Agris on-line Papers in Economics and Informatics

Volume IV Number 3, 2012

Possibilities of Using the Four-factorial Inventory of the Climate of Innovation in the Czech Agricultural Sector

J. Hron, L. Pilař, J. Pokorná, M. Štádlerová

Faculty of Economics and Management, Czech University of Life Science in Prague, Czech Republic

Anotace

Pro zvýšení konkurenceschopnosti evropského modelu zemědělství je nutné vytvářet inovační prostředí v oblasti zemědělské prvovýroby a v následném zpracovatelském průmyslu. Míra inovací ve zpracovatelském průmyslu z velké části ovlivňuje konkurenceschopnost podniků na trhu. The team climate inventory (TCI-38) je specifický nástroj pro měření důležitých aspektů inovačně zaměřeného týmového pracovního prostředí. Cílem článku je ověření možnosti použití nástroje TCI-38 v České republice a jeho následné možnosti použití v zemědělském sektoru. Na základě explorativní a konfirmativní faktorové analýzy je v článku popsána faktorová struktura TCI-38 v České republice. Explorativní faktorovou analýzou byly vstupní proměnné redukovány na 5 faktorů: (1) Týmová vize, (2) Podpora inovací, (3) Bezpečná spolupráce, (4) Orientace na úkoly, (5) Komunikace, které popisují 79,46 % rozdílnosti ve výchozím souboru. Výsledky rozdílnosti ve výchozím souboru a koeficienty reliability extrahovaných faktorů ukazují, že TCI-38 je stabilní nástroj pro měření inovačního klimatu týmového pracovního prostředí v České republice.

Článek vznikl za podpory interní grantové agentury (IGA) České zemědělské univerzity v Praze, registrační číslo: 201111140064.

Klíčová slova

Agrární sektor, inovace, týmová vize, podpora inovací, bezpečná spolupráce, orientace na úkol, komunikace.

Abstract

To increase the competitiveness of the European model of agriculture, an environment of innovation must be created in the field of primary agricultural production and in the subsequent processing industries. The level of innovation in the processing industry greatly influences the competitiveness of businesses on the market. The team climate inventory (TCI-38) is a specific tool for measuring the important aspects of an innovation-focused team work environment. The aim of the article is to verify the possibilities of use of the TCI-38 tool in the Czech Republic. The TCI-38 factor structure in the Czech Republic is described in the article on the basis of exploratory and confirming factor analysis. Through exploratory factor analysis, the input variables were reduced to 5 factors: (1) Team vision, (2) Support for Innovations, (3) Participation Safety, (4) Task Orientation, (5) Communication, which accounted for 79.46 % of the total variance. The results Rotation Sums of Squared Loading and reliability coefficients of extracted factors show that TCI-38 is a stable tool for measuring the climate for innovation in the team work environment in the Czech Republic.

The article originated as a part of the Internal Grant Agency (IGA) of the Czech University of Life Sciences in Prague, Registration Number 201111140064.

Key words

Agricultural Sector, Innovation, Team Vision, Support for Innovations, Participation Safety, Task Orientation, Communication.

Introduction

In order for a Agribusiness to be competitive on the global markets, it needs employees who actively resolve issues, seek new opportunities and continuously improve their working environment.

Companies that satisfy themselves with employees that only do what they are told lose their competitive edge (Frese and Fay 2001). The organization climate is affected by a number of internal and external factors, which indirectly create the innovative climate of the businesses (Isaksen and Lauer, 1999). The connection of innovation, which is widely accepted as the primary driving force of sustainable growth in a business (Christensen and Raynor 2003) and the ability to create new thoughts, which is considered as the starting point of innovation (Shalley and Perry-Smith 2001) shape the space for the creation of competitive advantages and maintenance of continuous growth of the business. In this connection it is necessary to focus our attention on the factors that create a pro-innovation work environment.

The aim of the research is to validate, on the basis of exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) the model of a Team Climate Inventory (TCI-38) (Anderson and West 1998) in the Czech Republic.

