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Measuring organizational innovative climates in technical institutes and university teachers

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Teachers' perceptions of organizational innovation climates are vital to understand the success or failure of innovational implementations of technical institutes and universities. This study aims to develop a "Measure of Organizational Innovation Climates for Technical Institutes and University Teachers (MOIC-TT) in order to recognize the influence of schools on teachers' creative behaviors. First, this study analyzes literature and scales related to organizational innovation climates, and reorganize the factors of technical institutes and university teachers' innovation climates into a draft of scale. Secondly, a pretest is designed according to expert examination, teacher interviews, and expert panel. This study examines items, reliability, and validity by 125 subjects in pretesting, and 627 subjects in formal testing. Results of confirmatory factor analysis reveal that three latent factors (i.e., resource support, innovation leadership, and team cohesion) are related, and the factor model has good fit. Full scale coefficient is .96 and reliabilities of sub-scales are .87~.93. The research results indicate that teachers have positive attitudes toward the organizational innovation climates of schools. They tend to agree with "team cohesion" and "working independence". Lastly, suggestions regarding content, characteristics, and future studies are proposed as reference for organizational innovation climates in technical institutes and universities.

Key words: Organizational innovation climates, technical institute and university technical Institute, working independence, innovation leadership, team cohesion.

INTRODUCTION

Organizational climates are an organizational members' attitudes, beliefs, motivations, and values upon subjective perceptions of the formal system of the organization, managements leadership, and other critical environmental factors, and can influence overall organizational innovation ability (Chou et al., 2010; Dunn and Mott,

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2009; Grewa and Slotegraaf, 2007; Polat, 2010; Sekiguchi et al., 2008; Vinarski-Peretz et al., 2011). When encountering the competitive educational environments of higher education and low birth rates in Taiwan, technical institutes and universities must create valuable operational performance through limited resources and organizational knowledge for sustainable operations.

They should emphasize cooperation with industries in order to enhance the cultivation of technical talents, creativity, and team work, as well as enhance organizational creativity and construct a "core ability" of software and hardware innovation (Chou et al., 2010; Damanpour and Wischnevsky, 2006; Imran et al., 2010; Liu et al., 2010; Meyer et al., 2010; Wen and Chiu, 2009).

For technical institutes and universities, upon organizational innovation climate, outcomes of innovative operations are revealed through excellent leadership, team work, and knowledge management, and can influence teachers' creative instructions (Cassar and Briner, 2011; Chen and Hu, 2008; Jing and Zhou; 2010; O'Connor, 2008; Shieh, 2010). Organizational innovation indicators of technical institutes and universities refer to from-the-outside-in performance oriented organizational innovation evaluation. The evaluation function is explicit and quantitative.

The evaluation of organizational innovation climate scale can probe into organizational members' perceptions of psychological climates, and both diagnose innovation criterion of evaluations and environmental factors of teachers' creative performances (Chen and Kuang, 2010; Yavuz, 2010).

Chiu and Chen (2008) indicated that "characteristics of works and tasks", "educational policy and social trends", "organizational structure and operational mechanisms" and "interpersonal interactions" would influence the innovative climates of schools. It does not emphasize the working independence for organization member. Organizational innovation climate development is creative, and involves innovative climates and psychological security in order to maintain creative behaviors (Amabile et al., 1996; Baranik et al., 2010; Chen and Hu, 2008; Imran et al., 2010). Innovation climate is based on innovative behaviors or results; in other words, the members' perceptions of organizational innovation would be displayed through workers' sense of freedom, sense of adventure, and support, and it demonstrates their identification with and trust in the organization's innovation (Iyer et al., 2006; Gumusluoglu and Ilsev, 2009; Jing and Zhou; 2010; Konings et al., 2007; Neininger et al., 2010; Panaccio and Vandenberghe, 2009). This study completed team cohesion and working independence which lack previous studies of Neininger et al. (2010) and Mathisen et al. (2006).

This study will develop instrument of organizational innovation climate and measure the perception of vocational and technological school in Taiwan.

