

Structural Relationship Analysis between Diverse Variables of Employees and Organizational Performance Using Path Analysis

Soo-Yong Park¹, Hong-Kyu Kwon², Yoon-Eui Nahm³, Dong-Hyung Lee^{4*}

¹ Dept. of Industrial & Management Engineering, Hanbat National University, Daejeon, 34158, South Korea

² Dept. of Industrial & Management Engineering, Namseoul University, Chonan, 31020, South Korea

³ Dept. of Mechanical Engineering, Hanbat National University, Daejeon, 34158, South Korea

⁴ Dept. of Industrial & Management Engineering, Hanbat National University, Daejeon, 34158, South Korea

*Corresponding author E-mail : leedh@hanbat.ac.kr

Abstract

The study purpose is to analyze the structural interrelations between life position, activities of learning organization, and job engagement, which can affect organizational performance for corporate survival and prosperity. This study is to analyze the structural relationships between these three variables and organizational performance. To do this, a research model was built on the basis of literature review. And also a survey was conducted in regular employees at 100 companies, collecting 787 data. The collected data were used to test a structural equation model through the AMOS 21.0 and Mplus 7.2 programs. On this study, the following results are achieved; first, activities of learning organization affect organizational performance in companies. Therefore, managers need to make efforts to activate activities of learning organization in pursuit of corporate growth and development. Activities of learning organization also directly affect life position and job engagement. In particular, they had stronger direct effects on job engagement than on life position. Second, job engagement, which is an intrinsic variable, is an important variable affecting organizational performance. Job engagement is not only affected directly by life position, which indirectly affects organizational performance, but also is affected by activities of learning organization, which directly affect organizational performance, and directly affects organizational performance. Third, organizational performance cannot be explained or predicted by one or two specific variables but be effective through complement and interaction among activities of learning organization, life position, job engagement, and so on. The results are applied to suggest the need to develop a strategy for practicing the activities of learning organization and give implications for spreading positive organizational behaviors within an organization.

Keyword: Structural Interrelation; Activities of Learning Organization; Life Position; Path Analysis; Job Engagement; Organizational Performance.

1. Introduction

In the globalization period, inter-business competition is becoming keener and keener. Organizational competence is required to cope actively with such a situation with the purpose of securing corporate survival and competitive advantages. It is also necessary to be able to manage knowledge possessed by employees systematically and apply it to business management activity. To do this, it is essential to find out the factors of positive changes for human resources affecting organizational performance and use them properly.

Chief Executive Officers (CEOs) of Japanese and U.S. companies pay greater attention to the efforts to make employees more absorbed and improve organizational learning ability than to economic, strategic, or technological approaches in pursuit of organizational survival and growth (Hong and Choi, 2011).

It was found that a 10% increase of investment in facilities by a company might increase productivity by 3.6% and a 10% increase of training and education for employees might increase productivity by 8.4% (Stuart and Dahm, 1999). These studies

demonstrate that priority is given to people, who are employees, rather than to the size, strategies, and technology as a source of survival, maintenance, and growth for companies. The various variables may become a very important factor of organizational behaviors for corporate survival, growth, and development since corporate survival and prosperity can depend on employees' positive behaviors, reinforcement of positive life position, activities of learning organization, and job engagement, which are associated with their growth.

The previous studies conducted for the past five years (2011-2015) (Jun and Lee, 2012; Cameron, 2012; Chhetri, 2017) were reviewed to draw three variables possibly affecting organizational performance of companies: activities of learning organization, life position, and job engagement.

This study aimed to analyze the structural relationships between these three variables and organizational performance. To do this, a research model was built on the basis of literature review and a survey was conducted in regular employees at 100 companies, collecting 787 data. The collected data were used to test a structural equation model through the AMOS 21.0 and Mplus 7.2 programs.

2. Literature Review Regarding Latent Variables

2.1. Organizational Performance

Organizational performance is defined as "assessment of the degree of performance in the process of achieving a corporate goal

in terms of such concepts as efficiency, effectiveness, and fairness, with a diversity of job-related results of employees' behaviors according to organizational goals which is desirable results to obtain". The organizational performance was classified into the internal and external levels of the organization, with the sub-concepts for each level classified into efficiency, effectiveness, and fairness to get six factors, as presented in Table 1. It is adjusted to the purpose of this study (Brewer and Selden, 2000).