Material and Methods

Agricultural sector and innovation

Small and medium-sized enterprises in Agribusiness are more focused on incremental innovation. Proposed to radical innovation, they are also engaged more in product and process innovations in packaging than, position and paradigm innovations. In terms of innovation characteristics these innovations are affected by many factors, the most important are the commitment to encouraging new ideas, and cultivating innovative employees (Beregheh, Rozlez, Sambrook, Davies, 2012).

Anderson and West (1998) describe TCI-38 as a tool for measuring important aspects of an innovation-focused team work environment. In connection with further researches TCI-38 is described as the Team Climate For Innovation (Tseng 2009; Lu 2011)

TCI-38 (Anderson and West 1998) was assembled on the basis of extrapolative and confirmatory analysis from the original version TCI-116 (West 1990) through research on different subjects. The original version was reduced from 116 variables to 38 variables, from which a four-factor version (38 questions) was put together with an interval of internal consistency of Alfa 0,84 – 0,94 (Anderson and West 1998): (1) Team Visions – how clearly are they defined, shared, attainable and evaluated team goals and visions (2) Support for innovations – how team members perceive the other members of the team and the team leader in the area of support of new ideas (3) Participation safety – to what extent does the team cooperate in the area of proposing new ideas (4) Task orientation – to what extent does the team consider task fulfillment as an important part of team performance in light of a joint mission.

TCI-38 was subsequently validated in Italy (Ragazzoni, Baiardi, Zotti, Neil Anderson, M. West 2002), Greece (Chatzi and Nikolaou 2008), Norway (Mathisen et al. 2004) and China (Sun 2011).

The original version of TCI-38 (Anderson and West 1998) was independently translated by the author of the article and a translation agency. Differences were subsequently consulted with a native speaker. Data for validation of the model were obtained on the basis of contacting 486 medium-sized businesses (European Commission, 2006 electronic form of contact to e-mail addresses of the companies listed in the catalog www.firmy.cz. A request form with instructions on completing a survey was distributed to the companies, where on the basis of numbers assigned in the request the first survey was completed by the team leader (restricted, by request, to the area of research, development and introduction of new products and services in the company) and subsequently by team members chosen by the team leader as competent for the completion of the survey (on the basis of criteria of direct cooperation with the leader and participation in the team for more than 6 months) at the domain www.inovace2011.cz. From 1.10.2011 – 1.12.2011 the survey was completed by 112 businesses (return rate 23.01 %). The survey was completed by 86 team leaders and 254 team members (average number of completions per team was 2,95 employees). EFA was used for lowering the large number of variables to a smaller number, a more manageable number of factors (Hair et al., 2006). SPSS 18 software was used for statistical processing. For measuring the level of team climate factors arising from the TCI-38 model, the five-point Likert scale was used: (1) Team vision – 11 variables (2) Support of innovations - 12 variables (3) Participation safety – 7 variables (4) Task orientation – 8 variables. Factors were reduced in the SPSS 18 program on the basis of EFA – the Varimax rotation method – orthogonal rotation of the original factors. The number of factors was selected on the basis of a graph method, using a sutin graph. The structure of the factors was verified on the basis of CFA in the SPSS AMOS 19 program. For evaluation of factor load of individual factor variables and the overall acceptability of the model, the following indices were used: Goodness-of-Fit Index, Root Mean Square Error of Approximation, Normed Fit Index, Tucker-Lewis Index, Comparative Fit

Index	Setpoint	Source
GFI	>0,9	Garson, 2006
RMSEA	<0,08	Garson, 2006
NFI	>0,9	Garson, 2006
TLI	>0,9	Garson, 2006
CFI	>0,9	Garson, 2006
IFI	>0,9	Garson, 2006
CMID/DF	<3	Hair at al, 2006

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 1: Fit Indices.

