

The Relationship among TQM Practices, Employee Satisfaction and Employee Loyalty in ICT Customer Service and Retail Distribution Organizations

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ICT 고객서비스 및 소매유통 조직의 품질경영 활동과 종업원 만족도 및 로열티간의 관계 연구

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Both employee satisfaction and loyalty play an important role in increasing the business performances of organizations in the service industry. However, the influence of TQM practices on employee satisfaction and employee loyalty has not been examined in the ICT service supply chain. This study aimed to investigate the impact of five total quality management (TQM) practices on employee satisfaction and employee loyalty in Korean ICT customer service and retail distribution organizations. Based on an empirical study of 578 respondents in a Korean ICT service company, the study examined the hypothesized relationships among TQM practices, employee satisfaction, and employee loyalty. Using structural equations modeling, it is found that TQM practices are significantly related to employee satisfaction, whereas the latter in turn influences employee loyalty. The results of analysis suggest that the ICT customer service and retail distribution organizations should concentrate on enhancing employee satisfaction of their TQM practices and creating a people-satisfied job environment.

Keywords : TQM Practices, Employee Satisfaction and Loyalty, ICT Service Supply Chain, Customer Service, Retail Distribution

1. Introduction

TQM(total quality management) is a management approach that contains concerted effort of all employees committed to attaining organizational performance and quality endeavors. TQM is also an integrated approach focused on synergizing all the functional activities across an organization in order

to improve quality of products and services as well as enhance customer satisfaction [1]. TQM is important because its application has a positive effect on an organization and its employees in terms of increased customer satisfaction, improved employees' job satisfaction and work-related attitudes, lowered manufacturing costs and higher productivity, enhanced knowledge management efforts and better strategic performance [2].

However, managing people part of the organization becomes a major challenge in TQM implementation as it includes values, preferences, and attitudes toward a specific activity [1]. Therefore, employees' dedicated participation

and commitment is essential for the success of TQM in an organization because employees definitely play an active role in the TQM program. The Korean ICT (information communication technology) service industry has suffered from employee's low commitment to organization and high turnover rate in spite of the companies' persistent efforts to implement TQM. In particular, as competition strengthens in the telecommunication industry, the growing numbers of staff tended to move their jobs to competitors, which required the organization's special effort to enhance employee loyalty and to reduce their turnover intentions.

Although some studies inspected the correlation between TQM and employee satisfaction in different countries or industries [3, 4, 5], there is no extant research that identifies TQM practices within the context of the Korean industry. Therefore, this study aims to examine the benefit of TQM practices from the viewpoint of employees who are important organizational stakeholders in the ICT service industry. In particular, we investigate the perceptions of employees at customer service and retail distribution organizations in one leading ICT service company which has successfully implemented TQM for more than ten years.

This study assumes that in Korean ICT service supply chain, frontline employees' loyalty would be influenced by the level of their satisfaction, and loyal employees are essential for a successful TQM implementation. This study consists of four main areas. First, we are interested in identifying the antecedents of TQM practices that would positively impact employees' satisfaction and loyalty. Second, this study presents a systematic model to assess employees' perceptions on the effect of TQM practices on employee satisfaction and employee loyalty. Third, this study analyses the relationship among TQM practices, employee satisfaction and employee loyalty. Last, the discussion and implications of the research findings are summarized with a discussion on research contribution, limitations, and the direction of future study.

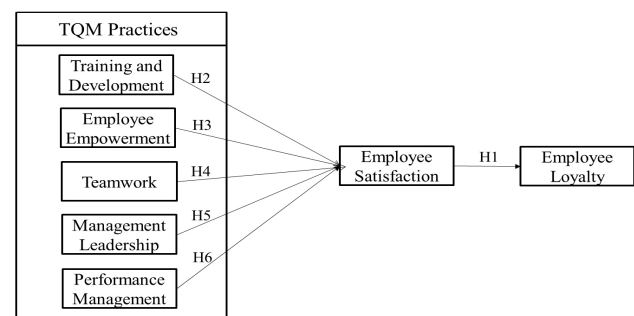
2. Theoretical Model and Hypotheses

The case-company should effectively compete with more competitive companies by improving quality and productivity rather than capitalizing on low labor costs. The company has suffered from customer service failures in the areas of the mobile and IPTV products, employee's low commitment to organization and high turnover rate in spite of its persistent efforts to implement TQM. In particular, as competition

