper methods which might elevate organizational creativity. In each question, "totally agree", "agree", "a little agree", "no comment", "a little disagree", "disagree" and "totally disagree" respectively referred to points 7, 6, 5, 4, 3, 2, 1. Before questionnaire survey, the researcher managed pretest on few designers and modified the questionnaires according to the problems discovered. The questionnaire survey lasted from July to October 2006 and the questionnaires were distributed by mail to 50 larger scale companies among domestic design units or companies registered on the website of Taiwan Design Center. In average, 4-5 questionnaires were sent to each firm and 250 were distributed in total. After sending the questionnaires, the researcher followed and confirmed with the contactors of each unit or unit executives by telephones and e-mails to increase the return rate of questionnaires. There were 112 questionnaires returned, 106 valid questionnaires and the return rate was 44.8%. The backgrounds of return samples were shown in Table 1.

Table 1: Background of test samples

Demographic statistics	# of people		%	Demographic statistics	# of people		%
Gender	Male	85	80.2	Organizational types	Design department	78	73.6
	Female	21	19.8		Design company	28	26.4
	Total	106	100%		Total	106	100%
Age	Less than 25 years old	12	11.4	Organizational scale	Less than 5 people	9	8.4
	25-30 years old	39	36.8		6-10 people	23	21.7
	31 -35 years old	34	32.1		11-20 people	45	42.4
	36-40 years old	12	11.3		21-40 people	16	15.1
	41-45 years old	6	5.7		More than 40 people	13	12.3
	46-50 years old	2	1.8		Total	106	100%
	51-55 years old	1	0.9				
	Total	106	100%	Business types (multiple choices)	OEM-oriented	33	22.1
					ODM-oriented	71	47.6
					OBM-oriented	45	30.2
					Total	149	100%
Education	High school (Vocational school)	4	3.8	Job positions	Assistant designer	29	27.3
	College	10	9.4		Junior designer	31	29.2
	University	61	57.5		Senior designer	18	16.9
	(Above) Graduate school	31	29.2		Head of design department	5	4.7
	Total	106	100%		Design manager	14	13.2
					Design director	9	8.5
Work experiences	Less than 2 years	12	11.3		Total	106	100%
	2-5 years	36	33.9				
	6-10 years	30	28.3				
	11-15 years	16	15.0				
	16-20 years	8	7.5	Work types (multiple choices)	Planning	43	15.0
	Over 20 years	4	3.7		Model	82	28.6
	Total	106	100%		Institution	37	12.9
					Marketing	22	7.6
					Color	37	12.9
					CAD/CAM	36	12.5
					Human factors/interface	29	10.1
					Total	286	100%

4. SURVEY RESULTS

4. 1. RESULT ANALYSIS ON ELEVATING DESIGN ORGANIZATIONAL CREATIVITY

According to Table 2, the respondents indicated that the most effective ways of improving design organizational creativity are in the order of knowledge / experience sharing among colleagues, sending designers to foreign design companies to visit, accumulations of team design experiences, visiting domestic and foreign design exhibitions and finally diversified design work experiences. Most of these methods focus on the factors directly related to design profession. By contrast, the design personnel indicated that consistent decision model, leadership of mentoring behavior, irregular organizational reorganization, the clients' participation in decision-making and flatting structure of organization do not significantly elevate organizational creativity. These related measures are mostly the ones mentioned in organizational management. According to this phenomenon, designers or design executors indicate that in order to elevate the creativity of design unit/organization, it still relies on design related factors. When we further examine the results from different elevation factors, we found that the measures in design environment are the most important ones for increasing design organizational creativity. The following are in the order of team climate and group /organizational culture. The latter are not the factors directly related to design; however, they are accepted with the respondents in terms of survey results which show the importance of these two issues with respect to creativity management.