Factor	Rotation Sums of Squared Loadings		
	Celkové	% variabilita	Kumulativní součet %
Factor 1 (FA1)	7,908	20,809	20,809
Factor 2 (FA2)	7,399	19,471	40,280
Factor 3 (FA3)	6,284	16,537	56,817
Factor 4 (FA4)	5,269	13,865	70,683
Factor 5 (FA5)	3,337	8,781	79,463

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 2: Rotation Sums of Squared Loadings.

Index, Incremental Fix Index, and Normed Chi-square; Table 1: Fit Indices. For confirmation of discriminatory validity of the model, correlation coefficients between individual factors with a critical value of 0,85 (Kline, 2010) were monitored.

Internal consistency of factors was evaluated by Cronbach's alpha reliability coefficients based on the following criteria:: "_ > .95 – Too high, _ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and_ < .5 – Unacceptable" (George and Mallery, 2003)

Results and discussion

EFA was used for validation of TCI-38 (Anderson and West 1998). Variables entering TCI-38 that were evaluated as "excellent" for use of EFA (Lackey a Nancy 2003) were examined on the basis of the Kaiser-Meyer-Olkinova test (0,963). A sample of 254 respondents is sufficient, in light of the number of input variables, for the use of factor analysis (Hutcheson and Sofroniou 1999; Garson 2008).

Through explorative factor analysis, the original 38 variables were reduced to 5 independent factors witch accounted for 79.46 % of total variance of the TCI-38 construct (Table 2: Rotation Sums of Squared Loadings).

Through exploratory factor analysis, the original 38 variables were reduced to 5 independent factors: (1) FA1 explains 20.81 % of the total variability of the set of variables. It is characterized by weights (0,532 – 0,932) and is composed of 11 variables. This factor, in analogy with the tested version of TCI-38 (Anderson and West 1998) can be interpreted as team vision. (2) FA2 explains 19.47 % of the total variability of the set of variables. The load of this factor is expressed in values (0,560 – 0,796) and it is composed of 9 variables. This factor, in analogy with the tested version of TCI-38, can be interpreted as Task Orientation. (3) FA3 explains 16.54 % of the total variability of the set of variables. The load of this factor is expressed in values (0,576 – 0,810) and it is composed of 7 variables. This factor, in analogy with the tested version of TCI-38, can be interpreted as Support for Innovation. (4) FA4 explains 13.87 % of the total variability of the set of variables. The load of this factor is expressed in values (0,728 – 0,805). This factor, in analogy with the tested version of TCI-38, can be interpreted as safe cooperation. (5) FA5 explains 8.78 % of the total variability of the set of variables. The weights of this factor are high in values (0,740 – 0,834). This factor is composed of variables of 1 variable from the factor of task orientation (from the original version of TCI-38) and 3 variables of the factor support of innovations (in the original version of TCI-38). On the basis of interpretation of variables (example of position:

Variable	FACTOR					Variable	FACTOR				
	FA1	FA2	FA3	FA4	FA5		FA1	FA2	FA3	FA4	FA5
29	0,932					3			0,810		
21	0,881					1			0,777		
24	0,873					12			0,763		
27	0,861					6			0,739		
25	0,841					10			0,728		
22	0,836					17			0,585	0,472	
28	0,725					14		0,559	0,576		
23	0,710					32				0,805	
30	0,707					34				0,790	
26	0,690					33				0,789	
31	0,532			0,482		35				0,786	
2		0,796				36				0,776	
18		0,737				38				0,761	
19		0,707				37				0,728	
5		0,678				11					0,834
16		0,658				20					0,785
8		0,651				15					0,780
13		0,615				4					0,740
7		0,579	0,452								
9		0,560	0,508								

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 3: Rotated Factor Loading.