LITERATURE REVIEW

Organizational innovation climate

Organizational innovation climate means that the atmosphere in which the organization encourages innovative behavior through the construction of formal measures and tools, as well as the provision of resources. Generally, organizational innovation climates are measured according to organizational operations, team work, learning and growth, leadership efficacy, working approach, environment, organizational values, resources, etc. (Chen and Huang, 2007; Chiu et al., 2009; Gumusluoglu and Ilsev, 2009; King et al., 2007; Patterson et al., 2005; Shieh, 2010).

Amabile and Gryskiewicz (1989) measured organizational innovation climates by overall organization, characteristics of organizational management, control, and team work. The members' perceptions of organizational innovation climates include: 1) emphasis on members' innovative ability and working independence; 2) emphasis on interpersonal interactions and innovative equipments, 3) supervisors' support and members' innovative behaviors are the main concerns; 4) emphasis on bureaucratic structure in comparison to an open and empowered structure, attitude, and approach of creativity (Chuang et al., 2010; Crespell and Hansen, 2008; Fang et al., 2010; Grewal and Slotegraaf, 2007; Imran et al., 2010; Liu et al., 2010; Vinarski-Peretz et al., 2011; Polat, 2010; Yavuz, 2010).

Innovation leadership

For schools, innovation leadership is a key factor of sustainable operations. Dunn and Mott (2009), Gumusluoglu and Ilsev (2009) and Harryson (2008) suggested the importance of innovation leadership in a progress from a close system to an open strategy network system (Khaliq et al., 2011; Wang et al., 2010).

O'Connor (2008) argued that appropriate culture, leadership context, and interface mechanisms within the mainstream organization are key factors of an innovation system. O'Connor (2008) also indicated the sense of being rewarded for identifying and implementing innovative ideas, and the sense of an organizational environment that is supportive of the development and implementation of innovative ideas. Employees' idea generation the sense they are expected and encouraged to take the initiative and try new ways of doing things are critical characteristics of leadership in organizational innovation climates (Cassar and Briner, 2011; Dunn and Mott, 2009; Wang et al., 2010).

Bouckenooghe et al. (2009) suggested that participation, support of supervisors, quality of change communication, and the attitude of top management toward

change are the processes of organizational change; however, the members' cognitive, intentional, and emotional readiness result from change.

Team cohesion

For teams, team cohesion relies on supervisors that support the teams as models; from high ranking to the basic level, members agree to creative jobs, develop vision of new ideas, and share values, and construct an open environment, which facilitates good interactions with employees and is reliable (Baranik et al., 2010; O'Connor, 2008; Meyer et al., 2010; Lee and Yu, 2010; Neininger et al., 2010).

Bouckenooghe et al. (2009) deduced 10 dimensions of organizational changes from literature, and suggested that trust in leadership, politicking, and cohesion are important variables for members' perceived changes of organizational climates.

Working independence

For teachers, working independence means that their works should be accepted and independently determined by teachers to further develop teachers' creative talents and behaviors (Gumusluoglu and Ilsev, 2009; Reuvers et al., 2008; Rooney and Gottieg, 2007; Tsai et al., 2010). Teachers' working independence aims to result in members' self-growth, and emphasizes the necessity of organizational openness, trust, communication, and participation (Bernacki, 2002; Panaccio and Vandenberghe, 2009; Yang and Hsu, 2010). Bouckenooghe et al. (2009) suggested that in the processes of organizational changes, members would actively interpret related incidents and phenomenon by participating in shared jobs, using resources provided by supervisors, and the challenge of job. Thus, working independence emphasizes teachers' freedom of thought and debate, and leaders should provide them with resource support and rewards.

Based on the above, organizational innovation climate includes three major constructs: 1) innovation leadership: supervisors have unique creative opinions and support creativity on the job; 2) team cohesion: there is positive communication between diverse members, and open and respectful attitudes toward new ideas; 3) working independence: members are motivated to control job content accomplished and future progress by their thoughts and cognition. This study aims to develop an organizational innovation climate scale for technical institutes and universities. It targets technical universities and vocational schools to probe into their teachers' perceptions of organizational innovation climates. Through exploratory and confirmatory factor analysis (EFA), this study extracts the dimensions of organizational innovation climates of technical institutes and universities, and examines the reliability of the organizational innovation climate scale by confirmatory factor analysis (CFA) in order to accomplish scale development through reliability and validity testing.