Table 2:

Descriptive Statistical Analysis of Elevating Design Organizational Creativity

Factors	Question content	All samples (N=106 people)			All samples (N=106 people)		
		Averages	Standard errors	Ranking	Averages	Standard errors	Ranking
Team/organi-zational culture	Clear team targets and vision is helpful for the elevation of organizational creativity	5.81	.85	21	5.86	.64	3

	Team members' identification with creativity is helpful for the elevation of organizational creativity	5.91	.74	14			
Team climate	Team members' agreeable air is helpful for the elevation of organizational creativity	5.94	.90	11	5.87	.56	2
	Team members' positive competition is helpful for the elevation of organizational creativity	5.81	1.10	20			
	Diverse personality traits in the team are helpful for the elevation of organizational creativity	5.65	1.17	29			
	Unspoken consensus and mutual trust at work is helpful for the elevation of organizational creativity	6.05	.91	10			
	Good communication management in the team is helpful for the elevation of organizational creativity	5.91	.83	15			
Leadership	Aggressive and determined leadership is helpful for the elevation of organizational creativity	5.48	1.02	33	5.45	.66	7
	Leaders' complete empowerment is helpful for the elevation of organizational creativity	5.92	.99	12			
	Democratic leadership is helpful for the elevation of organizational creativity	5.48	1.12	34			
	Leadership of mentoring system is helpful for the elevation of organizational creativity	◎ 4.48	1.37	46			
	Leaders' complete support to creative ideas is helpful for the elevation of organizational creativity	5.92	.82	13			
Motive of Work	Individual work satisfaction is helpful for the elevation of organizational creativity	5.65	.99	28	5.69	.76	6

	Individual work achievement is helpful for the elevation of organizational creativity	5.89	.99	16			
	motive and challenge is helpful for the elevation of organizational creativity	5.52	1.02	32			
Structure of organization	Designers with different professional backgrounds is helpful for the elevation of organizational creativity	5.76	.94	25	5.03	.71	8
	Duty division with clear organizational rules is helpful for the elevation of organizational creativity	4.86	1.14	41			
	Flexible manpower unit is helpful for the elevation of organizational creativity	5.27	1.06	39			
	Flatting structure of organization is helpful for the elevation of organizational creativity	◎ 4.69	1.12	43			
	Regular organizational reorganization is helpful for the elevation of organizational creativity	◎ 4.58	1.42	45			
Evaluation/ reward	Substantial reward is helpful for the elevation of organizational creativity	5.76	1.06	24	5.58	.93	5
	Good performance evaluation is helpful for the elevation of organizational creativity	5.70	1.14	26			
	Treating creative results as the basis for rewards is helpful for the elevation of organizational creativity	5.56	1.10	30			
	Fair/public rewards and punishment are helpful for the elevation of organizational creativity	5.29	1.15	38			
Decision model	Consistent decision model is helpful for the elevation of organizational creativity	◎ 4.35	1.45	47	4.93	.87	9
	Cross department /field decision-making model is helpful for the elevation of organizational creativity	4.69	1.31	42			

	The organization can undertake high-risk decision-making is helpful for the elevation of organizational creativity	5.38	1.21	37
	Client's participation in decision-making is helpful for the elevation of organizational creativity	◎ 4.67	1.51	44
	Transparent decision model is helpful for the elevation of organizational creativity	5.56	.95	31
Design environment	Flexible work hour system is helpful for the elevation of organizational creativity	5.08	1.37	40
	Easy acquisition of design resources (support)is helpful for the elevation of 於 organizational creativity	6.16	.81	6
	Improvement of design hardware and software is helpful for the elevation of organizational creativity	5.80	1.14	22
	Comfortable design space is helpful for the elevation of organizational creativity	6.06	.99	9
	Interesting design environment is helpful for the elevation of organizational creativity	6.12	.96	7
	Frequent exchange of design knowledge/experience among the colleagues is helpful for the elevation of organizational creativity	* 6.39	.64	1
	Accumulation of group design experience is helpful for the elevation of organizational creativity	* 6.25	.77	3
	Complete filing of team work is helpful for the elevation of organizational creativity	5.78	1.00	23
	Frequent visit of domestic and foreign design exhibition is helpful for the elevation of organizational creativity	* 6.24	.85	4
		5.96	.58	1