	Original	CZ EFA	Cronbach's Alfa	Results	CZ CFA	Cronbach's Alfa	Results
Team Vision	11	11	0,958	Too high	5	0,936	Excellent
Support for Innovation	12	7	0,959	Too high	6	0,939	Excellent
Participation Safety	7	7	0,943	Excellent	6	0,926	Excellent
Task Orientation	8	9	0,972	Too high	8	0,947	Excellent
Communication		4	0,857	Good	4	0,857	Good
Sum	38	38			29		

Source: Processing of authors based on data from research in 2012 (see chapter methods)

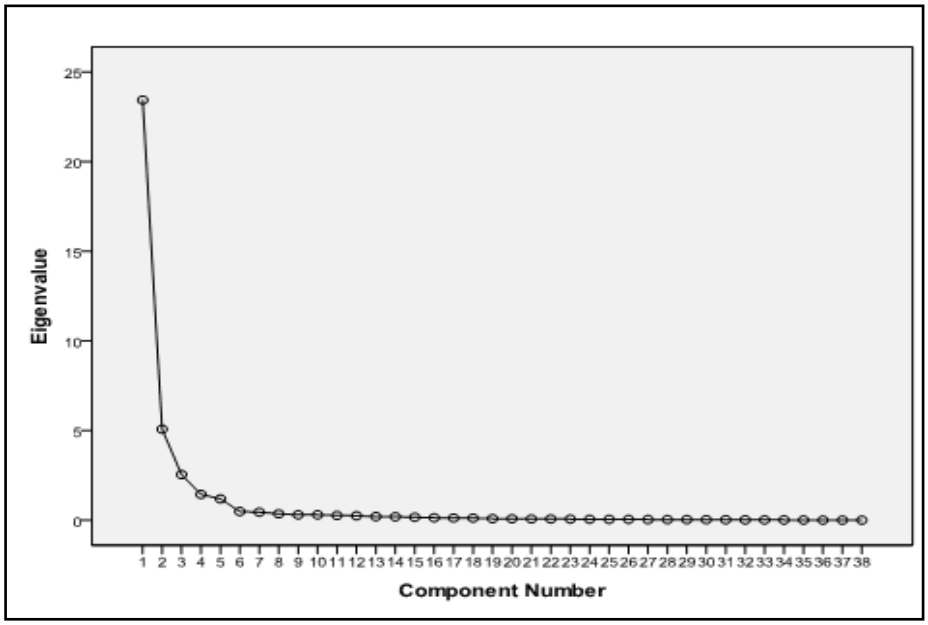
Table 4: Reliability coefficients.

"team members speak with each other formally and informally" and "mutual communication is frequent within the team") the factor, in analogy with other research (Ragazzoni, Baiardi, Zotti, Neil Anderson, M. West 2002; Chatzi, Nikolaou 2008; Mathisen et al. 2004; Sun 2011), was interpreted as Communication.

Coefficients of Cronbach's Alfa are over 0,85 for all factors, which indicates a high level of internal consistency of individual factors.

The effect of the share of factors on the overall description of differentiation is expressed by graph 1.

CFA was performed in the SPSS AMOS 19 program. The process of balancing the model was based on recommended methodology (Hair et al., 1998). The basic structure of the model was constructed on the basis of results of exploratory factor analysis – see table 2: Rotation Sums of Squared Loadings. For evaluation of factor load of individual factor variables and the overall acceptability of the



Source: Processing of authors based on data from research in 2012 (see chapter methods)

Graph 1 : Sutin graph of factor distribution.

Index	The value of the model	Setpoint	Acceptability	Source
GFI	0,903	>0,9	Ano	Garson, 2006
RMSEA	0,026	<0,08	Ano	Garson, 2006
NFI	0,955	>0,9	Ano	Garson, 2006
TLI	0,992	>0,9	Ano	Garson, 2006
CFI	0,993	>0,9	Ano	Garson, 2006
IFI	0,993	>0,9	Ano	Garson, 2006
CMID/DF	1,174	<3	Ano	Hair at al., 2006

Source: Own processing

Table 5: Fit Indices of model.

model, the following indices were used: Goodness-of-Fit Index (GFI), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Tucker-Lewis Index(TLI), Comparative Fit Index (CFI), Incremental Fix Index (IFI), and Normed Chi-square. To confirm the discrimination validity of the model, the correlation coefficients between individual factors cannot exceed the value of 0,85 (Kline, 2010).