RESEARCH METHODS

Study 1: Scale writing

This study first designs pretesting for an organizational innovation climate scale; the items in the draft are based on the scale proposed by Chiu et al. (2009), Organizational Change Questionnaire–Climates of Change, Processes, and Readiness (OCQ–C, P, R) of Bouckenooghe et al. (2009), and climates for innovation scales of King et al. (2007). According to literature, there are five main factors, with each factor involving 8-10 items, and the elimination of improper items. There are 65 items in the scale for pretesting.

Study 2: Scale examination

Upon expert examination, teachers' modifications, and an expert panel, the propriety of content and items of scale for the pretest are validated as follows:

1. Expert examination: five participants with instructional and administrative experience in vocational schools and technical universities had three discussions in order to examine the questionnaire contents, and upon the addition or elimination of some items, a total of 52 items remain.
2. Teachers' modifications: this researcher invited five teachers with more than 15 years of experience teaching at different levels in order to modify the descriptions in the draft to meet teachers' thoughts and cognition.
3. Expert panel: 21 principals and directors of vocational schools and technical universities were invited to discuss the overall questionnaire direction. In groups, they discussed the items with the aim of enhancing their meanings. They also examined descriptions, meanings, theories, concepts, perceived innovative educational values, and propriety of items in order to validate the content of the scale. After examination and upon organizational innovation characteristics of technical institutes and universities, this researcher generalized factors of the pretest scale, for a total of 40 items.

Study 3: Pretest of scale

Pretesting, item analysis and exploratory factor analysis are shown as follows:

1. Pretesting was based on convenience sampling; this study treated 185 technical institute and university teachers as pretest participants, consisting of 70% males, 30% females, 50% full-time teachers, and 50% teachers and administrators.
2. Item analysis: this study conducted missing value tests, descriptive tests, and extreme value comparisons on pretest samples, and item-total correlation analysis and overall consideration, and eliminated inappropriate items with significant skewness, extreme means, and large coefficient of skewness. Among the 185 pretest samples, the first and last 27% (about 52 people) of the total score of the full scale were treated as a high-score group and a low-score group. Criterion analysis of internal

consistency (t test of mean difference between high and low score groups) was conducted. According to analysis, the t value of the five items did not reach statistical significance, and thus, 10 items were eliminated, and 30 items were retained for factor analysis.
3. Exploratory factor analysis: factor analysis was conducted on extracted items in order to construct validity for the sub-scales and scales, and this study continued to eliminate improper items. Exploratory factor analysis was based on SPSS 16.0. Factors with eigenvalues over 1, and principal components analysis were adopted. Since correlation among factors was over 3, the factors were extracted by oblique rotation (Hair ed al., 2006). After data analysis, KMO reached .938, Bartlett Sphericity Test was significant, Degrees of Freedom were 105, and commonality was over .6, which indicates that the scale was proper for factor analysis testing (Hair et al., 2006). According to the results of the first exploratory factor analysis, 30 items were categorized into four major factors, which explain 70.3% of the variance. Based on factor analysis, most items met the expected factors in pretesting; however, some items were allocated as independent factors. In order to extract definite and simple factors, they were categorized into three, and items with high load and stable fall factors were selected. After the second Principal Components Analysis, this study extracted 3 factors, each with an eigenvalue over 1. Screed Testing was slack after the third factor, thus, 3 factors were extracted. The total variance explained was 74.069%. Upon rotation, each factor involved five items, and the factor loadings of each item was between .767~.915, which indicates that the scale was proper (Henson and Roberts, 2006). In this stage, 15 items were retained for formal testing, as shown in Table 1.

Study 4: Formal scale study and analysis

Participants

A total of 750 questionnaires of the formal scale are distributed, and 627 effective questionnaires are returned, for a response rate of 82.3%. The respondents are teachers of 75 Taiwan vocational schools and technical university schools, stratified for region and educational networks. In this population, there are 5 public technical universities, 9 private technical universities, 4 public technical institutes, 7 private technical institutes, 28 public vocational schools, and 22 private vocational schools. Table 2 lists the basic information of the technical institutes and universities.

