

# An Examination on the Effect of Self-Efficacy of ICT SMEs Employees on Job ImmersionThe Mediating Effects of Emotional Leadership and the Moderating Effects of LMX

Jong -Keun Park<sup>1</sup>, Jung-wan Hong \*2

<sup>1</sup>Doctoral Student, Dept. of Knowledge Service and Consulting, Hansung University, 02876, Korea

\*2Professor,Dept. of Industrial & management Engineering, Hansung University, 02876, Korea jongkuen2030@naver.com<sup>1</sup>, jwhong@hansung.ac.kr \*2

Corresponding author\*:Jung-wan Hong, Email: jwhong@hansung.ac.kr

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#### **Abstract**

Background/Objectives: With the full-fledged arrival of the fourth industry, the mental worker-centered ICT enterprise is becoming the center. This study analyzed how self-efficacy of SME ICT company employees influenced their job immersion. Methods/Statistical analysis: Through prior research, four variables were selected: self-efficacy, job immersion, emotional leadership, and LMX(Leader-Member Exchange). Analysis data collected and used 306 samples from 86 ICT SMEs in Seoul from May to July 2018. The survey items used the 5-point Likert scale. The statistical package used SPSS 24 and AMOS 22. Statistical analysis was performed by Outliers Verification, Validity and Reliability Analysis, Correlation Analysis, Confirmation Factor Analysis, Structural Model Analysis, etc.

Findings: The differences of this study were as follows: First, most of the previous studies focused on the attributes of leaders. study focused characteristics on the employees. Second, the characteristics of four variables related to self-efficacy, job immersion, emotional leadership, and LMX were examined in a number of small and medium sized ICT companies, and the causal relationship of each variable was empirically studied. As a result, first, self-efficacy has positive influence on job immersion and emotional leadership, and emotional leadership has positive influence on job immersion. Second, emotional leadership has an indirect effect in the relationship between self-efficacy and job immersion. Third, LMX was shown to have significant adjustment effects in the relationship between self-efficacy and job immersion, emotional leadership and job immersion. The main implications of this study are that ICT companies should provide value to maximize the self-efficacy of their members if they want to achieve higher goals and grow and develop as a continuing entity. In addition, the leader's emotions and LMX should be strengthened.

**Improvements/Applications**: This study provides in-depth



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human resource management information necessary for survival and growth to ICT SMEs, which are the foundation of the 4th industry, and can be used for corporate consulting.

**Keywords:** Self-efficiency, emotional leadership, LMX, job

immersion, ICT SMEs.

#### 1. Introduction

In general, the ICT industry has a rapid technological development and it is difficult to confine a consistent scope of work by merging with other industrial fields. As IT convergence technologies in the 4th industrial era become more widespread, the past uniformed and stereotyped management and production management systems are undergoing rapid environmental changes with 1:1 customertailored organizations.Businesses should continue their efforts to enhance management efficiency and secure growth engines despite unpredictable changes. Being able to respond quickly to a variety of internal and external risk factors is paramount. Especially in the age of low growth, as the intensity of work increases, pressure employees mental on increasing. Businesses should prevent the departure of employees and create conditions to engage in work. It should be to motivate the able members participate voluntarily. Self-efficacy provides vitality to the organization with confidence, self-respecting spirit, creative problem solving and higher goal setting.It is more important than anything else to maximize the performance of the company by enhancing employees' Self-efficacy and job immersion in order to achieve, grow develop the company's goals.In addition, Leaders should present vision and goals to members of the organization and enable them to improve performance of the entity. LMX will have positive synergy effect on component, and emotional leadership and human relationship management can be expected to further enhance selfefficacy. The purpose of this study is to demonstrate the causality of how employee's self-efficacy affects job

immersion through the leader's emotional leadership and LMX.Furthermore, this study seeks to present objective data on job immersion factors resulting from rapid changes in the management environment of small and medium ICT companies that are the main drivers of global innovation.

#### 2. Theoretical Basis

# 2.1. ICT SMEs concepts

ICT definitions refer to a set of activities and means to promote informatization, such as mechanical devices, technologies, and services, which combine Information Technologies (IT) and Communications Technologies (CT) to collect, process, store, retrieve, transmit, receive and utilize information.[1].The **ICT** industry difficult to define a clear range due to the rapid development of services and the convergence with other industries. The ICT industry is growing and developing from simple functional complex to technology combination and convergence. However, due to the lack of systematic research and support for small and medium sized ICT companies, the method for human resource management of SMEs is not actively studied.