Table 5 shows the acceptability of the model in connection with modification for achievement of its acceptability. On the basis of covariance matrix, 9 variables were removed from the construct. 29 variables remained in the model with high factor weights in the range of 0,712 – 0,977. All R2 values are above 0.5, which indicates reliability of variables. Correlation coefficients between factors are in the range of 0,285 – 0,803, which supports the discriminatory validity of the model (Table 7: Correlations between factors).

Exploratory factor analysis was used to reduce the original 38 variables to 5 independent factors, which describe 79,46 % of the total variance of the TCI-38 construct. In contrast to the original model TCI-38, a new factor, “communication”, was discovered, with a reliability coefficient of 0,857, which arose through extrapolation of 3 variables from the original factor “support of innovations” and 1 variable from the original factor “task orientation”. Through confirmatory factor analysis the model was balanced on the basis of modifying indicators in the SPSS Amos 19 program (covariance matrix) with 29 variables, without changes in the number of extracted factors.

	Factor loading	C.R.	P	R2
Team vision				
Conviction of usefulness of goals for the general public	0,921	f.p.		0,85
Conviction of the respondent of the usefulness of the goals	0,966	30,152	***	0,93
Level of team agreement with the goals	0,87	21,897	***	0,76
Agreement of respondent with the goals of the team	0,872	22,28	***	0,76
Comprehensibility of the goal	0,733	15,255	***	0,54
Task orientation				
Clear criteria to achieve excellence as a team	0,925	f.p.		0,86
Team orientation to high performance	0,736	15,94	***	0,54
Sharing of knowledge to achieve high performance	0,956	30,924	***	0,91
Capability of critical evaluation of weak aspects	0,977	34,35	***	0,95
Knowledge of goal	0,974	33,683	***	0,95
Regular monitoring of own performance	0,988	36,136	***	0,98
Support in the form of providing of constructive feedback	0,807	18,969	***	0,65
Cooperation in application of new thoughts	0,866	22,312	***	0,75
Participation safety				
High level of knowledge sharing	0,944	f.p.		0,89
Unified level of knowledge sharing	0,862	22,7	***	0,74
Mutual knowledge of work issues	0,84	20,862	***	0,71
Understanding and acceptance	0,907	26,098	***	0,82
Acceptance of minority opinion	0,717	14,52	***	0,52
Synergy in knowledge sharing	0,97	19,988	***	0,94
Support for innovation				
Development of new ideas	0,933	f.p.		0,87
Assistance in developing new ideas	0,715	14,135	***	0,51
Openness to ideas and ability to react to change	0,739	16,03	***	0,55
Continuous searching for new solutions	0,71	14,942	***	0,5
Time availability for development of new ideas	0,954	31,691	***	0,91
Support of team members for new ideas	0,982	36,254	***	0,96
Communication				
Frequent mutual communication	0,793	f.p.		0,63
Frequency of formal and informal contact	0,904	15,313	***	0,82
Regular contact	0,706	11,728	***	0,5
Team unity during contact with others	0,714	11,98	***	0,51

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 6: Results of confirmatory factor analysis.

Reduction of variables as a result of balancing of the model did not change the content significance of the factors (1) Team Vision – how clearly it is defined, shared, and attainable and the team goals and visions evaluated. Most associated with this factor is "Conviction of the respondent regarding the usefulness of the goals" (R2= 0,93). (2) Support of innovations – how the team members perceive the other members of the team and the team leader in the area of support of new ideas. Most associated with this factor is "Time availability for development of new ideas" (R2= 0,91), "Support of team members in regard to new ideas" (R2= 0,96). (3) Safe cooperation – to what extent does the team cooperate in the area of innovation and how secure do the team members feel in the area of