	Frequent participation in design related seminars is helpful for the elevation of organizational creativity	5.87	.95	18			
	Frequent participation in professional design drilling is helpful for the elevation of organizational creativity	5.84	1.04	19			
Design process	Flexible design process is helpful for the elevation of organizational creativity	5.44	.90	35	5.85	.63	4
	Diverse design content is helpful for the elevation of organizational creativity	* 6.20	.86	5			
	Using group creativity (such as brainstorming) is helpful for the elevation of organizational creativity	6.10	.88	8			
	Increasing the time for idea development is helpful for the elevation of organizational creativity	5.42	1.21	36			
	Frequent exchange with outsourcing design organization is helpful for the elevation of organizational creativity	5.66	.98	27			
	Encouraging the designers to participate in design competition is helpful for the elevation of organizational creativity	5.87	1.05	17			
	Cultivating the designers ' international view is helpful for the elevation of organizational creativity	* 6.26	.78	2			

Description: "totally agree", "agree", "a little agree", "no comment", "a little disagree", "disagree" and "totally disagree" respectively refer to the points 7, 6, 5, 4, 3, 2 and 1. * means top 5 agreements and ◎ means top 5 disagreements.

4. 2. SIGNIFICANT DIFFERENTIATION ANALYSIS BASED ON DEMOGRAPHIC SEGMENTATION OF DESIGN ORGANIZATION

This research manages quantitative analysis by SPSS Windows 12.0 to calculate the frequency and percentage of the respondents' reaction as the basis for analysis. According to demographic statistics variables, the researcher examines the factors affecting design organizational creativity by t-test or

one-way ANOVA. Among others, gender, organizational types and job positions are based on t-test whereas age, education, work experiences and organizational scale use one-way ANOVA. After accomplishing variance analysis, the researcher compared the clusters of demographic statistics variables in pair by Scheffé post hoc multiple comparisons and generalizes the significant difference variables, as shown in Table 3.

Table 3. Generalized table of significant difference variable result of the influence of individual and organizational attributes on design organizational creativity

Individual/organizational attributes	Difference of importance levels	Items
Gender	Male > Female	Team members' positive competition is helpful for the elevation of organizational creativity
	Female >Male	Flexible manpower unit is helpful for the elevation of organizational creativity
	Male >Female	Treating the creative results as the basis for reward is helpful for the elevation of organizational creativity
Age	25 years old-30 years old >less than 25 years old 30 years old -40 years old >less than 25 years old	Leaders' total empowerment is helpful for the elevation of organizational creativity
	25-30 years old >less than 25 years old 30 years old -40 years old >more than 40 years old	Leaders' complete support to creative ideas is helpful for the elevation of organizational creativity
	25-30 years old >less than 25 years old	Designers with different professional backgrounds is helpful for the elevation of organizational creativity
	Less than 25 years old >more than 40 years old 25years -30years old>more than 40 years old	Interesting design environment is helpful for the elevation of organizational creativity
Educational levels	college school >university	Individual work achievement is helpful for the elevation of organizational creativity
	graduate school> college school	Substantial reward is helpful for the elevation of organizational creativity

	college school > graduate school	Good performance evaluation is helpful for the elevation of organizational creativity
	college school >university	Easy acquisition of design resources is helpful for the elevation of organizational creativity
	college school >university college school > graduate school	Increasing the time of the idea development is helpful for the elevation of organizational creativity
work experiences	Less than 5 years>6-10 years	motive and challenge is helpful for the elevation of organizational creativity
	Less than 5 years >6-10 years	Client's participation in decision making is helpful for the elevation of organizational creativity
	Less than 5 years >more than 10 years	Interesting design environment is helpful for the elevation of organizational creativity
Organizational types	Design department>design company	The organization's undertaking of high-risk decision is helpful for the elevation of organizational creativity
	Design department>design company	The client's participation in decision is helpful for the elevation of organizational creativity
organizational scale	More than 20 people>10-20 people Less than 10 people>10-20 people	Improvement of design hardware/software is helpful for the elevation of organizational creativity
Business types	No significant difference	Blank
Position	Designer >design manager	Clients' participation in decision is helpful for the elevation of organizational creativity
	Designer > design manager	Flexible work hour system is helpful for the elevation of organizational creativity
	Designer> design manager	Comfortable design space is helpful for the elevation of organizational creativity
	Designer > design manager	Interesting design environment is helpful for the elevation of organizational creativity
	Designer > design manager	Frequent participation in design-related seminars is helpful for the elevation of organizational creativity
	Designer > design manager	Frequent participation in professional design training is helpful for the elevation of organizational creativity