# 2.2.Self -Efficacy

Self-efficacy is a term that originated from behavioral change theory mediated by cognitive processes and evolved into a concept of composition of social learning theory. Self-efficacy is an individual's belief that a task can be performed. The higher the self-efficacy, the greater the likelihood of success in a difficult environment. A person with a high sense of self-efficacy also responds to negative feedback with more effort and motivation. Low people, on the other hand, are more



likely to make less effort when they receive negative feedback.It refers to a belief in one's ability to successfully organize and perform actions that seek to achieve a certain outcome. Self-efficacy can be measured in three dimensions: Magnitude Level, Strength, Generality.[2].Other studies suggested that the stronger the self-efficacy, the higher the goal and effort, and the longer the action chosen, will last. In addition, it also influences other behaviors, leading to and difficult challenging new tasks.[3].Self-efficacy's characteristics refer to the ability to adjust the cognitive resources he has, self-synchronization to actively overcome obstacles, autonomous choice, preparation, and task planning. This is a dynamic concept, which refers to future-oriented, performance-oriented, and confidence in one's ability.[4].Gong et al.'s research confirmed that Creative Selfefficacy mediates employee creativity and relationships.[5].Agarwal Krishnan's research found that the boss' transformational leadership had a positive effect on followers' self-efficiency, and that this influence was reinforced by followers' Other-focused/Jobfocused/Impression Management Strategies.[6].

# 2.3. Emotional Leadership

Leadership is the process of influencing achieve the members to goals organizations and groups. Many recent studies have focused more attention on leadership traditional emotional than leadership, depending on social change, changes business management in environment, and human respect-oriented management. Emotional leadership refers to people-centered leadership. The emotional leader understands his own inner self and cares about the sensitivity and emotional capabilities of the members. In order to effectively demonstrate emotional self-awareness, leadership, selfmanagement, social-awareness. and relationship-management are required.[7].Emotional Leadership encourages members to become dynamic

organizations by encouraging new challenges, confidence and courage through emotional communication.[8]. It refers to leadership that uses emotional intelligence to inspire passion and generate the best results.

# **2.4.** *LMX*(*Leader-Member Exchange*)

LMX has various definitions for each researcher. This study focuses on the attributes between leader and member relations, not characteristics and behaviors of leader. This means that the relationship between members shows a unique relationship.[9].In this study, the focus is on leader and member relationships based on prior study. It is a distinctive exchange that leaders and members develop and maintain together, which means characteristics of each member's relationship in the group. The exchange relationship depends on the quality between the leader and the member.[10]. It refers to the exchange between leader and members, in which the leader has various levels of relationships with members and is formed differently according to the relationship level.[11]. It is not a unilateral influence of a leader, but a unique social exchange between a leader and a member.

#### 2.5. Job Immersion

Job immersion refers to the degree of identification psychological and enthusiasm for one's job. According to the theory of job characteristics, when the characteristics of job conforms to the level of growth need of job performer, job gives more meaning and responsibility.[12].In other words, job immersion refers to the degree of psychological identification and enthusiasm for one's job.It also occurs when members are emotionally attached, boastful of being part of an organization, enjoying, engaging, and being strongly engaged in their work.[13]. As such, they tend to remain as members of the task. Determinants included work autonomy and diversity, individual needs, creativity, values, leader support, peer collaboration, rewards, positive fair and experiences.[14].As a result of previous



research, job immersion can be defined as job satisfaction and attachment, job performer's perception of importance and job responsibility.

# 3. Research Model and Hypothesis

#### 3.1. Research model

Through advanced research, the research model was structured as Self-Efficacy (SE), Emotional Leadership (EL), Job Immersion (JI), and Leader-Member Exchange (LMX). Emotional Leadership (EL) was considered as a mediating variable and Leader-Member Exchange (LMX) was considered as a moderating variable. Latent variables and study hypotheses related to research model isas shown in 'Figure 1'.

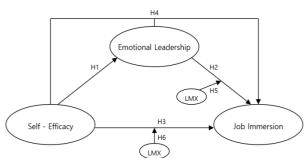


Figure 1. Research Model

#### 3.2. Research Hypothesis

The research hypothesis on the effect of

self-efficacy on job immersion of small and medium-sized ICT companies is as follows:

H1: Self-Efficacy will have a positive(+) impact on Emotional Leadership.

