An Empirical Study of TQM Method Practices for Customer Satisfaction and Customer Loyalty

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DOI: 10.6007/IJARBSS/v4-i5/820 URL: http://dx.doi.org/10.6007/IJARBSS/v4-i5/820

Abstract
The study of total quality management (TQM) and how the security industry can impetus the processes to promote customer satisfaction and loyalty are very few. In practice, the priority of service providers should be thinking about how to develop a comprehensive TQM system, understanding customer needs, reducing frequency of service gaps to achieve customer satisfaction and loyalty. Therefore, this study mainly lies as what the service industry angle cuts into, in view of negotiable securities entrepreneur whether it can affect the degree of customers' satisfaction and loyalty by way of the TQM execution. This study takes the cities of Hsin-Chu and Miao-Li of Taiwan its 402 customers of the securities industry as an object, by the structural equation model, discovered by way of the LISREL 8.51 real case study results. The customer satisfaction variable by way of the TQM variable adjustment, it positives influence of which customer loyalty.

Keywords Total quality management (TQM), Customer satisfaction, Customer loyalty, Structural equation model (SEM)

Introduction

In the recent years, Taiwan actively conducts the financial liberalization. Due to the low control of service industry, once the market transforms from seller's market to buyer's market, which enterprise values shall service providers offer to attract the attention of customers while facing the competition of high homogeneity products? Businesses should aim to improve their quality by the standard of quality customers request due to that customers measure the quality is by a few important quality attribute (Deming, 1986). Essentially, financial industry is an information-intensive industry, requesting huge information in each product and the

computerization and information technology have a great impact on the financial industry as well. Though there are many financial products and trading channel, the customer needs are different (Michael & Miller, 1985). Therefore, securities industry should really know customer attributes to provide appropriate services and satisfy the service each customer requests. To know the customer expectation toward the quality of products and services in security industries, the industries should find out a way to transform their perspectives from product orientation to customer perceive value.

The motivation of this study is analyzing whether or not the continuous improvement of products quality and the devotion of enhancing customer satisfaction, will really meet the target customer's need and strengthen the customer loyalty as well as create greater enterprise value in adversity for the business to fulfill the win-win situation. On the basis of the above research motivation, the purpose for this study is aimed to investigate the relationship between TQM and the customer satisfaction and loyalty by whether or not people who are engaged in security industry can influence customer satisfaction and loyalty by TQM practice.

Literature review

TQM evaluation dimensions

Different researchers used different dimensions of TQM (Martinez- Lorente, et al., 2000; Escrig-Tena, et al., 2001) to assess its effects on company product quality and other non-financial outcome (Terziovski & Samson, 2000; Zhang, 2000). Currently, taking Malcolm Baldrige National Quality Award (MBNQA) as a standard concept to examine TQM in seven aspects, those being top management support, the strategic quality planning, quality information analysis, promotion of quality control education and training, quality management of manufacturing process, customer orientation, quality performance measurement, etc (Kuratko, et al., 2001; Zhao, Yeung & Lee, 2004). Sureshchandar, et al. (2001) addressed that the promise of corporate executive, the management of product/service design, the quality information feedback and analysis, service quality education training, continuous quality improvement, service process management and customer orientation. Besterfield et al., (2003) was of the opinion that TQM could be divided into six parts, leadership, customer satisfaction, involvement of people, continuous improvement, a supplier partnership and performance measurement. Dale Besterfield (2003) indicated that the core value and concept for TQM-oriented corporate should be visionary leadership, customer-driven excellence, organizational and personal learning, staff and partner concern, agility, focus on future, managing for innovation, management by fact, public responsibility and citizenship, focus on result and creating value and systems perspective. Yang (2005) suggested dividing the TQM construction into the involvement of corporate executive, the service quality strategic management, product and service design, process management, supplier management, customer relationship management, quality information and employees' education training. However, previous studies agree that the most influential dimensions of TQM include; (1) management idea, (2) top management commitment, (3) employee involvement, (4) empowerment (5) product design (6) CRM, (7) quality information (8) continuous improvement, and (9) customer focus (Juran, 1988; Yang, 2005; Zu, et al., 2010).

The customers evaluate the quality based on a few important quality attributions and items, so what service providers who work in the service industry shall do to carry out the

quality control expected by the customer so as to meet their satisfaction is promoting TQM actively. The duty for TQM includes planning, organizing, staffing, leading, controlling, so the following are the things to concern for TQM:（Fu & Huang, 2011）：

1. TQM shall concern about the result of both internal and external process result in organization.
2. TQM shall have continuous quality improvement
3. All the people in organization shall involve in.
4. TQM shall merge with organization restructuring
5. TQM shall establish external partnership
6. TQM shall appeal to constitutional improvement and competitiveness enhancement.