strengthens in the telecommunication industry, the growing numbers of staff tended to move their jobs to competitors. Therefore, since the early 2000, the company has adopted deployed TQM initiative in order to enhance the effectiveness of management, to improve employee's mindset of quality and to improve customer service. More attention has been given to the role of HR (human resources) and TQM practices to enhance employees' satisfaction and loyalty, and to reduce their turnover intentions. Therefore, this study aims to investigate the relationships among TQM practices, employee loyalty and employee satisfaction among employees in Korean ICT service supply chain, especially in the customer service and retail distribution organizations. The conceptual model of this research is presented in <Figure 1>.

2.1 Relationship between Employee Satisfaction and Employee Loyalty

People are one of company's most significant assets because individuals make up an organization, especially in the customer service and retail distribution sectors. Studies found that US firms experienced a high failure rate of approximately 50~75% due to the negligence of human factors, where training and development is not provided to the workers before the introduction of advanced manufacturing technologies [6]. Employee satisfaction is very important element because people spend a third of their lives on working in the organization. Therefore, employees who are not satisfied tend to show a lower level commitment to their companies and are most likely to leave the organization [7].



<Figure 1> Conceptual Model of the Study

A major problem which Korea's ICT service industry is facing is high levels of job dissatisfaction and lower employee loyalty of the workforce incurred due to the massive manpower layoff. It is known that more and more employees are looking for better job opportunities in the industry. This job insecurity leads to employee dissatisfaction, absenteeism, and turnover.

According to service profit chain theory [8], employee dissatisfaction further results in lower service quality and employee loyalty, leading to higher customer dissatisfaction. The appropriate implementation of HR-focused TQM may therefore contribute to enhancing employee satisfaction and loyalty.

In general, employee satisfaction is the gratification or pleasurable emotional state resulting from the valuation of their job [9]. Employee satisfaction is defined as the psychological, emotional, and evaluative response an individual has towards his or her jobs [10]. Therefore, employee satisfaction includes a multidimensional construct that captures employees' feelings towards and satisfaction with a spectrum of job elements that are directly and not directly related to the job content [11]. So, it is quite important to properly understand employee satisfaction and their numerous factors or attitudinal variable.

Employee loyalty refers to an individual's subjective feeling of attachment regarding the behavior of the employees to an organization [12]. Employees who are strongly committed are those who are least likely to leave the organization [12]. One of the most critical problems faced by the management in Korean ICT service industry is the issue of high employee loyalty. Due to high competitiveness among different companies, resignation of important people affects the efficiency and the morale of those who remain in the company. This finally causes the company to lose their ability to offer top-quality products and services to its customers [5]. On the other hand, employee's high loyalty leads to the increased customer loyalty, finally resulting in the improved business performance. Therefore, increasing employee satisfaction through TQM efforts can also contribute to strengthening weak links in the service-profit chain [8], resulting in improved the service quality, employees' learning capability, productivity, loyalty and profitability in the service organizations. In order to improve firm competitiveness, it is essential to keep employees motivated and satisfied, confirming employees' loyalty towards a firm [7]. Some studies also show that employee satisfaction positively affects employee loyalty to their organization [3, 4, 5]. Therefore, this study formally hypothesize :

H1 : Employee satisfaction is positively associated with employee loyalty.

2.2 Relationship between TQM Practices and Employee Satisfaction

The perceived advantages of the implementation of TQM are creating improved quality and efficiency, increasing cus-

tomers satisfaction, finally enhancing organizational competitiveness. However, TQM implementation may entail a change representing the movement away from a present state toward a future state [13]. TQM brings about total change in an organization, which may include new quality practices, new organizational structures, new operations procedures, and new methods of appraising performance [14]. Such a change may influence employees attitudes to some significant threat or opportunity arising inside or outside of the organization.

For example, some problems or resistances occurred during the implementation of cellular manufacturing and just-in-time because of a lack of change in employees' thinking [15]. Employees showed resistance to TQM activities because they feel such activities as outside the boundaries of their jobs. Therefore, a successful implementation of TQM needs employees' dedicated participation and commitment in extra-working activities to perform the additional responsibilities, tasks and demand [15]. So, people management should be positioned as a major task in the successful TQM implementation of the organization as it involves values, preferences, and attitudes toward a specific activity.