H2: Emotional Leadership will have a positive(+) impact on Job Immersion.

H3: Self-Efficacy will have a positive(+) impact on Job Immersion.

H4: Emotional leadership will have indirect effects in relation to Self-Efficacy and Job Immersion.

H5: LMX will play a moderating role in the relationship between Emotional leadership and Job Immersion.

H6: LMX will play a moderating role in the relationship between Self-Efficacy and Job Immersion.

# 3.3. Operational Definition of Variables

The questionnaires used in this study consisted of each item for measuring latent variables. The subjects of this study were service employees who directly interact with customers. The questionnaire consists of 25 observational variables. Each survey item has a 5 - point Likert scale. The contents are as shown 'in Table 1'.

**Table 1: Operational Definition of Variables** 

variable	Name	source	questi on
Self-Efficacy	SE	[2],[4],[6]	6
Emotional Leadership	EL	[7],[8],[10]	8
Job Immersion	JI	[13],[14]	5
Leader-Member Exchange	LMX	[10],[11],[13]	6

#### **4.**Experimental Results

# 4.1. Descriptive Statistics (Outliers and Normality Verification)

Descriptive statistical analysis was performed to determine whether the variables meet the multivariate normal distribution assumptions. If the skewness is less than 2-3 and the kurtosis is less than 8-10, it is assumed to have a normal distribution.(Kline, 2010).All of the measured variables satisfy the criteria and are judged to meet the normal distribution assumption.Outliers are converted to Z-scores and are considered outliers if the



standard deviation is outside  $\pm$  3. The analysis showed no abnormalities.

# 4.2. Validity and Reliability Analysis

As a result of Factor analysis for metered variable, only four were selected for each variable. Inorder to verify validity and reliability of the variables, an exploratory factor analysis and a reliability analysis were conducted. The analysis results are as shown 'inTable 2'. Principal component analysis was used for exploratory factor analysis.The extracted factors eigenvalue 1.Factor rotation was analyzed using varimax by orthogonal rotation, which is useful for characterizing each factor. The data were verified to be suitable for factor analysis (KMO measure: 0.928,

Bartlett's spherical test: 2310.220 (df=120, p<0.001)). The total variance explainedwas 80.34%, which was well described as four factors. All factors were found to meet the commonalities and factor rotated component (above 0.6). There were no variables that were cross-loaded or loaded by other factors. The derived factor names were determined by previous studies. Each factor is measured by four items after eliminating nonconforming factors.Reliability analysis was conducted for each factor for the validity items. As a result of the analysis, the reliability was distributed from  $\alpha = 0.857$  to  $\alpha = 0.959$  as shown 'inTable 2'.

**Table 2: Exploratory Factor Analysis and Reliability Analysis** 

Factor	Measured variable	detor 71		or loadin	· ·	Commonality	Reliability (a)	
	LMX_4	.812				.902		
LMX	LMX_3	.808				.895	0.959	
LIVIA	LMX_1	.775				.856	0.939	
	LMX_2	.763				.894		
	EL_1		.813			.847		
Emotional	EL_2		.804			.856	0.925	
Leadership	EL_3		.787			.853	0.923	
	EL_4		.677			.750		
	SE_2			.857		.859		
Self-	SE_1			.855		.815	0.857	
Efficacy	SE_3			.759		.739	0.657	
	SE_4			.674		.585		
	JI_4				.792	.797		
Job Immersion	JI_3				.747	.816	0.977	
	JI_2				.686	.702	0.877	
	JI_1				.579	.692		
eigenvalue		3.607	3.297	3.183	2.772	-	-	
Explanatory	power (%)	22.541	20.609	19.891	17.322	_	-	

KMO:0.928, Bartlett, Spherical test: 2310.220 (df =120, p <0.001), Cumulative

Dispersion Rate: 80.34%

# 4.3. Correlation Analysis

Correlation analysis was performed to verify multicollinearity between variables. As a result, as shown 'in Table 3', there was a significant correlation between all variables (P <0.001). It was confirmed that there is no problem of multicollinearity. In detail, LMX and JI had the highest correlation (r = .766), and EL and SE had the lowest correlation (r = .548).