Table 1: Measurement Item of Organization Performance

Classification		Focus of the organization	
		Inside	Outside
Organizational performance	Efficiency	Application of knowledge and technology Cost saving efforts	Affairs of immediacy The possibility of a rare error
	Effectiveness	Department of a productivity increase A progression in quality job performance	Departmental business value High goals,
	Fairness	The impartiality of the human resources management Fair treatment	Affairs of objectivity Customer satisfaction

2.2. Activities of Learning Organization

An activity of learning organization is defined as an "organizational activity of reinforcing knowledge, skills, and attitudes of employees and helping them solve problems for themselves to continuously improve their ability to obtain the truly desired results through OJT(On-the-Job Training), learning activities, information infrastructures, communication, empowerment, and motivation." The measurement tool of the learning organizational activity developed by the Korea Labor Institute and applied to South Korean companies was adapted to the purpose of this study and the corporate environment.

2.3. Life Position

Life position is translated into a 'Living Posture', 'Living Attitude', and 'Lifetime Attitude' (Berne, 1966) and is defined as "a basic life direction concerning what values they impose on themselves and others and what promises they make." It is affected by the quantity and quality of a stroke given by their parents(or environment in their childhood) and means to have authentic(or racket) feelings about themselves and others. The measurement tool of the life position developed by Korea Transactional Analysis Association (KATA) to analyze life position is adjusted to the purpose of this study and the corporate environment.

2.4. Job Engagement

Kahn (Kahn, 1990) defined job engagement as "employees' physical, cognitive, emotional, and mental energy putting into the process of performing their job" and noted that job engagement could not only improve performance at the organizational level but also contribute to their personal growth and development. Also, he suggested that employees experience three psychological states—meaningfulness, safety, and availability—in relation to their job so that they could have a high level of job engagement.

In this study, job engagement is defined as "employees' state of mind related to positive and achieving work to cope actively with the environment of organizational changes and improving the qualitative aspect of organizational performance by means of vigor, dedication, and absorption in the process of performing their job", and is adjusted to the purpose of this study and the corporate environment.

3. Research Purpose and Method

3.1 Research Purpose and Hypothesis

For the purpose of analyzing the structural relationship among the variables of organizational performance, the following hypothesizes are set:

First, do activities of learning organization, life position, and job engagement affect organizational performance with the following assumptions?

1-1. Do activities of learning organization affect organizational performance?

1-2. Do life positions affect organizational performance?

1-3. Does job engagement affect organizational performance?

1-4. Do life position and job engagement affect organizational performance?

Second, do activities of learning organization and life position affect job engagement with the following assumptions?

2-1. Do activities of learning organization affect job engagement?

2-2. Does life position affect job engagement?

Third, do activities of learning organization affect life position?

By verifying the above hypothesizes, the following proposals are derived. First, suggestions will be made to spread positive organizational behaviors through activities of learning organization within organizations. Second, the need of systematic human resource development activity at a corporate level will be indicated through causal relation analysis.

4. Research Model

Activities of learning organization, life position, job engagement, and organizational performance are set as latent variables on the basis of the review of relevant concepts and previous studies. A research model shown in Fig. 1 is made to determine the direct and indirect effects of life position, activities of learning organization, and job engagement and explore the structural, causal relations among the factors affecting organizational performance.

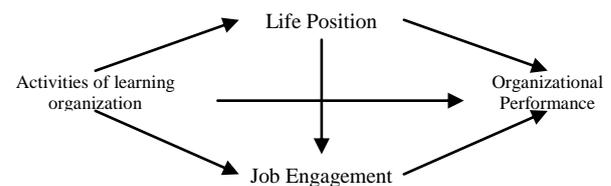


Fig.1.:Research Model

5. Research Subjects

Those who had been employed at companies in Daejeon and Chungcheong Province were basically sampled. The data research was performed in 100 companies participating voluntarily in the research with the help of the entrepreneurs in Daejeon and Chungcheong and those who had been employed at a company for at least six months were selected as respondents to make the data reliable. This is because employees might need to work at an organization for at least six months to understand the organization and form relationships among them.

