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ABSTRACT

**Purpose:** The purpose of this research is to provide an intermediate step to understanding the complex relationship between total quality management and customer satisfaction. This study presents research which examines the structural relationship between quality management and customer satisfaction in Korea. Specifically, the effects of quality management, employee engagement, continuous improvement, and customer satisfaction are tested. We examined the research model and the research hypotheses basis for applying TQM theories.

**Methodology/Approach:** This study examined a research model for quality management. A questionnaire was developed and survey data was collected. The sample was chosen from the total population of organizations in the Korea. Responses were collected from 380 workers. The study adopts the Input-Transformation-Output (ITO) concept model to construct a variable research model which was tested by structural equation modeling (SEM) analysis.

**Findings:** This research revealed that the benefit of establishing total quality management emerges from leadership and employee commitment so that organizations are able to gain a sustainable competitive edge and performance excellence. High levels of TQM have a significant, positive impact on customer-satisfaction.

**Research Limitation/implication:** We have evaluated the customer satisfaction level using customer perceptions rather than relying on customers' self-reported indicators. This may lead to statistical error. Upon examining this research, organizations should focus on TQM orientation thinking and execution.

**Originality/Value of paper:** In the past, the relationships between total quality management (TQM), total quality activities, and customer satisfaction were equivocal. In this study however, the researcher built a structural equation model based on TQM theories. Many firms have not considered TQM to be an appropriate tool for creating value and do not recognize its potential for strategic contribution. The study presents that the basic principle (TQM) and provides strategic implications.

**KEYWORDS:** Input-Transformation-Output (ITO) concept, TQM, Structural Equation Modeling (SEM), Employee Engagement, Continuous improvement, Customer Satisfaction.

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INTRODUCTION

Companies today face incredible pressures to continually improve the quality their products while simultaneously reducing costs to meet ever-increasing legal and environmental requirements and shorten product life cycles to meet changing customer needs and remain competitive.

These days, the economic position of Korea has weakened. The main cause of this problem is the prevailing system of management. Organization leaders and CEOs usually address the optimization of a system that would offer improvement and excellence in service.

A system must have an aim. "Without an aim, there is no system (Walton, 1990)." To gain the competitive edge, companies try to adopt quality management programs and productivity improvement programs. TQM can be defined

as “a holistic management philosophy that strives for the respect of people, management by facts and continuous improvement in all functions of an organization (Deming, 1986).”

Jens J. Dahlgaard & Su Mi Dahlgaard-Park (2015) discussed the definition of quality as follows:

“Quality is and has always been an important issue for people as well as for companies. Quality of Experience is a measure of a customer's experiences with a service. It focuses on the entire service experience, and is a more holistic evaluation than the more narrowly focused user experience.” As transition from a service economy to the new experience economy, Jens J. Dahlgaard & Su Mi Dahlgaard-Park (2015) developed the structural model (*The Diamond Model for Creating Profound Affection*). “Profound Affection means that customers' hearts are moved and their souls are touched. Profound affection is a very comprehensive state, which is a result of a combination of sensing, intellectual/cognitive, emotional, social, behavioral and spiritual experiences.”

The most successful organizations have found that the fundamental principles of total quality are essential to effective management practice, and continue to represent a sound approach for achieving business success. The real challenge today is to ensure that managers do not lose sight of the basic principles on which quality management and performance excellence are based. “The global marketplace and domestic and international competition has made organizations around the world realize that their survival depends on high quality.”(Siverman & Propst, 1999)

“Total Quality Management is a management philosophy with a vision aiming at building a corporate culture characterized by increased customer satisfaction through continuous improvement in which all employees actively participate.”(Su Mi Dahlgaard-Park, 2015)

Total Quality Management (TQM) is the business world's leading management method. Companies employ this to improve their productivity and service quality with the hopes of improving typical measures of business performance (e.g. increased profits, increased market share, reduced costs). Excellent quality is regarded by most producers as one of the most important aspects of manufacturing, service and buyer's strategies.

This study has the following research objectives. A research model and related hypotheses are offered based on a strong theoretical foundation. This study investigates this research model by using empirical data from the industry field. This paper offers a research model by exploring diverse multi-disciplinary literature and developing an explanatory framework, which is tested by using structural equation modeling and refined through an empirical study of Korean manufacturing companies. The result contributes by offering related practitioners implications. The study is concluded by discussing further research implications of the study.