These TQM practices consist of two groups such as core/mechanistic/hard practices and infrastructure/organic/soft practices [3, 16]. The former elements include product design process, process management, strategic planning, information and analysis, statistical control and feedback, while the latter elements are dimensions of human resources management (HRM) such as leadership, customer relationship, people management, supplier relationship, communication, training, work attitudes and so on. Some researchers defines the infrastructure/organic/soft practices of TQM as HR-focused TQM practices because most of them comprise dimensions of HRM [3].

Since employee satisfaction is the key outcome of this study, the scope of TQM elements is focused on HR-focused TQM practices. TQM practices and policies have been suggested as influencing factors that increase employee satisfaction [3, 4, 5]. When employees realize in the organization's concern about their welfare and recognizes their contributions, they believe that the organization will provide a variety of symbolic and tangible rewards in exchange for their efforts and commitment [17]. According to this social exchange theory, HR-focused TQM practices were suggested as a practical approach to improve employee satisfaction, and substantial positive association between TQM practices and employee satisfaction was found.

A synergy between TQM and HRM practices contributed to improving the satisfaction and quality awareness of em-

ployees on high-tech firms. It is suggested that HRM practices such as training and education, incentive compensation, and employee development are dominant in generating the positive outcome [18]. It is also found that soft TQM practices such as organizational trust, customer focus, organizational culture and teamwork have a positive impact on employee’s job satisfaction [2]. It is proposed that people-related aspects of TQM practices (top management commitment, empowerment, training, involvement and teamwork) were positively associated with employees’ job satisfaction [19].

Top management leadership is an important factor in TQM implementation [1]. A supportive management environment builds organizational commitment and job satisfaction, reduces turnover intentions and enhances employee performance [20]. Employee training offers challenges and opportunities in which employees can expand their knowledge and skills for more efficient teamwork and achieve individual growth and development [5]. Employees who received self-regulatory training show higher job satisfaction than those without such training [4]. Customer service and retail training directly affects employee job satisfaction due to its role in developing skills to handle service failures effectively [7]. Management must therefore create the opportunity for employee’s training. Teamwork in TQM often refers to quality circles, quality improvement teams, and cross-functional teams, which requires employees to confront problems and resolve conflicts within themselves [3]. When teams develop the proper knowledge through training, they are able to solve conflicts better and enhance productively through problem solving [19]. According to some studies, teamwork had a strongly positive effect on job satisfaction [2], whereas employee training had a negative impact on job satisfaction [4].

On the other hand, performance management systems are found to have the significant effects on employee satisfaction [4]. These systems are often divided into financial and non-financial rewards for individuals and teams who contribute to TQM efforts. Employee empowerment means the employees’ degree of discretion to make daily decisions about activities associated with their work, aiming to create enhanced individual and organizational performance [3]. Encouraged autonomy in the workplace enhances self-efficacy of employees and their motivation to do certain tasks better, finally increasing job satisfaction [5]. So, effective teamwork can motivate employees and improve employee performance and self-efficacy [3]. In final, this study concludes that synergy and congruence among HRM and TQM practices are critical to the successful implementation of TQM.

Based on in-depth literature review, it is assumed that TQM practices would have a greater impact on employee satisfaction. This current study also included five TQM practices, which have been found to have significant impact on enhancing employee satisfaction among employees and increasing employee loyalty. Such TQM practices include management leadership, training and development, employee empowerment, teamwork, and performance management. Therefore, the following hypothesis is proposed :

- H2 : Training and development is positively associated with employee satisfaction.
- H3 : Employee empowerment is positively associated with employee satisfaction.
- H4 : Teamwork is positively associated with employee satisfaction.
- H5 : Management leadership is positively associated with employee satisfaction
- H6 : Performance management is positively associated with employee satisfaction.

2.3 Measurement of Constructs

This paper used survey items that have been tested in previous literature. All of the variables were measured as latent, reflective constructs that are captured indirectly with direct measurement variables (see <Table 1>). Each item in this model was measured using a seven-point Likert scale, anchored at 1 = strongly disagree, 4 = Neutral, 7 = strongly agree. This paper aimed to investigate that TQM practices have some association with employee satisfaction. Employee loyalty was developed by [3]. Employee satisfaction was developed by [3, 7]. Five types of TQM practices were suggested [3, 19, 21, 22, 23, 24] : (1) performance management; (2) employee empowerment; (3) teamwork; (4) management leadership; and (5) training and development. The details of survey items and related literatures are described in <Table 1> and Appendix.