6. Statistical Model and Data Analysis

The research model in Fig. 1 had been changed into a statistical model shown in Fig.2 by adding the index variables to the latent variables in the research model presented to determine the structural relations between life position, activities of learning organization, and job engagement, which affect organizational performance of a company.

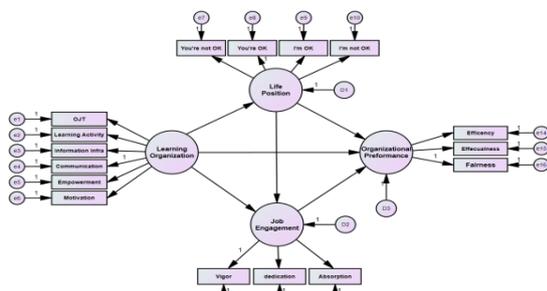


Fig.2. Statistical Model

The index variables for measuring life position include 4 positions : You're not OK(U-), You're OK(U+), I'm OK(I+), and I'm not OK(I-). There are also three factors; those for measuring the activities of learning organization included on-the-job training, learning activities, information infrastructure, communication, empowerment, and motivation; those for measuring job engagement included vigor, dedication, and absorption; and those for measuring organizational performance included efficiency, effectiveness, and fairness.

7. Results of Research Model

7.1 Structural Relation Analysis

One of the methods generally used to analyze a structural equation model is the two-step approach suggested by Anderson and Gerbing(Anderson and Gerbing,1988): the model is tested for goodness-of-fit and validated through confirmatory factor analysis in the first step, and a structural model is estimated in the second step(Woo, 2012). The measurement model is validated through confirmatory factor analysis in the first step. And then the final structural model is built in the second step by deleting or adjusting the latent variables which are not good.

A.a. Goodness-of-fit evaluation of measurement model

Goodness-of-fit evaluation, which is a criterion for deciding on adoption or rejection of the measurement model, is as important as significance test for hypotheses (Woo, 2012). The minimum and maximum values of χ^2 , NC(Normed Chi-square), SRMR (Standardized Root Mean-square Residual), TLI(Tuker-Lewis Index), CFI(Comparative Fit Index), and RMSEA(Root Mean Square Error of Approximation), which are the criteria for reporting model goodness-of-fit, as suggested by Moon (Moon, 2009) were used in this study. The measurement model shown in Fig. 3 was built. RMSEA is a goodness-of-fit index developed to make up for the problems of χ^2 statistics, and is interpreted by a number of observed variables: $\leq .05$ very good, $\leq .08$ good, and $\leq .10$ average. TLI and CFI have values that range from 0 to 1, with $\geq .90$ having high goodness-of-fit.

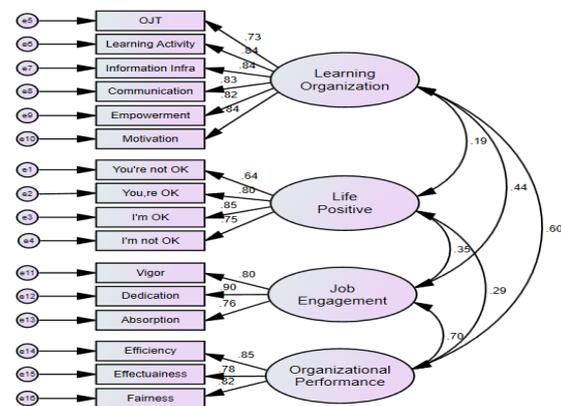


Fig.3. Standardized estimates of measurement model (n=787)

When ML(maximum likelihood) estimation is used to estimate goodness-of-fit; RMSEA=.080 (LO: .074, HI: .086), NC=5.994, SRMR=.0524, TLI=.924, and CFI=.938 as shown in Table 2. The goodness-of-fit index is at a proper level; with RMSEA ranging from .05 to .08, and the criteria for evaluating model goodness-of-fit is met; with SRMR <.08, TLI \geq .90, and CFI \geq .90.