Materials

The formal version of the Measure of Organizational Innovation Climates for Technical Institutes and University Teachers (MOIC-TT) contains 15 items, after pretesting analysis. These items are presented in Table 1. Respondents were asked to rate these items on a five point Likert-scale, ranging from 1 (strongly disagree) to 5 (strongly agree). This study defines organizational innovation climates as organizational members' perceived descriptions of the workplace, which indicate innovation leadership, team cohesion, and working independence. In other words, the better the members' perceived school innovation leadership, team cohesion, and working independence, the higher the school organizational innovation climates will be.

RESULTS

Confirmatory factor analysis of MOIC-TT scales

In the pre-test, confirmatory factor analysis is conducted with Lisrel 8.52 on the three factors extracted by exploratory factor analysis in pretesting. Hair et al. (2010) suggested examining the estimation errors of the parameters of the model prior to confirmatory factor analysis. Error variances, normalized parameter coefficients, and standard errors of data in this study are proper for fit testing. It is suggested that 200~500 samples are the most suitable for a structural equation model. By SPSS16.0, 200 teachers are randomly selected as samples, including 62% males and 38% females, for confirmatory factor analysis. Fit test results are shown in Figure 1 and Table 3:

1. Absolute Fit statistics: Chi-Square (X^2) is 247.24, Degrees of Freedom are 87, X^2/d.f. is2.841; Root Mean Square Residual (RMR) is 0.036, Root Mean Square Error of Approximation (RMSEA) is 0.044; Goodness-of-Fit Index (GFI) is 0.90, Adjusted Goodness-of-Fit Index (AGFI) is 0.86, and Expected Cross-Validation Index (ECVI) is 1.32. Measures of absolute fit statistics all meet the criterion (Hair, 2010; Hu & Bentler, 1999).
2. Incremental Fit statistics: Normal Fit Index (NFI) is 0.97, Relative Fit Index (RFI) is 0.97, Incremental Fit Index (IFI) is 0.98, Non-Normed Fit Index (NNFI) is 0.98, and Comparative Fit Index (CFI) is 0.98. Hair (2010) et al. suggested that Incremental Fit measures should be above .9. Data of this study meets the criterion (Bagozzi & Yi, 1988; Bentler & Bonett, 1980).
3. Parsimony Fit statistics: Akaike information criterion (AIC) is 263.40, Parsimony Normed Fit Index (PNFI) is 0.81, Critical N(CN) is 121.39, and Parsimony Goodness of Fit Index (PGFI) is 0.65. Data of this study meets the criterion (Bentler and Bonett, 1980).
4. Factor correlation: there is a correlation among the three factors of organizational innovation climates, with values ranging between .61~.80. All coefficients reach the significance level (.001), indicating high degree of correlation. Moreover, the correlation coefficients are not significantly different. There can be only one latent factor called organizational innovation climates (Chiu et al., 2009).

Internal consistency and descriptive of MOIC-TT scales

This study measures the internal consistency of the three scales with Cronbach's α coefficient. The results (Table 4) show a high internal consistency (>.97) for the three scales. The mean scores of the three scales show that teachers of the total sample are positive towards factors of school organizational innovation climates in Taiwan. According to Table 4, regarding teachers' perceived organizational innovation climates, their agreement to "Team Cohesion" (M=3.89; SD=0.79) is the highest; the second is "Innovation Leadership" (M=3.48; SD=0.87), followed by "Working Independence" (M=3.89; SD=.67).