<Table 1> Measurement Constructs and Items

Constructs	Items	References
Employee loyalty	3	[3]
Employee satisfaction	5	[3, 7]
Employee empowerment	3	[3, 21, 22]
Training and development	3	[3, 21]
Teamwork	4	[7, 21, 22]
Performance Management	3	[3, 21, 22]
Management leadership	5	[19, 23]

3. Data Collection and Analysis

3.1 Data Collection

A survey questionnaire was mailed to 825 employees in the ICT customer service and retail organizations as the target group for the analysis. In this survey, anonymity and confidentiality of the respondents were guaranteed. The survey was also supported by a coordinator from the human resource management department within the organization. Within three weeks, a total of 578 fully completed and usable questionnaires were returned, yielding a 70% return rate. From the analysis, we can see that there are more men than women in the sample (men 88.2%, women 17.7%). In regards to age, the distribution is as the following: less than 29 years (1.8%), 30~34 years (8.9%), 35~39 years (21.5%), 40~44 (23.3%), 45~49 (33.6%), 50 years or older (10.9%). For work experience, the distribution represents less than 5 years (2.7%), 6~10 years (9.1%), 11~15 years (27.7%), 16~20 years (25.1%), and more than 21 years (35.4%).

About 60% of respondents had more than 16 years of work experience.

3.2 Reliability and Construct Validity

Structural equation modelling (SEM) was used for the causal relationships data analyses between the constructs. SEM analysis was selected over regression analysis, because SEM can analyze all of the paths in one analysis [25]. This study used Amos 18 to analyze the theoretical research model and our own research hypotheses in <Figure 1>.

This study performed reliability and validity analyses to examine if the questionnaire items matched our intent. The items were also tested for scale reliability. The Cronbach's alpha scores all exceeded 0.7, suggesting high internal consistency. Convergent validity was first assessed by reviewing the t-test for factor loading and was then assessed by examining the composite reliability and average variance extracted (AVE). Discriminant validity was assessed by examining the composite reliability and AVE (see <Table 2>).

<Table 2> Measurement Constructs and Items

Constructs	Measurement Items	Factor Loading	Reliability (Cronbach' α)	Composite Reliability	AVE
Training and development	TD_1	0.822	0.881	0.835	0.628
	TD_2	0.787			
	TD_3	0.729			
Employee empowerment	EE_1	0.543	0.762	0.801	0.573
	EE_2	0.787			
	EE_3	0.527			
Teamwork	TW_1	0.746	0.874	0.872	0.604
	TW_2	0.760			
	TW_3	0.624			
	TW_4	0.752			
Management leadership	ML_1	0.793	0.932	0.931	0.728
	ML_2	0.791			
	ML_3	0.808			
	ML_4	0.844			
	ML_5	0.797			
Performance management	PM_1	0.522	0.807	0.799	0.668
	PM_2	0.781			
	PM_3	0.720			
Employee satisfaction	ES_1	0.654	0.915	0.903	0.651
	ES_2	0.788			
	ES_3	0.730			
	ES_4	0.731			
	ES_5	0.730			
Employee loyalty	EL_1	0.696	0.798	0.835	0.635
	EL_2	0.674			
	EL_3	0.698			

<Table 3> Discriminant Validity

	TD	EE	TW	ML	PM	ES	EL
TD	0.792						
EE	0.549	0.757					
TW	0.594	0.647	0.777				
ML	0.516	0.555	0.564	0.853			
PM	0.612	0.597	0.654	0.567	0.817		
ES	0.577	0.680	0.644	0.590	0.632	0.807	
EL	0.562	0.582	0.563	0.538	0.582	0.644	0.797

Note : ET (employee training and development), EE (employee empowerment), TW (teamwork), ML (management leadership), EW (performance management), and ES (employee satisfaction).

As can be seen from the factor loading scores in <Table 1>, all scores are above 0.5, indicating that the measurement items do a good job in explaining the constructs. The composite reliability and AVE measures exceed the threshold of 0.7 and 0.5, respectively, and therefore it can be concluded that the convergent validity of the measurement model is reasonable.