## THEORETICAL BACKGROUND

### Quality Management

Transformation is required in government, industry and education. Management is in a stable state. Transformation is required to move out of the present state. “The required transformation will be a change of state, Metamorphosis, not mere patchwork on the present system of management. Of course, we must solve problems and stamp out fires as they occur, but these activities do not change the system.”(Deming, 1989)

“Quality Management (QM) improves not only conformance levels but also has a positive impact.” (Flynn *et al.*, 1995) “As a company progresses to higher quality levels, it must become more proactive with its customers, anticipate customer expectations, and measure the extent to which it has satisfied customers' needs.” (Juran, 1981) ‘The 85-15 rule,’ Deming (1989) mentioned. “It holds that 85 percent of what goes wrong is with the system, and only 15 percent with the individual person or thing.”

According to Garvin (1988), “it is one of eight dimensions that shape the quality concept; the others being performance, features, reliability, conformance, durability, aesthetics and serviceability (the intrinsic attributes or physical characteristics of a product).”“Successful companies' TQM systems should only be studied for inspiration and then each company should build up its own TQM system based on the basic principles or generalized value TQM.”(Su Mi Dahlgaard-Park, 2015)

Quality Management consists of three factors. These three factors are quality leadership, process management, and customer focus. In an organization, the leader establishes the mission, vision, and core value of the organization. A quality leader should create and maintain the internal environment in which people can become fully capable in achieving the quality objectives. “Successful implementation of quality oriented management requires effective change in an organization’s culture, and it is almost impossible to change an organization without a concentrated effort by management aimed at continuous improvement, open communication, and cooperation throughout the value chain.” (Abraham *et al.*, 1999)

Process Management represents how the work in an organization is accomplished and leads to business results. “Process management entails taking a preventive approach to quality improvement such as designing processes that are fool-proof and that provide stable production schedules and work distribution to reduce process variation by building quality into the product during the production stage.” (Flynn *et al.*, 1995) Flynn *et al.* (1995) found that “effective process management results in an increased percent-passed final inspection with no rework.”

Customer focus begins with workers’ minds. This requires an attitude of putting customer first and a belief that this principle is the object of one’s work.



*Figure 1. Quality Management Framework*

Quality is based on competitive priorities. Quality management includes items such as Quality leadership, Process management, and customer focus. Such items are also referred to as capabilities.

### **Employee Engagement**

Engagement is rooted in the psychology of human need. Engagement begins with involvement. Employee Engagement is the origin of competitiveness. “Employee engagement simply means that workers have a strong emotional bond to their organization. Then they actively involve themselves in the decision making process and feel more committed to their work, feeling that their jobs are important.” (Evans, 2011) Employee engagement is similar to Deming’s concept of “pride and joy” in the workplace. Employee engagement refers to any activity by which employees participate in work-related decisions and improvement activities. “Employee engagement offers advantages that increase employee morale and commitment to the organization and foster creativity and innovation, the source of competitive advantage. Furthermore, employee engagement improves organizational performance.” (Harter, *et al.*, 2002)

### **Continuous Improvement**

Companies should try to regain the competitive edge and adapt to a continuous improvement program. Management’s Job is to provide the leadership for continuous improvement and learning. “Continuous improvement should be a part of the management of all systems and processes.” (Evans, 2011) Continuous improvement refers to both incremental and “breakthrough” improvement. Improvement and learning need to be embedded in the way an organization operates. The results of continuous improvement are effect on enhancing value to the customer through new and

improved products and service. “Improvements in quality will result in more satisfied customers with greater loyalty and increased sales.” (Ahire, Dreyfus, 2000; Handfield *et al.*, 1998)