Factor		Factor	Correlations between factors
Team Vision	<-->	Task orientation	0,486
Team Vision	<-->	Participation Safety	0,403
Team Vision	<-->	Support for Innovation	0,439
Team Vision	<-->	Communication	0,285
Task orientation	<-->	Participation Safety	0,796
Task orientation	<-->	Support for Innovation	0,788
Task orientation	<-->	Communication	0,409
Participation Safety	<-->	Support for Innovation	0,803
Participation Safety	<-->	Communication	0,505
Support for Innovation	<-->	Communication	0,524

*TCI-38 - Original version of TCI-38; CZ EFA - Structure of factors after Exploratory Factor Analysis; CZ CFA - Structure of factors after Confirmatory Factor Analysis

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 7: Correlations between factors.

Factor	TCI-38	CZ EFA	CZ CFA
Team Vision	11	11	5
Support for Innovation	12	7	6
Participation Safety	7	7	6
Task orientation	8	9	8
Communication	-	4	4
SUM	38	38	29

Source: Processing of authors based on data from research in 2012 (see chapter methods)

Table 8: Structure of factors prior to and after EFA and CFA.

proposing new ideas. This factor is most associated with "Synergy in knowledge sharing" (R2= 0,94). (4) Task orientation – to what extent does the team consider fulfillment of tasks an important part in relation to team performance. Most associated with this factor is "The ability to critically evaluate weak aspects"(R2 = 0,95), "Knowledge of goal" (R2 = 0,95), "Regular monitoring of own performance" (R2= 0,98). (5) Communication– to what extent does formal and informal contact between team members take place. This factor is most associated with the "Frequency of formal and informal contact " (R2 = 0,82). Following exploratory factor analysis the factors "Team vision", "Support of innovations", "Task orientation" achieved a reliability coefficient greater than 0,95, which, as stated by Streiner (2003), indicates redundant values in a latent factor. As a result of confirmatory factor analysis, the value of these reliability coefficients decreases to values between 0,90 – 0,95, which according to Streiner (2003) corresponds to the evaluation "Excellent". Through optimization of reliability values, a reduction in the number of variables in latent factors took place on the basis Fit Indices in the Amos 19 program.

The model can be considered as valid on the basis of GFI, RMSEA, NFI, TLI, CFI and CMID/DF indexes. In light of the previous validation tool, TCI-38 in Italy, Greece, Norway and China, comparison of the number and structure of factors in these nations can be the subject of further research.

Conclusion

On the basis of the results of exploratory and confirmatory factor analysis, the four-factor version of TCI-38 (Anderson and West 1998) can be considered as a stable tool for the measurement of team climate for innovation in the Czech Republic. The 4-factor version was expanded by a fifth factor "Communication" and the number of variables reduced to 29. The 4-factor version of TCI-38 (Anderson and West 1998) was validated through performance of explorative factor analysis, where the original 38 variables were reduced to 5 independent factors which describe 79,46 % of the differentiation in the starting set without change in

the number of variables. Four original factors: (1) Team Vision, (2) Support of innovations, (3) Safe cooperation and (4) Task orientation were preserved and on the basis of the results of explorative factor analysis, a fifth factor, "Communication", was extracted. Through confirmatory factor analysis, the model was modified to the form of 29 variables, without change in latent factors.

Following Beregheh, Rozlez, Sambrook, Davies (2012), who emphasize the needs to promote new ideas and create a climate for innovation environment for employees in the field of agricultural sector (especially the food sector), it is possible to recommend - based on the validation of TCI-38 in the Czech Republic - modified version of the TCI-29 in Czech agricultural sector to increase the competitiveness of farms on the market.

Acknowledgement

The article originated as a part of the Internal Grant Agency (IGA) of the Czech University of Life Sciences in Prague, Registration Number 201111140064.

Corresponding author:
Ing. Ladislav Pilař
Department of Management, Faculty of Economics and Management,
Czech University of Life Sciences in Prague, Kamýcká 129, 165 21 Prague 6- Suchdol, Czech Republic
E-mail: pilarl@pef.czu.cz

References

[1] Anderson, N.R., West, M.A. Measuring climate for work group innovation: development and validation of the team climate inventory. Journal of Organizational Behavior. 1998, Vol. 19 No. 3, pp. 235-58.