TABLE 2: GODDNESS OF FIT INDEX OF MEASUREMENT MODEL (N=787)

Model	NPAR	χ^2	NC	DF	SRMR	TLI	CFI	RMSEA		
								AVE	LO90	HI90
Measuring model	38	587.416	5.994	98	.0524	.924	.938	.080	.074	.086

A.b. Parameter estimation and statistical significance test of measurement model

As presented in Table 3, construct validity is secured with the standard loading value being $\geq .5$ for each factor. Convergent validity is also secured with AVE (average variance extracted) being $\geq .5$ and construct reliability being $\geq .7$ for the latent variables

of each factor. Convergent validity or internal consistency is secured with reliability being $\geq .7$ for the latent variables (Moon, 2009; Kim, 2010).

TABLE 3: RESULTS FOR THE PARAMETRIC ESTIMATION OF MEASUREMENT MODEL (N=787)

Latent variable	Observation of variable	Unstandardized estimates	Standardized estimates	S.E.	C.R.	p	Construct Reliability (CR)	Average Variance Extracted (AVE)
Learning Organization	On the job training(OJT)	.91	.73	.039	23.570*	.001	.947	.749
	Learning Activity	fixed	.84	-	-	-		
	Information Infrastructure	.90	.84	.031	28.820*	.001		

Activity	Communication	1.02	.83	.036	28.263*	.001		
	Empowerment	.92	.82	.033	27.673*	.001		
	Motivation	.95	.84	.033	28.878*	.001		
Life Position	You are not OK	.76	.64	.041	18.407*	.001	.926	.806
	You are OK	.85	.80	.036	23.981*	.001		
	I am OK	fixed	.85	-	-	-		
	I am not OK	.92	.75	.041	22.299*	.001		
Job Engagement	Vigor	fixed	.80	-	-	-	.911	.721
	Dedication	1.32	.90	.050	26.147*	.001		
	Absorption	.95	.76	.042	22.616*	.001		
Organizational Performance	Efficiency	fixed	.85	-	-	-	.929	.813
	Effectualness	.94	.78	.039	24.112*	.001		
	Fairness	.93	.82	.036	25.818*	.001		

* p < .05

Covariance and correlation coefficient estimates between the latent variables in the measurement model on Fig. 3 are presented in Table 4.

Table 4 : Covariance and correlation of Latent variable (n=787)

Variable	Covariance	S.E.	C.R.	P	Correlation
Job Engagement ↔ Life Position	.122	.015	7.967*	.001	.354
Life Position ↔ Organizational Performance	.105	.016	6.602*	.001	.286
Learning Organization Activity ↔ Job Engagement	.167	.017	9.748*	.001	.441
Learning Organization Activity ↔ Organizational Performance	.242	.020	12.333*	.001	.601
Job Engagement ↔ Organizational Performance	.222	.017	13.110*	.001	.702
Learning Organization Activity ↔ Life Position	.082	.018	4.589*	.001	.187

* p < .05

As presented in Table 4, every correlation coefficient between latent variables is ≤.80. This result demonstrates that there is no variable likely to cause any problem in estimation due to multi collinearity with high correlation and that discriminant validity is

met between latent variables in every path(Moon, 2009). Discriminant validity is met between two factors because squared coefficient of correlation or coefficient of determination (r²) for each factor is smaller than AVE in each case (Kim, 2010).

Table 5: Average variance extraction degree (AVE) and Correlation (n=787)

Latent Variables	Learning Organization Activity	Life Position	Job Engagement	Organizational Performance	AVE
Learning Organization Activity	1				.749
Life Position	.187	1			.721
Job Engagement	.441	.354	1		.806
Organizational Performance	.601	.286	.702	1	.813

Table 5 shows that coefficient of correlation between job engagement and organizational performance is .702 [r²=(.702)²=.493] and AVE of job engagement is .806 and AVE of organizational performance is .813. Since both values of AVE are larger than squared coefficient of correlation, all the observed variables that account for such latent variables as member of life position, activities of learning organization, job engagement, and organizational performance are valid.