The discriminant validity of the measurement instrument was proved by testing the correlations among the questions. With discriminant validity, a measure should correlate with all measures of the same construct greater than it does with any measures of other constructs. For satisfactory discriminant validity, the average variance extracted (AVE) from the construct should be higher than the variance shared between the construct and other constructs in the model. <Table 3> shows the correlation matrix with correlations among the constructs and the square root of AVE on the diagonal. As shown in <Table 3>, the analysis of the discriminant validity was acceptable.

3.3 Overall Fit of the Model

A number of goodness-of-fit measures can be used to examine the overall fit of the hypothesized model. Goodness-of-fit criteria measure the degree to which the actual or observed covariance input matrix matches with that predicted from the suggested model [26]. Some commonly used measures of absolute fit contain goodness-of-fit index (GFI) and root-mean-square error of approximation (RMSEA). GFI represents a non-statistical measure which is between 0 (poor fit) and 1 (perfect fit). The larger the value of GFI indicator, the better the match. Good fitting is specified by a value above 0.90 [26]. Therefore, this indicator is acceptable in the model of this study (GFI = 0.903), its value is just below the threshold and it is suggested that it would increase with

an increase in the number of respondents. Other indicators of correspondence of the model are shown in <Table 4>.

<Table 4> Goodness of Fit Criteria

Indicators	Obtained values	Prescribed values
X ² /d.f.	789.225/283 = 2.789	< 3.0
RMSEA	0.056	< 0.08-0.1
GFI	0.903	> 0.9
AGFI	0.880	> 0.9
NFI	0.93	> 0.9
CFI	0.953	> 0.9
IFI	0.954	> 0.9
RFI	0.919	> 0.9

Notes : AGFI, adjusted goodness of fit index; NFI, normed fit index; CFI, comparative fit index; IFI, incremental fit index; RFI, relative fit index.

3.4 Path Coefficients and Predictive Ability

The results of the analysis of the causality in the structural equation model are shown in <Figure 2>. The assessment of the structural model involves estimating the path coefficients and the R² value. The path coefficients indicate the strengths of the relationships between the independent and dependent variables, whereas the R² value is a measure of the predictive power of a model for the dependent variables. The interpretation of the analysis results is based on the R² values of the dependent variable, which is explained by the independent variables, as well as through the path coefficient's size, sign, and statistical significance.

<Table 5> and <Figure 2> show the path coefficients, their significance level and the R² values of the endogenous variables. The analysis results show that only two hypotheses have a non-significant effect and other hypotheses are supported. Employee empowerment (b = 0.524, p < 0.01), management leadership (b = 0.126, p < 0.01) and performance

<Table 5> Summary of the Hypothesis Test Results

Hypotheses	Path	Estimate	SE	Critical Ratio.	p-Value	Remarks
H1	ES → EL	0.749	0.053	15.715	0.000**	Adopted
H2	TD → ES	0.070	0.034	1.435	0.151	Rejected
H3	EE → ES	0.524	0.084	6.034	0.000**	Adopted
H4	TW → ES	0.057	0.055	0.858	0.391	Rejected
H5	ML → ES	0.126	0.039	2.836	0.005**	Adopted
H6	PM → ES	0.170	0.057	2.594	0.009**	Adopted

Notes : TD (training and development), EE (employee empowerment), TW (teamwork), ML (management leadership), PM (performance management), ES (employee satisfaction) and EL (employee loyalty).

**Significant at $p < 0.01$ level.



<Figure 2> Structure Model and Results of Partial-Least-Squares Analysis

management ($b = 0.170, p < 0.01$) increase employee satisfaction. H3, H5 and H6, which argue that employee empowerment, management leadership and employee compensation positively affects employee satisfaction, were accepted at a 99% confidence level and the path coefficients were 0.524, 0.126 and 0.170, respectively. However, employee training ($b = 0.070, p < 0.05$) and teamwork ($b = 0.057, p < 0.01$) in this study do not show a significant effect on employee satisfaction which deserve our attention. H2 and H4 were not statistically significant and therefore were rejected. The R^2 value of the endogenous construct is 0.725 (employee satisfaction). H1 which insists that employee satisfaction positively affects employee loyalty, were accepted at a 99% confidence level and the path coefficients were 0.749. In addition, the model explained 56% employee loyalty. Therefore, it can be concluded that the hypothesized model is partially supported by the data.