According to the table, we realize that with regard to establishment of positive competition among the team members and treating creative results as the base of rewards to elevate organizational creativity,

male agreement is more than that of female. On the contrary, with regard to the practice of flexible manpower unit, female agreement is higher than that of male; different ages have significantly different views with respect to leaders' complete empowerment, leader's support to creative ideas, designer units with different professional backgrounds and offering of interesting design environment to elevate organizational creativity (comparing with younger people, the older ones agree more on leadership; on the contrary, the younger people value more on the issues of design environment than the older ones); with regard to educational levels, the people with different educational levels have significantly different views on the elevation of individual work satisfaction, substantial reward system, well designed evaluation system, complete supply of design resources and increasing the time for idea development (comparing with the people with lower educational level, the ones with higher educational levels agree more on substantial reward. On the contrary, the ones with lower educational level value more on the issues of design environment and process) ; as to work experiences, the designers with different work experiences have significantly different agreements on the elevation of motive and challenge, clients' participation in decision model and providing interesting design environment to increase organizational creativity (the designers with over 10 year work experiences indicate that the influences of the above measures on design organizational creativity are significantly lower than those considered by the designers with less than 5 year work experiences) ; as to organizational types, comparing with design companies, design departments have higher agreement on the organizational undertaking of high risk and clients' participation in decision model which can elevate organizational creativity (the agreement of design companies on the influence of the above two measures on organizational creativity is significantly lower than that of the design department) ; as to organizational scale, the organizations with different scales have different and significant views on the improvement of design hardware/software to elevate organizational creativity (the agreement of design organizations with over 20 employees and less than 10 employees on the influence of the factor on organizational creativity is significantly higher than that of the design organization with more than 10—20 people) ; as to business types, there is no significant difference with respect to these elevation measures; as to the design executors and managers, they

have significant different recognitions with respect to clients' participation in decision model, flexible work hour system, providing comfortable design space and interesting design environment and frequent participation in design related seminars and professional design training to elevate organizational creativity (the design executors' agreements on the influence of these measures on the elevation of design organizational creativity is significantly lower than that of the designers) . These demographic statistics variables with significance show that different views of the design organizations in different conditions and environments with respect to design organizational creativity which is worthy of more attention from the design managers.

5. DISCUSSIONS

Since we add the conditions related to design profession in the research process, instead of simply measuring the organizational creativity climate by traditional method, we expect to further probe into the views of domestic design organizations or design firms with respect to organizational creativity upon reality and further allow design firms/organizations to confirm the most proper methods to elevate design organizational creativity. Before further discussion, we must confirm some concepts for future exploration. First of all, we must recognize that the elevation of individual creativity in the organization will be helpful to the increase of overall organizational creativity. In other words, when individual elevated the creativity in the organization through methods, it means the organizational creativity of the whole will also be increased. It meets the saying "many a little makes a mickle". Therefore, we first base on this standpoint. When the factors affecting organizational creativity happen, they will influence the performance of individual creativity as well. In the result of study, the top three factors refer to design environment, team climate and group/organizational culture. However, when we simply examine the proper methods on the elevation of creativity, our focus will be on two major professional design factors: design environment and design process. The difference shows the respondents' value on specific factors; however, we also recognize the helplessness to these specific issues. Using leadership as an example, in literature analysis, the said factor is an extremely important

one which influences design organizational creativity; however, the methods for elevation are relatively insufficient. Most of the respondents indicate that it is basically difficult to change someone's thinking models or working habits. Thus, although this factor plays important role in elevating organizational creativity in theory, the elevation methods can hardly improved. The same problem can be found in the factors more connected with "human beings", such as work climate, organizational culture and motives of work which are the "intangible factors". They cannot be controlled by regulated rules. The managers in the organization tend to spend more time deal with these factors. In the other hand, for the managers, the "tangible factors" such as structure of organization, evaluation or stimulation are easier to be controlled and manipulated. After combining the results of in-depth interview and significant difference test of demographic statistics, we find that the design executors value more the sophisticated operations of "intangible factors"; they understand the goal of the organization and how to apply proper opportunities to stimulate the organizational members to reach the target of increasing organizational creativity. By contrast, designers pay more attention on the tangible factors and the concrete measures which can enhance their own design creativity.