Variable	Average	Standard	SE_MEAN	ER_MEAN	LMX_MEAN	JI_MEAN
	_	Deviation				
SE_MEAN	4.59	.52	1			
EL_MEAN	3.99	.85	.548***	1		
LMX_MEAN	4.39	.67	.560***	.743***	1	
JI_MEAN	4.41	.62	.582***	.706***	.766***	1

<sup>\*</sup>p<0.05, \*\*P<0.01, \*\*\* P<0.001

# 4.4. Confirmatory Factor Analysis

A confirmatory factor analysis(CFA) was conducted to assess the relationship between potential factors and measurement items. As shown 'in Table 4', the model fit of the measurement model was CMIN / DF = 861.303 / 419 (p <0.001), RMR = 0.039, GFI = 0.819, AGFI = 0.806, NFI = 0.870, IFI = 929, TLI = 920, CFI = 928, RMSEA = 0.065. The measurement model was identified as appropriate. The Conceptual validity is based on a standardization factor of 0.5 or higher. Factor loading between SE and measurement items is  $\lambda = 0.590 \sim 0.935$ , factor loading between EL and

measurement items is  $\lambda = 0.826 \sim 0.898$ , loading between LMX measurement items is  $\lambda = 0.897 \sim 0.942$ , factor loading between JI and measurement items is  $\lambda = 0.703 \sim 0.906$ , which exceeded standard value of 0.5.Statistical significance of all items was confirmed (p <0.001). The Convergent validity is based on AVE above 0.5 and CR above 0.7.As a result, as shown 'inTable 4', AVE 0.692-0.850 is all above the standard.CR was analyzed between 0.954 and 0.984. Convergent validity was statistically significant.

Table 4. Goodness-of-fit test and Convergent validity of measurement model

	Path	Standardiz ation coefficient	Non- standardizati on coefficient	S. E.	t(Si	P	AV E	CR
	→ SE_ 4	.590	1.000					
<b>CE</b>	→ SE_ 3	.806	1.232	.16 1	7.63	***	0.82	0.97
SE	$\rightarrow$ SE_ $_2$ .864		1.058	.13	7.95 2	***	4	5
	→ SE_ 1	.935	1.171	.14	8.24 0	***		
	→ ER_ 4	.826	1.000					
EI	$\rightarrow$ ER_ 3	.898	1.002	.07	14.0 02	***	0.69	0.95
EL	→ ER_ 2 .898	1.222	.08 7	14.0 00	***	2	8	
	→ ER_ 1	.876	.957	.07 1	13.4 38	***		
LMX	→ LMX _4	.936	1.000				0.85 0	0.98 4



	$\rightarrow LMX$ $-3$	.897	.813	.04	19.3 71	***			
	$\rightarrow LMX$ _2	.925	.941	.04	21.4 86	***			
	→ LMX _1	.942	1.007	.04	23.0 05	***			
	→ JI_4	.800	1.000						
	→ JI_3	.703	.691	.07	9.33 6	***	0.71	0.95	
JI	→ JI_2	.906	.965	.07	12.9 58	***	2	4	
	→ JI_1	.809	.921	.08	11.1 90	***			
	CMIN/DF=181.510/98 (p<0.001),RMR=0.027,GFI=0.870,								
			AGFI=0.8	319,					

NFI=0.925,IFI=964, TLI=0.955, CFI=963, RMSEA=0.075 \* p<0.05. \*\* p<0.01, \*\*\* p<0.001

The discrimination validity is said to have discriminant validity when the AVE value is larger than the square of the correlation coefficient by comparing the square of the

correlation coefficient with the AVE value. As a result, as shown 'in Table 5', all factors exceeded the standard.

Table 5. The discrimination validity assessment

Latent variables	SE	EL	LMX	JI
SE	0.824			
EL	0.321	0.692		
LMX	0.377	0.562	0.850	
JI	0.416	0.504	0.463	0.712

### 4.5. Structural Model Analysis

The fit of the structural model was CMIN / DF = 861.303 / 419 (p < 0.001), RMR =0.039, GFI = 0.886, AGFI = 0.874, NFI =

0.870, IFI = 929, TLI = 920, CFI = 928, RMSEA = 0.065. Hypothesis and structural model verification were found to be satisfactory as shown 'in Table 6'.