This shows that TQM practices such as performance management, employee empowerment, and management leader-

ship positively affect employee satisfaction in the ICT service environment that requires employee loyalty and business effectiveness. Second, H2 and H4 were rejected, suggesting that either teamwork or employee training does not directly affect employee satisfaction. In particular, it should be noted that teamwork does not have a direct effect on employee satisfaction in spite of the fact that it is one of key factors to TQM success. This result would be possible because employees in the customer service and retail distribution organizations tend both to carry out their work and to be evaluated on individual base rather than team unit, which represents the characteristics of their job. The customer service organizations are in charge of sorting out some complaints made by the subscribers, whereas the retail distribution ones are selling the telecommunications devices or services to the customers who are visiting to the retail shops. Only when TQM practices are performed to seek and explore performance management, employee empowerment and management leadership employee satisfaction be directly affected.

4. Conclusion and Future Study

4.1 Theoretical and Practical Implications

The aim of this study is to test (1) the influence of TQM practices on employee satisfaction and employee loyalty, (2) the relationship between each factor of TQM practices and employee satisfaction, and (3) which TQM practices affect employee satisfaction and employee loyalty more than the others. TQM practices appeared as a significant predictor of employee satisfaction or employee loyalty.

The three TQM practices except training and development, and teamwork had a significant effect on employee satisfaction. The study also suggested that employees' belief that an organization intends to support them through its TQM practices (employee empowerment, performance management, and management leadership) can make them more satisfied with the organization.

This study contributes to extending Korean TQM and retailing literature, because the existing TQM practices have been developed from surveys of firms in the Western advanced countries and its applicability and generality could be restricted to such countries. On the other hand, any study has not tested the effect of on employee satisfaction and loyalty in Korea, especially either in the Korean ICT service supply chain or its customer service and retail distribution organizations. This study proved that three individual TQM practices such as employee empowerment, performance management, and management leadership also affects employee satisfaction. This means that ICT customer service and retail distribution organizations can improve employee satisfaction and then employee loyalty by implementing TQM practices. This study therefore provides other practical implication that the top managers in the ICT service supply chain enable to increase employee loyalty through enhanced employee satisfaction. In addition, the detailed analysis shows that employee empowerment has the most significant effect on employee satisfaction. This suggests that the company give employee enough empowerment in order to promote individual's participation in goal setting and in making decisions.

This study also provides TQM and retail researchers with valuable data for future research. It supports that TQM practices make employees more satisfied and employees' increased satisfaction level actually improve employee loyalty. Therefore, academicians and practitioners enable workforces to make more satisfied by testing sets of different TQM

practices that contribute to increasing employee satisfaction and employee loyalty. This is consistent with the concept of social exchange theory [17], meaning that if management supports TQM program or system rather than TQM practices, then employees are likely to perceive a high degree of employee satisfaction and support from the organization [27]. On the other hand, this study emphasizes that employee satisfaction has an effect on business performance through a satisfaction-quality-profit cycle [28]. It should be noted that employee satisfaction contributes to employee loyalty, which results in the profits of a service firm through a cyclic effect.

4.2 Conclusion and discussion

This study suggests that Korean ICT service organizations may enhance employee satisfaction and loyalty through the implementation of HR-focused TQM practices. The findings show that three hypotheses except for training and development, and teamwork are strongly supported. Therefore, the result indicates that employee empowerment, performance management, and management leadership are significantly positive predictors of employee satisfaction within the Korean ICT customer service and retail organizations.

The research also proves that employee loyalty can be enhanced by improving employee satisfaction. Therefore, academicians and practitioners should give careful consideration to the ICT service context when testing the correlation among employee empowerment, performance management, management leadership and employee satisfaction. This study highlights the issue of employee satisfaction and loyalty in customer service and retail organizations. This suggests that the managers make an effort to have employees satisfied with TQM practices in their organizations.