A.c. Goodness-of-fit evaluation of initial structural regression model

Since all the goodness-of-fit indexes of the measurement model meet the criteria for goodness-of-fit and the likelihood of structural regression model estimation is theoretically confirmed, goodness-of-fit of the initial structural regression model is estimated through ML. The measurement model is set as the initial structural regression model shown in Fig.4.



Fig.4.Initial Structural Regression Model (Standardized Coefficients)

The results of goodness-of-fit based on ML estimation are as presented in Table 6. The initial structural regression model meets the evaluation criteria for goodness-of-fit; with $\chi^2=587.415$ (df=98, p=.001) but RMSEA=.080 (LO: .074, HI: .086), NC=5.994, SRMR=.0524, TLI=.924, CFI=.938; RMSEA ranging from .05 to .08, SRMR <.08, TLI ≥.90, and CFI ≥.90. Goodness-of-fit of the model confirms statistical significance of its parameters.

Table 6 : Goodness of fit index of Initial Structural Regression model (n=787)

model	NPAR	χ^2	NC	DF	SRMR	TLI	CFI	RMSEA		
								AVE	LO90	HI90
Measurement Model	38	587.416	5994	98	.0524	.924	.938	.080	.074	.086

A.d. Parameter estimation and statistical significance test of initial structural regression model

Statistical significance on the direct effects between variables within the initial structural regression model for the route set is presented

in Table 7.

Table 7 : Parameter and statistical significance test of Initial Structural Regressive model (n=787)

Variable Route			Unstandardized Coefficients	Standardized Coefficients	S.E	C.R	P
Learning Organization Activity	→	Life Position	.142	.187	.030	4.697*	.001
Learning Organization Activity	→	Job Engagement	.300	.388	.030	10.115*	.001
Learning Organization Activity	→	Organizational Performance	.273	.361	.027	10.247*	.001
Life Position	→	Job Engagement	.286	.281	.039	7.300*	.001
Life Position	→	Organizational Performance	.030	.030	.033	.926	.355
Job Engagement	→	Organizational Performance	.521	.532	.040	13.071*	.001

* p < .05

On the basis of Table 7, the CR (conditioned reflex) and p values for the route set are reviewed to determine significance of the causal effects. CR-value [which is unstandardized coefficient divided by a SE (standardized error)] of an observed variable is considered meaningful when it is larger than ±1.96. Statistical significance of the path coefficients for the structural regression model based on the initial research model is as follows:

First, the direct effects of life position on organizational performance (p =.355, p <.05) are not statistically significant. All of the relationships among the other variables are statistically

significant. So it is necessary to delete the path of life position directly affecting organizational performance and then make the model simpler; thus, the modified structural regression model in Fig. 5 is built.

A.e. Goodness-of-fit evaluation of final structural regression model

As shown in Table 8, the modified structural regression model has no significant change in goodness-of-fit and is more simple and clear as compared with the previous one.

TABLE 8 : GOODNESS OF FIT INDEX OF FINAL STRUCTURAL REGRESSIVE MODEL (N=787)

model	NPAR	χ^2	NC	DF	SRMR	TLI	CFI	RMSEA		
								AVE	LO90	HI90
Modification Model	37	588.260	5.942	99	.0521	.925	.938	.079	.073	.086
Measurement Model	38	587.416	5994	98	.0524	.924	.938	.080	.074	.086

After removing a statistically insignificant path, the modified model has a higher goodness-of-fit index than the initial structural regression model. When increasing the degree of freedom by 2 for the modified model, it also reduces a χ^2 value by 0.844, which is smaller than $\chi^2 = 9.21$ (significance level .01) and has no statistical difference. So the modified structural regression model, which is simple, is selected as the final model.

A.f. Parameter estimation and statistical significance test of final structural regression model

The results of standardized parameter estimation for the final structural regression model are shown in Fig.5.