Table 1. Results of the exploratory factor analysis

Scale Name	Description	Source of literature	Item description	Component			Commonality
				I (working independence)	II (innovation leadership)	III (team cohesion)	
Working Independence	Organizational members are motivated to control accomplished jobs and progress according to their thoughts and cognition.	Chiu, Chen and Lin(2009) ; King, Chemrmont, West, Dawson & Hebl (2007) Mathisen, Torsheim, & Einarsen (2006)	1. I constantly think over innovative teaching materials and approaches	.824*	.381	-.408	690
			2. I develop students' diverse intelligence and creativity by diverse teaching approaches.	.839*	.418	-.402	.707
			3. Besides regular instructional administration regulations of the school, teachers can freely include creativity in course design.	.767*	.581	-.416	.626
			4. Teachers of the school can implement creative instructional ideas in instruction.	.791*	.649	-.509	.693
			5. I can actively promote and implement instructional innovative ideas.	.825*	.534	-.420	.690
Innovation Leadership	Organizational members perceive work support for active innovation in different sections, and teachers are stimulated to try creative and vital approaches.	Amabile & Gryskiewicz(1989); O'Connor (2008); Mathisen, Torsheim, & Einarsen (2006)	6. The school values human resources and encourages creative thinking.	.575	.825*	-.494	.702
			7. The school financially supports innovative R&D.	.458	.826*	-.521	.686
			8. Supervisors of the school respect different creative ideas and opinions.	.539	.889*	-.550	.794
			9. Exchange and communication are easy in the school.	.444	.899*	-.519	.813
			10. The school advocates freedom and innovative reform.	.514	.876*	-.558	.772
Team Cohesion	Positive communication in teams with diverse members; open and respectful attitudes toward new ideas.	Chiu, Chen and Lin(2009) ; Amabile & Gryskiewicz (1989); Bouckenooghe, Devos & Broeck (2009)	11. Our team has morale and fighting power.	.417	.502	-.909*	.828
			12. Our team can immediately solve problems.	.453	.515	-.905*	.819
			13. Our team has clear and definite goals.	.461	.506	-.915*	.839
			14. I can fulfill my goals in this department.	.426	.582	-.842*	.724
			15. Colleagues of the school share common consensus.	.408	.525	-.853*	.729
Inter-factor Correlations				I	II	II	
I				-	-.579	.550	
II					-	-.480	
II						-	
Eigenvalue				1.260	8.134	1.717	
Explained variance				8.398%	54.225%	11.446%	
Accumulated explained variance				74.069%	54.225%	65.671%	
Cronbach`s α of factors				.931	.873	.918	
Cronbach`s α of full scale					.939		
Kmo					.938		
Bartlett Sphericity test					.000		

Table 2. Analysis of basic information of technical institutes and universities.

	Basic information	Groups	No of people	%
Technical university schools	Gender	Male	231	69.0%
		Female	104	31.0%
	Educational background	University (or below)	12	3.6%
		Master	105	31.3%
		Doctor	218	65.1%
	Seniority	5 years or less	55	16.4%
		5~10 years	99	29.6%
		10~15 years	87	26.0%
		More than 15 years	94	28.1%
	Current position	Full-time teachers and administrators	159	47.5%
		Full-time teachers	176	52.5%
	Current position	Professor	27	8.1%
		Associate professor	125	37.3%
		Assistant professor	97	29.0%
		Lecturer	86	25.7%
	Background of teachers	Science and engineering, agriculture, and design	135	40.3%
		Business management, tourism, and recreation	134	40.0%
		Health and medicine	20	6.0%
		Liberal arts, law, education, and literacy	46	13.7%
	School attribute	Public	122	36.4%
		Private	213	63.6%
	School classification	Technical university	175	52.2%
		Technical institute	160	47.8%
	Number of students	5,000 students or less	73	21.8%
		5,001~10,000 students	159	47.5%
		More than 10,001 students	103	30.7%
Vocational schools	Gender	Male	163	55.8%
		Female	129	44.2%
	Educational background	University (or below)	152	52.1%
		Master	136	46.6%
		Doctor	4	1.4%
	Seniority	5 years or less	78	26.7%
		6~10 years	44	15.1%
		11~20 years	90	30.8%
		More than 21 years	80	27.4%
	Current position	Administrators	31	10.6%
		Full-time teachers	127	43.5%
		Teachers and administrators	134	45.9%
	School attribute	Public	195	66.8%
		Private	97	33.2%
	School scale	Less than 15 classes	5	1.7%
		16-30 classes	45	15.4%
		31-45 classes	128	43.8%
		More than 46 classes	114	39.0%
	School history	10 years of less	1	.3%
		11~20 years	13	4.5%

Tables 2. Contd.