4.3 Limitations and Future Research

Despite the fact that the current research contributed to the TQM and retailing study in the ICT service industry, some limitations exist. First, because the data was collected only from only one leading ICT service company in Korea, future studies are necessary in different organizations and different countries. Second, this study is required to test the mediating effect of employee satisfaction on the relationship between TQM practices and employee loyalty, and to investigate which TQM practices are more important factors in

this process. Third, some studies suggested that service quality and customer satisfaction could be easily damaged by human issues, dropping final business performance [28]. The influence of employee satisfaction on service quality and profitability might be particularly essential for customer service and retail organizations. Therefore, another study is required to investigate the relationships among employee satisfaction, employee loyalty, service quality and customer satisfaction in TQM practices. In final, this research used a cross-sectional survey method, which is restricted in identifying the longitudinal evidence of how TQM practices evolve in organizations. If one can inspect the variations in employee satisfaction and loyalty at diverse periods of TQM implementation, this would be more useful in finding the specific association between TQM practices, employee satisfaction and loyalty.

References

- [1] Schroeder, S.M., R.G. Goldstein, and M.J. Rungtusanatham, Operations Management in the Supply Chain : Decisions and Cases, 6th Edition, McGraw-Hill, 2012.
- [2] Ooi, K.B., Arumugam, V., Loke, K.Y., and Lorraine, S.V., Relationships of TQM practices and employees' propensity to remain : an empirical case study. *TQM Mag*, 2006, Vol. 18, No. 5, pp. 528-541.
- [3] Jun, M., Cai, S., and Shin, H., TQM practice in Maquiladora : Antecedents of employee satisfaction and loyalty. *Journal of Operations Management*, 2006, Vol. 24, No. 6, pp. 791-812.
- [4] Chang, C.C., Chiu, C.M., and Chen, C.A., The effect of TQM practices on employee satisfaction and loyalty in government. *Total Quality Management and Business Excellence*, 2010, Vol. 21, No. 12, pp. 1299-1314.
- [5] Arsic, M., Nikolic, D., Zivkovic, Z., Urosevic, S., and Mihajlovic, I., The effect of TQM on employee loyalty in transition economy, Serbia. *Total Quality Management and Business Excellence*, 2012, Vol. 23, No. 5-6, pp. 719-729.
- [6] Saraph, J.V. and Sebastian, R.J., Human resource strategies for effective introduction of advanced manufacturing technologies(AMT). *Production and Inventory Management Journal*, 1992, First Quarter, pp. 64-70.
- [7] Ashill, N.J., Rod, M., and Carruthers, J., The effect of management commitment to service quality on frontline employees' job attitudes, turnover intentions and service recovery performance in a new public management context. *Journal of Strategic Marketing*, 2008, Vol. 16, No. 5, pp. 437-462.
- [8] Heskett, J.L., Sasser, W.E., and Schlesinger, L.A., The service profit chain. New York, 1997.
- [9] Locke, E.A., The nature and causes of job satisfaction : role of negative affectivity, *Handbook of Industrial and Organizational Behavior*, Rand, Chicago, IL, 1976, pp. 1297-3491.
- [10] Guimaraes, T., TQM's impact on employee attitudes. *The TQM Magazine*, 1996, Vol. 8, No. 1, pp. 20-25.
- [11] Chang, C.S. and Chang, H.H., Effects of internal marketing on nurse job satisfaction and organizational commitment : example of medical centers in Southern Taiwan. *Journal of Nursing Research*, 2007, Vol. 15, No. 4, pp. 265-274.
- [12] Meyer, J.P. and Allen, N.J., A Longitudinal Analysis of the Early Development and Consequences of Organizational Commitment. *Canadian Journal of Behavioral Science*, 1987, Vol. 19, pp. 199-215.
- [13] George, J.M. and Jones, G.R., Towards a process model of individual change in organizations. *Human Relations*, 2001, Vol. 54, No. 4, pp. 419-444.
- [14] Lam, S.S., Total quality management and its impact on middle managers and front-line workers. *Journal of Management Development*, 1996, Vol. 15, No. 7, pp. 37-46.
- [15] Oliver, N. and Davies, A., Adopting Japanese-Style Manufacturing Methods : a Tale of Two (UK) Factories. *Journal of Management Studies*, 1990, Vol. 27, No. 5, pp. 555-570.
- [16] Prajogo, I.D. and Sohal, S.A., Transitioning from total quality management to total innovation management : an Australian case. *Int. J. Qual. Reliab. Manage*, 2004, Vol. 21, No. 8, pp. 861-875.
- [17] Ogilvie, J.R., The Role of Human Resource Management Practices in Predicting Organizational Commitment. *Group and Organizational Studies*, 1986, Vol. 11, No. 4, pp. 335-357.
- [18] Yang, C.C., The impact of human resource management practices on the implementation of total quality management : an empirical study on high-tech firms. *TQM Mag*, 2006, Vol. 18, No. 2, pp. 162-173.
- [19] Prajogo, D.I. and Cooper, B.K., The effect of people-related TQM practices on job satisfaction : a hierarchical mode. *Production Planning and Control*, 2009, Vol. 16, No. 1, pp. 1-10.