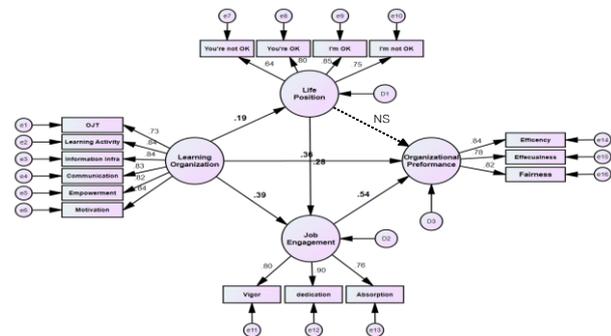


Fig.5.Final Structural Regressive Model(Standardized Coefficients)

The results of parameter estimation and statistical significance test for the finally modified structural regression model, as presented above, are summarized in Table 9.

Table 9: Parameter and statistical significance test of final structural regressive model (n=787)

Variable Route			Unstandardized Coefficients	Standardized Coefficients	S.E	C.R	P
Learning Organization Activity	→	Life Position	.143	.188	.030	4.730*	.001
Learning Organization Activity	→	Job Engagement	.299	.387	.030	10.102*	.001
Learning Organization Activity	→	Organizational Performance	.274	.362	.027	10.262*	.001
Life Position	→	Job Engagement	.289	.284	.039	7.401*	.001
Job Engagement	→	Organizational Performance	.533	.543	.038	13.970*	.001

* p < .05

As for each route, learning Organization Activity positively affects life position(.143), job engagement(.299), and organizational performance(.274), which are statistically significant at the $p < .05$ significance level. Life position positively affects job engagement(.289). It is statistically significant at the $p < .05$ significance level. And also job engagement positively affects organizational performance (.533) at the $p < .05$ significance level. So the modified structural regression model is set as the final structural regression model.

A.g. Significance analysis for indirect effect of research model

Table 10 : Significance verification of the indirect effects by utilizing Bootstrapping (n=787)

Route		Unstandardized Coefficients	Standardized Coefficients	99% CI	
				lower .5%	Upper .5%
Learning Organization Activity → Job Engagement → Organizational Performance	a*d	.159	.210	.098	.221
Learning Organization Activity → Life Position → Job Engagement → Organizational Performance	b*c*d	.022	.029	.032	.144

Analysis was carried out with variance of the phantom variables fixed at 0. The analysis using bootstrapping (1,000 sessions) with fixation at (a * d) and (b * c * d) in the same way obtained the results in Table 10.

The 99% CI (confidence interval) estimated using bootstrapping is found to be significant at the 0.05 significance level because none of them includes 0. The statistical significance test based on the indirect effects obtains the following results:

First, the indirect effects of activities of learning organization on organizational performance through the medium of job engagement are significant (.159) at the .05 significance level.

Second, the indirect effects of activities of learning organization on organizational performance through the medium of life position and job engagement are significant (.022) at the .05 significance level.

These results can be put together as follows:

First, activities of learning organization affect organizational performance in companies. Therefore, managers need to make efforts to activate activities of learning organization in pursuit of corporate growth and development. Activities of learning organization also directly affect life position and job engagement. In particular, they have stronger direct effects on job engagement than on life position.

While the direct effects of life position, which is an intrinsic variable, on organizational performance are not statistically significant, life position affects organizational performance through the medium of job engagement. Life position has no direct effect on organizational performance but is an important variable affecting job engagement, which has direct effects on organizational performance. Companies need to activate activities of learning organization and affect life position formation with the objective of drawing job-related vigor, dedication, and absorption from employees.

Second, job engagement, which is an intrinsic variable, is an important variable affecting organizational performance. Job engagement is not only affected directly by life position, which indirectly affects organizational performance, but also is affected by activities of learning organization, which directly affect organizational performance, and directly affects organizational performance. These results demonstrate that job engagement in companies is a crucial variable strongly affecting organizational survival and growth. It can be said, therefore, that business managers' efforts to reinforce and develop activities of learning

The research model needs to be tested for indirect effects through the phantom variables and bootstrapping. AMOS 21.0, which supports bootstrapping, is insufficient to isolate the indirect effects as separate ones to analyze since it only analyzes the sum of the indirect effects. Moreover, this statistical program is hard to use because it does not enable parameter fixation based on introduction of phantom variables. These phantom variables are useful in an LISREL or Mplus program that enables parameter fixation(Kline, 2015; Kim, 2015).So this study used an Mplus 7.2 Base Program of bootstrapping to test the indirect effects.

organization and life position, both of which affect job engagement, are very important.