From what has been mentioned above, this study find TQM plays an important role in overall strategic planning for the challenge service industry needs to face in service gap. Under the circumstance of starting the TQM, how businesses who work in service industry formulate an operation management strategy to fix the five service quality gaps? By the above literatures, the study thinks that when corporate executes the evaluation concept in the aspect of management, it will expel service gaps, enhance customer satisfaction and bring the operation profitability to the company.

Influence of TQM for customer satisfaction and loyalty

Aderson & Sullivan (1993) analyzed the cause and effect of customer satisfaction; they found that the TQM-based product performance did have an impact on the customer satisfaction. Grove, Pickett & LaBand (1995) believed that the items such as service price and quantity, human resources, product performance, quality assurance etc., should be quantified and the above factors will influence the customer satisfaction. A positive relationship between TQM practices and customer satisfaction found by Parzinger & Nath (2000). And also, Das et al. (2000) described a positive relationship between TQM practices and customer satisfaction performance. TQM is a comprehensive management approach, the purpose of satisfying, even encouraging customers. However, customer satisfaction is the main purpose of TQM, and continuous improvement is essentially ensure that it meets the expectations of the customer, and even ultimately beyond. TQM practices (antecedents) that significantly affect employees'/customers' satisfaction and loyalty (Jun, 2006). In addition, the internal cross-functional communication of TQM is important among departments such as operations, finance, marketing, IT, and customer service (Daghfous & Barkhi, 2009). The past researches proved that TQM practices would impact the customer satisfaction and loyalty.

Influence of customer satisfaction for customer loyalty

Reichheld & Sasser (1990) indicated that the customer satisfaction will enhance the customer loyalty, which means the possibility of repurchase intention is increased. The more purchase times and quantities satisfied customers buy, the better profit enterprise get. According to Fornell (1992), improving the customer satisfaction would have the following seven benefits, which are getting more loyalty from existed customer, decreasing price elasticity of customer, stopping customers from turning to the competitors, reducing transaction and failure cost, keeping costs low in order to achieve prices that are attractive to

consumers and enhancing the reputation of enterprise. Fornell, et al., (1996) proposed that the customer satisfaction will result in customer loyalty. After buy the specific product and use it, the customers will have their perspectives toward such product. If like it, the customers have high possibility to purchase again. Little by little, they will have loyalty to the product and are likely to share their use experience of such product to relatives and friends by word of mouth. The firms improve the quality of their products and services then their will increase reputation, customer satisfaction and customer loyalty (Corredor & Goñi, 2011). The past researches proved that customer satisfaction would impact the customer loyalty.

Methodology

Research framework

On the basis of the research purpose and the contents mentioned on previous literatures, this study establishes a research model as shown in Figure 1. The study designed the questionnaires in accordance with the measurement dimensions of TQM, satisfaction and loyalty of customer, took the measurement dimensions concluded by the scholars as references (Sureshchandar, et al., 2001; Zhao, et al., 2004; Yang, 2005) and then used the path analysis with latent variables (PA-LV) oriented by structural equation model to investigate the correlation of variables.