[2] Baregheh, A., Rowley, J., Sambrook, S., & Davies, D. Innovation in food sector SMEs. Journal of Small Business and Enterprise Development, 2012, 19(2), 300-321.

[3] Evropské Společenství: Úřad pro úřední tisky. Nová definice malých a středních podniků – Uživatelská příručka a vzor prohlášení. 2006, ISBN: 92-894-7917-5

[4] Frese, M. , Fay, D. Personal initiative: an active performance concept for work in the 21st Century. Research in Organizational Behavior. 2001, 23, 133–187.

[5] Garson, D. G. Factor Analysis: Statnotes. North Carolina State University Public Administration Progra. 2008. Availabla at: http://www2.chass.ncsu.edu/garson/pa765/factor.htm (Accessed November 2011).

[6] Hair, J. F. , Black, W. C., Babin, B. J., Anderson, R. E.., Tatham, R. L. Multivariate Data Analysis. 6th edn, Pearson Prentice Hall. Upper Saddle River, N.J, 2006.

[7] Howells, J.R.L., Tether, B.S. Innovation in Services. European Commission, Brussels, 2004.

[8] Chatzi,S.C., Nicolaou, I. Validation of the four-factor Team Climate Inventory in Greece. International Journal of Organizational Analysis. 2008, Vol. 15 Iss: 4, pp.341 – 357.

[9] Christensen, C.M., Raynor, M.E. The Innovator's Solution: Creating and Sustaining Successful Growth, Harvard Business School Publishing, Boston, MA, 2003.

[10] Isaksen, S. G., Lauer, K. J., & Ekvall, G. Situational Outlook Questionnaire: A measure of the climate for creativity and change. Psychological Reports. 1999, 85, 665-674.

[11] Kline, R.B. Principles and practice of structural equation modeling (3th edition). London: The Guilford Press. 2010, ISBN: 160-62-3876-0.

[12] Mathisen, G.E., Einarsen, S., Jørstad, K., Brønnick, K.S. Climate for work group creativity and innovation: Norwegian validation of the team climate inventory (TCI). Scandinavian Journal of Psychology. 2004, Vol. 45 No. 5, pp. 383-92.

[13] Pett, M. A. , Lackey, N. R., Sullivan, J. J. Making Sense of Factor Analysis for Instrument in Health Care Research. SAGE Publication, Inc, Thousand Oak, CA. 2003.

[14] Shalley, C.E. , Perry- Smith, J.E. Effects of social-psychological factors on creative performance: The role of informational and controlling expected evaluation and modeling experience. Organizational Behavior and Human Decision Processes. 2001, Vol. 84 No. 1, pp. 1-22.

[15] Streiner, D. L.. Starting at the beginning: an introduction to coefficient alpha and internal consistency. Journal of Personality Assessment. 2003, 80, 99-103.

[16] Chatzi,S.C., Nicolaou, I. Validation of the four-factor Team Climate Inventory in Greece. International Journal of Organizational Analysis. 2008, Vol. 15, Iss: 4, pp.341 – 357.

[17] Sun, R. Zhao, J., Xu Ya Chen. Exploratory analysis about the status quo and differences of organizational innovative climate in China. Nankai Business Review International. 2011, Vol. 2, Iss: 2, pp.195 – 212.

[18] Tseng, Hsu-Min - Liu, F.C. , West, M A. The Team Climate Inventory (TCI): A psychometric test on a Taiwanese sample of work groups. Small Group Research OnlineFirst. 2009, 20 (10). p. 10. ISSN 1046-4964.

[19] West, M.A. The social psychology of innovation in groups.In West, M.A. and Farr, J.L.(Eds). Innovation and Creativity at Work: Psychological and Organizational Strategie. Wiley, Chichester. 1990.