- [20] Singh, K., Strategic HR Orientation and Firm Performance in India. *International Journal of Human Resource Management*, 2003, Vol. 14, No. 4, pp. 530-543.
- [21] Kooij, D.T., Jansen, P.G., Dijkers, J.S., and De Lange, A.H., The influence of age on the associations between HR practices and both affective commitment and job satisfaction : A meta-analysis. *Journal of Organizational Behavior*, 2010, Vol. 31, No. 8, pp. 1111-1136.
- [22] Pare, G. and Tremblay, M., The Influence of High-Involvement Human Resources Practices, Procedural Justice, Organizational Commitment, and Citizenship Behaviors on Information Technology Professionals' Turnover Intentions. *Group and Organization Management*, 2007, Vol. 32, No. 3, pp. 326-357.
- [23] Coyle-Shapiro, J.A., Changing Employee Attitudes The Independent Effects of TQM and Profit Sharing on Continuous Improvement Orientation. *The Journal of Applied Behavioral Science*, 2002, Vol. 38, No. 1, pp. 57-77.
- [24] National Institute of Standards and Technology, Award criteria, Malcolm Baldrige National Quality Award. Department of Commerce, Gaithersburg, USA, 2013.
- [25] Gefen, D., Straub, D., and Boudreau, M., Structural equation modeling techniques and regression : Guidelines for research practice. *Journal of the Association for Information Systems*, 2000, Vol. 4, No. 7, pp. 1-70.
- [26] Ho, R., Handbook of univariate and multivariate data analysis and interpretation with SPSS. Boca Raton, FL : CRC Press, 2006.
- [27] Guchait, P. and Cho, S., The impact of human resource management practices on intention to leave of employees in the service industry in India : the mediating role of organizational commitment. *The International Journal of Human Resource Management*, 2010, Vol. 21, No. 8, pp. 1228-1247.
- [28] Yee, R.W., Yeung, A.C., and Cheng, T.C.E., The service-profit chain : An empirical analysis in high-contact service industries. *International Journal of Production Economics*, 2011, Vol. 130, No. 2, pp. 236-245

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<Appendix>

Employee loyalty

- EL1 I plan to make this company my own career
- EL2 I feel a lot of loyalty to this organization
- EL3 I care about the fate of this company

Employee satisfaction

- ES1 I feel personal satisfaction when I do my job well
- ES2 I talk up our company to my friends as a great organization to work for.
- ES3 This is the best organization for me to work for
- ES4 My job is very pleasant
- ES5 I find real enjoyment in my work

Employee empowerment

- EE1 I am provided with substantial autonomy and responsibility
- EE2 Perceived extent of individual influence over immediate work process, managerial, and institutional level decisions
- EE3 I am encouraged to develop new ways to provide better products and services

Training and development

- ET1 I have received sufficient training at this firm to do my job effectively
- ET2 I am trained in quality improvement skills
- ET3 My organization provides me with the opportunity to achieve my career goals

Teamwork

- TW1 Teams are used extensively at this firm
- TW2 Product and service quality teams are formed for the long run
- TW3 I think that my teams are effective in producing quality goods and services
- TW4 When an employee does good quality work, his colleagues regularly show him their appreciation

Performance Management

- PM1 I am rewarded (or recognized) fairly for the amount of effort that I put in
- PM2 Performance appraisals are based on objective and quantifiable results
- PM3 Part of my job performance evaluation is based on how well I work with teams

Management Leadership

- ML1 Top management is more supportive of suggestions to improve the way things are done around here
- ML2 The goal-setting process for quality within the company is comprehensive
- ML3 Quality issues are reviewed in the company's top management meetings
- ML4 People are encouraged more to say how things could be done better
- ML5 Top-level managers have objectives for quality performance