Third, organizational performance cannot be explained or predicted by one or two specific variables but is more effective through complement and interaction among activities of learning organization, life position, job engagement, and so on.

8. Conclusion

This study analyzed the structural interrelationships among activities of learning organization, life position, and job engagement which affect organizational performance of companies. From the analysis, the following conclusion is drawn:

First, activities of learning organization are found to be an important precedent variable of job engagement, which directly affects organizational performance. So companies need to make a structured and systematic intervention to diagnose and develop activities of learning organization with the objective of activating activities of learning organization. Both the corporate learning organization support system currently supported by the government and Systematic-OJT supported through the work-learning combination project can be very effective in activating activities of learning organization in companies.

Second, companies need to expand and reinforce activities of learning organization, which directly affect organizational performance. While activities of learning organization in South Korean companies are currently activated by governmental support, small companies with < 20 employees are under very poor conditions because they are outside the system. Limitations in governmental support also prevent systematic activities of learning organization from persisting. Since such activities of learning organization are very important factors directly connected with corporate survival and growth, the government needs to take a positive measure to support activities of learning organization in smaller companies alienated.

Third, organizational leaders play a crucial role in activating activities of learning organization and in improving life position and job engagement. Therefore, further research should be conducted on the development and implementation of positive organizational behavior diagnosis programs that can contribute to the settlement of employees' positive organizational behaviors as organizational culture of a company.

References

- [1] Anderson, J. C. and Gerbing, D. W., 1988. Structural equation modeling in practice: A review and recommended two-step approach, *Psychological bulletin*, 103(3):411-423.
- [2] Brewer, G. A. and Selden, S. C., 2000. Why elephants gallop: Assessing and predicting organizational performance in federal agencies, *Journal of public administration research and theory*, 10(4):685-712.
- [3] Berne, E., 1966. *Principles of group treatment*, Oxford University Press: NY.
- [4] Chhetri, S. B., 2017. Antecedents and Consequences of Job Engagement: Empirical Study of Bank Employees, *Business Perspectives and Research*.
- [5] Cameron, K., 2012. *Positive leadership: Strategies for extraordinary performance*, Berrett-Koehler Publishers: San Francisco, CA.
- [6] Hong, S.H. and Choi, E.S., 2011. An Analysis of the Influence of Authentic Leadership of the CEO of Small and Medium Business on the Organizational Effectiveness, *Korean Society for Learning and Performance*, 13(2):1-29.
- [7] Jun, S. Y. and Lee, H. S., 2012. An Empirical Study on the Mediating Effect of HRM Institutionalization on the relationship between organizational Performance, *Korean Corporation Management Reviews*, 45(0):193-214.
- [8] Kim, W. H., Lee, B. H., and Sin, H. Y., 2015. A Mediation Analysis of Absorption Capacity by Bootstrapping Technique in Multiple Mediator Model, *Journal of the Korea society for simulation*, 24(4):89-96.
- [9] Kline, R. B., 2015. *Principles and Practice of Structural Equation Modeling*, Guilford Publications, NY.
- [10] Kim, G. S., 2010. (Amos 18.0) *Structural Equation Model Analysis*, Hannarae Publishing Co. (www.hannarae.net), Korea.
- [11] Kahn, W. A., 1990. Psychological conditions of personal engagement and disengagement at work, *Academy of management journal*, 33(4):692-724.
- [12] Moon, S. B., 2009. *Understanding and Application Structural Equation Modeling*, Hakjisa Co. (www.hakjisa.co.kr), Korea.
- [13] Stuart, L. and Dahm, E., 1999. *21st century skills for 21st century jobs*, Federal Publications.
- [14] Woo, J. F., 2012. *Concept and Understanding of Structural Equation Model*, Hannarae Publishing Co. (www.hannarae.net), Korea.