		21~30 years	36	12.3%
		More than 31 years	242	82.9%
	General program	Yes	172	58.9%
		No	120	41.1%
	Years of general program	Without general program	120	41.1%
		Less than ten years	125	42.8%
		More than ten years	47	16.1%
	Percentage of classes of general program	Without general program Less than 25% More than 25%	120	41.1%
			100	34.2%
			72	24.7%

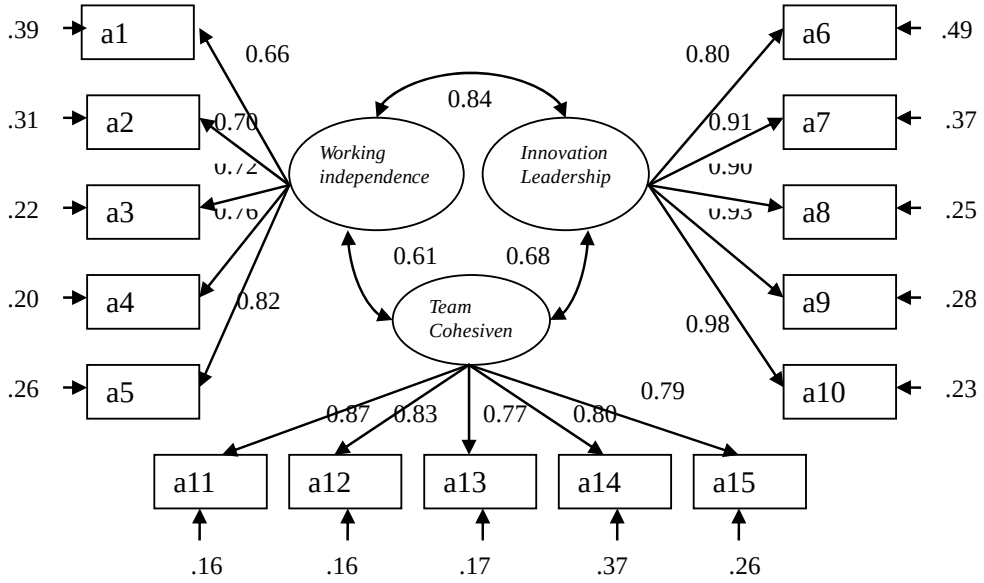

Figure 1. Confirmatory Factor Analysis

Cronbach's α of the three factors are .873, .918, and .931, respectively, and *Cronbach's* α of the full scale is .968, which demonstrates a high degree of internal consistency.

DISCUSSION AND RESEARCH LIMITATIONS

Dimensions of "Measure of Organizational Innovation Climates for Technical Institutes and University Teachers (MOIC-TT) developed by this study include innovation leadership, team cohesion, and working independence. Results of reliability, validity, and factor analysis are proper. The attitude scale is reliable, and effectively probes into working conditions and organizational operations. Innovations should be accomplished through both working independence and team work. It demonstrates meanings and uniqueness of the different levels in organizational cultures (Chiu et al., 2009; Fang et al., 2010; Polat, 2010; Shieh, 2010).

Findings of data analysis of MOIC-TT suggest that, regarding technical institutes and university teachers' perceived organizational innovation climates, they tend to agree to "team cohesion" and "working independence", and disagree with "innovation leadership" as the important factors of organizational innovation climates (Bouckenooghe et al., 2009; Chen and Kuang, 2010; Gumusluoglu and Ilsev, 2009; Khaliq et al., Yang and Hsu, 2010). Innovation leadership functions as a potential activator within an organization; moreover, there is a high degree of correlation between members' creative behaviors and working outcomes. Members' innovation

Table 3. Parameter estimation of model.