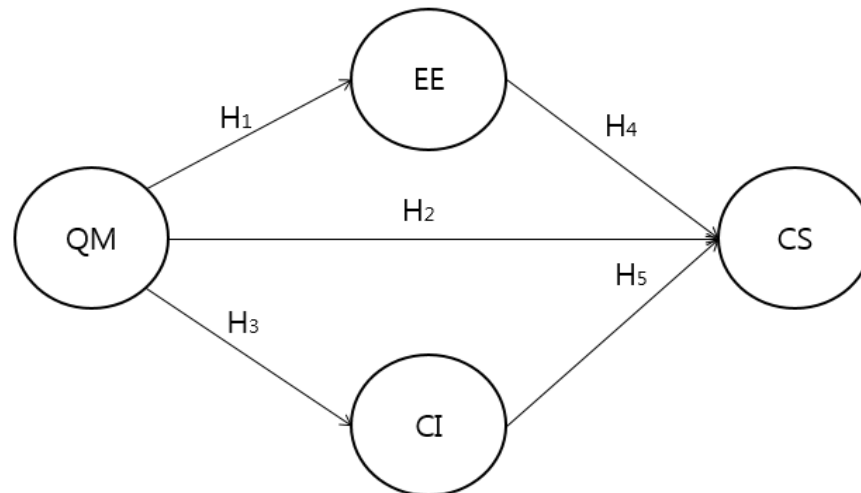
**Customer Satisfaction**

“Today, most managers agree that the main reason to pursue quality is to satisfy the customer.” (Evans, 2011) The quality effort requires a new way of thinking about the customer, and thinking as well about new customers. The view of quality as the satisfaction of customer needs is often called fitness for use. In highly competitive market markets, merely satisfying customer needs will not achieve success. To beat the competition, organizations must often exceed customer expectation. The reason for this definition of quality is meeting or exceeding customer expectations.

Customer satisfaction is fundamental to a high performing organization. “Customer satisfaction is an important performance outcome for industrial operations and is one of the most viable means of influencing customer loyalty.” (Anderson *et al.*, 1994) The results from delivery of ever-improving value to customers and stakeholders are organizational sustainability, improvement of overall organizational effectiveness and capabilities. Working at a world-class firm is considered to be something special, and employees are encouraged to identify with the firm and its mission.

**Research model and research hypotheses**

The research model was developed in a strong theoretical foundation. In fact, this research model was developed after benchmarking the SPC (Service Profit Chain) Model (Heskett *et al.*, 1994). The service profit chain proposes a relationship that links profitability, customer loyalty, and service value employee satisfaction, capability, and quality. In our research model, we touched the link between key factors and performance factors related to operation management. We proposed this model based on a strong theoretical foundation and practical experience. The model examined in this study is presented in Figure 2.



**Figure 2. Research model**

Notes: QM=Quality Management, EE=Employee Engagement, CI=Continuous Improvement, CS=Customer Satisfaction.

In quality management and operation management, “quality is an antecedent of operation activities.”(employee engagement, continuous improvement, customer satisfaction, *e.g.*, Evans, 2011; Voss *et al.*, 2005). Heskett *et al.* (1994) found that “excellence in quality management has an impact on employee engagement, customer satisfaction, and continuous improvement.” A synthesis of these findings leads to our next three model hypotheses.

H1. Quality management is positively related to employee engagement.

H2. Quality management is positively related to customer satisfaction.

H3. Quality management is positively related to continuous improvement.

Customer satisfaction refers to an integrated approach to organizational performance management results in the delivery of ever-improving value to customers and stakeholders. Customer satisfaction is a characteristic of today's most outstanding organizations and is a requisite for providing high quality goods and services. In the context of the social exchange theory, "employees will be loyal to their employer and customers by being committed to putting extra effort into offering services with a high level of quality as a means of reciprocity to their organization." (Flynn, 2005) The literature reveals "strong links between quality management and customer satisfaction." (Evans, 2011; Heskett et al., 1994). The findings provide the theoretical basis for hypotheses.

H4. Employee engagement is positively related to customer satisfaction.

H5. Continuous improvement is positively related to customer satisfaction.

## Method

### *Survey instrument*

Development of the measurement scales for each construct in the research model proceeded through a series of steps. The measures used in this study were drawn from a well-established instrument in operation, marketing and service operation management.

**Quality Management:** Quality Management (QM) is concerned with the overall perception of the performance of the quality offered by the company. Respondents were asked to rate five items on a five-point likert-type scale anchored at 1="totally disagree" and 5="totally agree"

**Employee engagement:** "Employee engagement refers to any activity by which employees participate in work-related decisions and improvement activities." (Evans, 2011; Ahire, Dreyfus, 2000; Handfield et al., 1998) Respondents were asked to rate four items on a five-point likert-type scale anchored at 1="totally disagree" and 5="totally agree"

**Continuous improvement:** "Continuous improvement should be a part of the management of all system and process." (Evans, 2011) Continuous improvement refers to both incremental and "breakthrough" improvement. Excellence in quality is possible through repetitions of the PDCA cycle. Once a problem is solved, another opportunity is identified for a new round of improvement. Respondents were asked to rate four items on a five-point likert-type scale anchored at 1="totally disagree" and 5="totally agree"

**Customer satisfaction:** We referred to customer satisfaction as the overall emotional state of a customer from his and her experience with the company. Customer satisfaction is fundamental to a high performing organization. "Customer satisfaction is an important performance outcome for industrial operations and is one of the most viable means of influencing customer loyalty." (Anderson et al., 1994) Respondents were asked to rate four items on a five-point likert-type scale anchored at 1="totally disagree" and 5="totally agree"

### *Sample*

This study focuses on both the private sector and the service sector in Korea. These industries are trying to sustain excellence quality to compete. We obtained 349 completed questionnaires after dropping any questionnaires which were not properly returned or those questionnaires which were not duly completed.