Table 6. Structural Model Analysis and Hypothesis Verification

Hypothesis	Path	Standardization coefficient	Non- standardization coefficient	S.E	t	P	Hypothesis Verification
H1	$SE \rightarrow EL$	.556	.971	.175	5.561	***	Accept
H2	EL → JI	.593	.476	.067	7.060	***	Accept
Н3	SE → JI	.307	.430	.116	3.700	***	Accept

CMIN/DF=78.317/51 (p<0.001),RMR=0.029,GFI=0.918, AGFI=0.874, NFI=0.945, IFI=0.929, TLI=0.974, CFI=0.980, RMSEA=0.059

As a result of structural model analysis, it was found that SE had a significant positive effect(+) on EL, and SE and EL had

positive effects on JI. Hypotheses H1 through H3 were adopted.Bias Corrected Bootstrapping verification was performed

<sup>\*</sup> p<0.05. \*\* p<0.01, \*\*\* p<0.001



to confirm the mediating effect of EL. The mediating effect of EL showed an upper limit and a lower limit of 0.509-0.760 in the 95% confidence interval. It was shown not to include zero. The mediating effect was

verified to be statistically significant at the p <0.005 level. Hypothesis H4 was adopted. The mediated effect analysis results are shown as 'in Table 7'.

**Table 7. Mediated Effect Analysis** 

Hypothesis	Path	Estimate	S.E.	95%Confidence interval	Hypothesis Verification
H4	SE→EL→JI	0.637	0.074	0.509-0.760	Accept

Path analysis was performed to see if LMX had any moderating effect in relation to JI of EL and SE. As a result of the analysis, the moderating effect of LMX was verified

to be statistically significant at the P<0.01 level, respectively. Specific statistical significance is shown in Table 8. Hypotheses H5 and H6 were adopted.

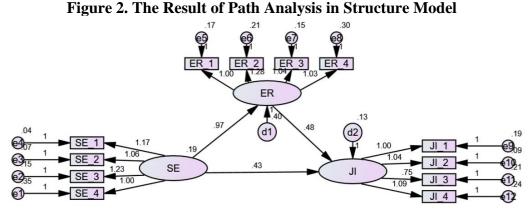
**Table 8. moderating Effect Analysis** 

Hypothesi s	Path	Standardizatio n coefficient	Non- standardizatio n coefficient	S.E	t	P	Hypothesis Verificatio n
Н5	$EL*LM \rightarrow J$	.272	.030	.04	.74	*	Accept
	X			U	6	4	
П6	SE*LM → J	221	.044	.06	.70	*	Accept
Н6	X	.321	.044	3	3	*	

<sup>\*</sup> *p*<0.05. \*\* *p*<0.01, \*\*\* *p*<0.001

To test hypothesis of research model, checked fitness of structure equation model. As result, all criteria are confirmed to

satisfied goodness of fit. The result of hypothesis testing is 'in Figure 2'.



#### 5. Conclusion

With the advent of the 4th industry, rapid structural changes in the industry are underway, and at the center of this, there is an ICT company centered on mental workers. This study analyzed how self-efficacy of SME ICT company employees influenced their job immersion. The differences of this study were as follows:

First, most of the previous studies focused on the attributes of leaders, but this study focused on the characteristics of employees. Second, the characteristics of four variables related to self-efficacy, job immersion, emotional leadership, and LMX were examined in a number of small and medium sized ICT companies, and the causal relationship of each variable was empirically studied. As a result, first, self-



efficacy has positive influence on job immersion and emotional leadership, and emotional leadership positive has influence on job immersion. Second, emotional leadership has an indirect effect in the relationship between self-efficacy and job immersion. Third, LMX was shown to have significant adjustment effects in the relationship between selfefficacy and job immersion, emotional leadership and job immersion. The main implications of this study are that ICT companies should provide value to maximize the self-efficacy of their members if they want to achieve higher goals and grow and develop as a continuing entity. In addition, the leader's emotions and LMX should strengthened. In addition, there is a need to strengthen the self-efficiency of the members in the company's human resources management program to foster creative talent. The following additional studies are required: What kind of performance do the companies in the study generate? There is a need to conduct comparative analysis various with leadership types and break down the research by ICT industry. Further research is needed on the accurate role analysis between the relationship-management of the emotional leadership and LMX components.

#### 6. Acknowledgment

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