Parameter	Non-Standard Parameter	Standard Error	t
λ_1	.66	.057	11.63
λ_2	.70	.055	12.9
λ_3	.72	.05	14.3
λ_4	.76	.051	15.0
λ_5	.82	.056	14.57
λ_6	.80	.065	12.25
λ_7	.91	.064	14.24
λ_8	.90	.058	15.38
λ_9	.93	.061	15.22
λ_{10}	.98	.061	16.09
λ_{11}	.87	.053	16.54
λ_{12}	.83	.051	16.25
λ_{13}	.77	.049	15.64
λ_{14}	.80	.06	13.35
λ_{15}	.89	.054	14.51
φ_{21}	.84	.003	30.91
φ_{22}	.61	.05	12.35
φ_{31}	.68	.04	15.86
δ_1	.39	.043	9.07
δ_2	.31	.036	8.7
δ_3	.22	.027	8.07
δ_4	.20	.026	7.6
δ_5	.26	.033	7.9
δ_6	.49	.053	9.17
δ_7	.37	.043	8.57
δ_8	.25	.032	7.97
δ_9	.28	.035	8.08
δ_{10}	.23	.032	7.4
δ_{11}	.16	.022	7.13
δ_{12}	.16	.021	7.44
δ_{13}	.17	.021	7.95
δ_{14}	.37	.041	8.98
δ_{15}	.26	.03	8.57

Table 4. Cronbach's and descriptives for the six scales of the total sample (n=627).

Constructs	α	M	SD
(1) Working Independence	0.873	3.89	0.67
(2) Innovation Leadership	0.918	3.48	0.87
(3) Team Cohesion	0.931	3.89	0.79

and creativity can be stimulated by leaders, allowing organizations to develop creativity and a free and innovative reform culture. Moreover, with financial support and communication of innovative ideas, innovation leadership is key in the construction of organizational innovation strategies and policies (Chen and Huang, 2007; Gumusluoglu and Ilsev, 2009; Imran et al., 2010; Reuvers et al., 2008; Yavuz, 2010). Results of Gumusluoglu and Ilsev (2009) suggested that transformational leadership has important effects on creativity for both individual and organizational levels. At the individual level, the results of hierarchical linear modeling show that there is a positive relationship between transformational leadership and employees' creativity. In addition, transformational leadership influences employees' creativity through psychological empowerment. Since supervisors have greater resources and authority than teachers, they should demonstrate their influence through innovation leadership. In addition to being a model, they should encourage teachers to be creative and break from tradition in order to enhance the creativity and innovation of schools.

This study finds a high degree of correlation between working independence and innovation leadership. Thus, for technical institutes and university supervisors and leaders, when teachers have high individual and team independence, they will be able to control job progress and creativity; and when individuals perceive their options to finish tasks, they would be more creative, such as innovative teaching materials and approaches, using diverse instructional approaches, developing students' diverse intelligence and creativity, teachers' free involvement of creativity in course design, and implementation in actual instruction. Teachers will undertake innovative instruction and innovative responsibility by "self-monitoring" and "self-control" to carry out "working independence" in order to accomplish self-commitment; with working independence, the members will solve problems with high degrees of imagination, intelligence, and creativity (Cassar and Briner, 2011; Meyer et al., 2010; Vinarski-Peretz et al., 2011; Tsai et al., 2010).

Organizational innovation climates emphasize members' perceptions of an organization, and values adventure, challenge, freedom, relaxed atmosphere, resources, undertaking risks, and failure tolerance (Baranik et al., 2010; Chuang et al., 2010; Chen and Kuang, 2010; Neininger et al., 2010). Through scale results of innovation leadership, working independence, and team cohesion, this study effectively interprets the critical content of innovative climates. Jobs should be psychologically accepted by individuals; individual talent development should be allowed; and individuals should be allowed significant self-determination. In order to result in the self-growth of members and place emphasis on the necessity of organizational openness, trust, communication, and participation, practical applications are as follows: (1) working independence: teachers' knowledge sharing should be enhanced in order to improve efficacy of organizational innovation; (2) team cohesion: school innovation outcomes should be regularly examined and excellent teams should be rewarded to enhance school innovation; schools can encourage different departments to become innovative partners, or to cooperate and exchange ideas with other schools in order to construct an innovation community; (3) innovation leadership: supervisors should enhance the intelligence of innovation leadership, organizational vision, and commitment in order to fulfill school innovative operational outcomes, demonstrate reform attitudes, and administrative support in order to increase school innovation operational performance. Regarding administration management and innovative operations of information technology, approachability of transformational leadership and respect for, and trust in, members should be enhanced.

Conflict of Interests

The authors have not declared any conflict of interests.

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