## RESULT ANALYSIS

### **Confirmatory Factor Analysis**

We applied structural equation modeling (SEM) to examine CFA (confirmatory factor analysis) the proposed model using Analysis of Moment Structures (AMOS). Validity assessment of the measurement model was inferred using the Confirmatory Factor Analysis (CFA) method. In our case, the chi-square statistics of 324.577 (113 d.f.), results in a p-value below 0.05-indicating rejection of the null hypothesis and poor model fit. Chi-square, however, is not the sole measure of fit. Other fit statistics have been developed to provide further indication of goodness-of-fit. The Goodness Of Fit (GFI, 0.902), Adjusted Goodness Of Fit (AGFI, 0.868), Root Mean Residuals (RMR, 0.028), Normed Fit Index (NFI, 0.935), Nonnormed Fit Index (NNFI, 0.947), Comparative Fit Index (CFI, 0.956) all have values greater than cutoff. The presence of significant factor loadings and the acceptable fit statistics for the CFA indicate that the model as currently specified, demonstrates satisfactory convergent and discriminant validity. Additionally, nomological validity supports the current specifications.

*Table I. Confirmatory factor analysis of measurement model*

Variables	Paths	Factors	Standardized Regression Weights	Error terms	Reliability(0.7over)	Validity(0.5over)
Excellent Quality	<---	Quality Management	0.832	0.14	0.9	0.5
Cost	<---		0.85	0.164		
Function	<---		0.825	0.226		
Strategic Planning	<---		0.848	0.151		
Process Management	<---		0.73	0.311		
Employee Orientation	<---	Employee Engagement	0.738	0.267	0.8	0.5
Participation in Decision making	<---		0.745	0.299		
Incentive	<---		0.835	0.174		
Promotion	<---		0.75	0.353		
Process	<---	Continuous improvement	0.744	0.347	0.9	0.5
Product	<---		0.875	0.169		
Delivery	<---		0.838	0.197		
Value Chain	<---		0.791	0.245		
Overall Satisfaction	<---	Customer Satisfaction	0.901	0.12	0.9	0.4
Likeness	<---		0.864	0.194		
Pleasure	<---		0.874	0.142		
Happiness	<---		0.854	0.169		

### Structural models results and hypothesis testing

The overall fit of structural model is good: Chi-square=364.881, d.f.=114, p=0.000, Chi-square/df=3.201, GFI=0.891, AGFI=0.854, RMR=0.040, NFI=0.927, NNFI=0.938, and CFI=0.948. As shown in Table II, all parameter estimates between latent variables are significant. All hypotheses are supported.

*Table II. Test results of the research model*

Hypothesis	Factors		Factors	Estimate	S.E.	C.R.	Hypothesis test
H1	QM	→	EE	0.606	0.061	10.0	Accepted
H2	QM	→	CS	0.704	0.089	7.9	Accepted
H3	QM	→	CI	0.816	0.067	12.2	Accepted
H4	EE	→	CS	0.203	0.061	3.3	Accepted
H5	CI	→	CS	0.417	0.067	6.2	Accepted



## DISCUSSION AND CONCLUSIONS

Quality-or lack of quality-is a vital issue in every one's and every organization's life. Customer-driven quality is fundamental to high-performing organizations.

In this study we developed and tested the relationships between quality management, employee engagement, continuous improvement, and customer satisfaction. The results lend strong support for the assertion that quality management is an important determinant of customer satisfaction. The findings are consistent with the popular 'SPC (Service Profit Chain) Model.'(Hestkett et al., 1994) Path loading between EE (Employee Engagement) and CS (Customer Satisfaction) was lower than expected. This is because we adopted an indirect measurement method on customer satisfaction.

Our findings bear some practical implications for quality management. Quality based on strong leadership is an essential goal for management activities. Employee engagement and continuous improvement are mediating factors to boost customer satisfaction. It seems essential that employee oriented management by such means as facilitating employee training, empowerment, compensation and so on be strengthened. To meet organization mission and attain its vision, senior leaders have built a culture that encourages high performance and satisfaction by engaging in their respective workforces.

In an organization, to increase quality activities, CEOs should sustainably stress quality. Quality is not only a basic factor of work but also the origin of competency. Quality management can be started through quality leadership, customer focus, and process management. High quality offered by a firm would lead to customer satisfaction. Excellence quality was shown to be positively related to customer satisfaction in organization.

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