According to the questionnaires, we realize that the most effective methods to elevate design organizational creativity are in order to increasing knowledge/experience exchange among the colleagues, sending the designers to visit and exchange with foreign design companies, accumulations of group design experiences, frequent visits in domestic and foreign design exhibitions and diversified design work experiences. These methods were the factors related to design profession. However, in terms of these 9 factors, except for design environment which is still the most critical elevation factor, team climate and team/organizational culture are the organizational management related issues which shows that in order to increase organizational creativity, the design managers must also consider design and organizational management related factors at the same time. The factors with the least influences are structure of organization and decision model. The reason may be in the domestic environment of design industry (OEM and ODM are still the principal design and manufacturing model). Designers indicate that the decision still depends on the clients and cannot be independent out of the regular

framework of the firm. We also demonstrate the point from top 5 unimportant factors in the questionnaire with respect to elevating design organizational creativity, including consistent decision model, leadership of mentoring system, regular organizational reorganization, clients' participation in decision-making and flatting structure of organization which shows that these measures hinder the elevation of organizational creativity.

When we further probe into the factors affecting design organizational creativity from individual attributes, we find that since being in different conditions and environments, the design personnel have significantly different views as to how to increase design organizational creativity. Comparing with the managers, the design executors have more expectation on the some concrete methods producing originality upon self-learning in design environment or process, such as comfortable and interesting design space and frequent participation in design related seminars or training courses. In other words, these designers have faith on their self-growth and will not be affected by other external factors. The managers interviewed indicate that although above measures are important, there are actually other considerations with respect to the reality such as finishing time or client demands. The similar situation can be found in the variables of ages and work experiences. The younger designers with less work experiences show higher level in substantial design environment than older designers with more work experiences. For example, the former indicate that in terms of the elevation of self-creativity, if they can be identified by the clients and have complete empowerment from the managers, they will strengthen creativity and thus pursuit higher challenges. With respect to educational levels, for the people with lower educational levels (college and below college), since most of them are the design executors, they expect fair reward or treatment which is connected with the motives. They also value the elevation of personal creativity by the acquisition of external resources. By contrast, the people with higher educational levels value more on the substantial rewards to trigger their motives of creativity which seems to show that they require the return in the creativity performance with regard to their investment of higher education. As to organizational types, the design units in the companies can more flexibly apply the resources to undertake the risks of originality. The design companies indicate that the

clients' over participation will restrain the creativity. Since the business scale is not large enough, they cannot challenge high risk.

6. CONCLUSIONS

We have to admit the fact that it is not easy to change an organizations' behavioral model and further elevate its creativity in short period of time. Besides, it is very difficult to find a "best practice" commonly recognized by all kinds of design firms or design units. According to the interviews we have conducted, most managers agreed that we should give a clear definition on what is "good idea" before further discussing organization creativity and how to elevate it. The conception of "creative idea" normally involves forms, interfaces, materials, aesthetics, etc. The focus point above all guided by corporate strategy could be different due to different type of business model. As the result, in order to fit its own need, the way to elevate quality idea and the organizational creativity as the whole is never be the same even in the two identical design units or design firms. The design managers must rely on the conditions and restrictions of their own organizations and deal with it carefully. The following conclusions function as the reference for the design managers:

(1) Because of the difference of the environments limitations and conditions of organization, the proper measures to elevate the creativity of design organization will lead to different identifications in 9 factors affecting the creativity of design organizations. Sometimes, these factors are interrelated. The design executors must examine the cause effects and apply the situations of the unit to fulfill the best outcomes.

(2) The evaluation of creativity climate of unit/organization can be based on organizational environment evaluation scale (OAI or KEYS). However, in order to actually look for the proper measures to elevate organizational creativity, we should consider their individual professional fields. For design unit/organization, design process and design environment are the necessary factors which should be considered. When the design executors evaluate their organizational creativity, they must understand and clarify the factors both related to ordinary management issues and the factors related to design.

(3) As to the factors affecting design organizational creativity, there is the difference of tangible and intangible factors. An organization usually has both factors at the same time.The former can be easily controlled by the managers and be regulated by proclaimed rules. The elevation effect of the creativity can be found in short time; the latter is somehow unpredictable and cannot be changed in short period of time. However, its effect can last long. In this case, the managers suggested that manipulations of flexible tactics of tangible factors are far more effective than proclaimed rules of tangible factors.

7.REFERENCES:

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