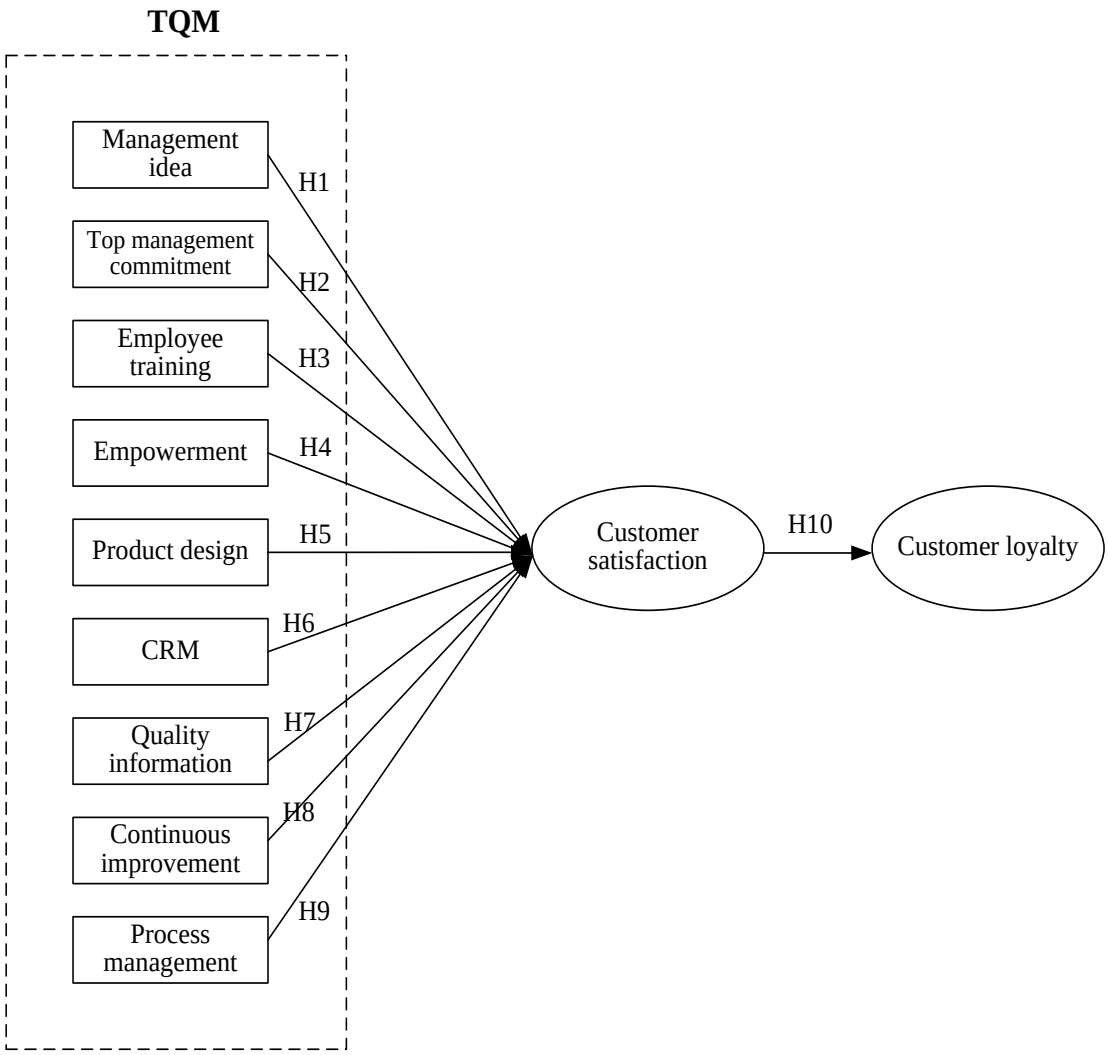

Figure 1 The research conceptual framework

Operational defines and measures of variables

Please refer to author's previous research for the operational definition of the variables of TQM, customer satisfaction and customer loyalty (Chen, et al., 2011). This study will only give the description in the measurement methods. They are as follows:

Operational defines and measures of TQM

This study takes research framework Yang (2005) addressed as a basis, consults to the framework Motwani (2001) came out and finally carries out nine dimensions that have higher commonality in service industry, those being management idea, top management commitment, employee training, empowerment, product/design management, CRM, quality information, continuous improvement and process management. In addition, transform the measurement variables of TQM operational aspects to 42 questions that will help security industries know the TQM practice they shall fulfill by the customers.

Operational defines and measures of customer satisfaction

This study adopt the framework from Cronin & Taylor (1992), defining the customer satisfaction as the overall satisfaction customers have toward the service provided by security dealer after conduct the investment of financial product security dealer offered. It measures the customer satisfaction by the dimension of "satisfaction". Moreover, the study turns the operational definition of customer satisfaction into six questions that will help security industries know the customer satisfaction they shall fulfill by the customers.

Operational defines and measures of customer loyalty

This study apply the concept of Bou-Llusar et al., (2001) to define the customer loyalty, which is high repurchase intention from the customer. It measured the customer loyalty by the dimension of "repurchase". In addition, transformed operational definition of customer loyalty to three questions that will help security industries know the customer loyalty they shall fulfill by the customers.

Empirical study

The research objective is 20-year-old customers that invest in the security companies located in Hsin-Chu and Miao-Li of Tauwan. This study applies the simple random sampling to do the questionnaire survey. The survey period is from March to July, 2011. Each measurement list will use on a five-point Likert scale ranging from 1 (1 strongly disagree with the statement) to 5 (5 strongly agree with the statement). This study gives out 800 surveys and return 521 of them, which has 65.13% feedback rate. We have 402 effective surveys. The analysis result of SPSS 18.0 and LISREL 8.51 are as follows:

Demographics of sample

According to the descriptive statistics, most interviewers are females, which is 58% higher than males, 64.2% of them are married, 33.8% of them are in the range of 31 to 40 years old, 49.5% are in the college education background, 47.8% are engaged in service industry as shown in Table 1.

Table 1 Demographics of sample

Basic data		Number	Proportion
Gender	Male	169	42.0%
	Female	233	58.0%
Marital status	Married	258	64.2%
	Unmarried	144	35.8%
Age	Younger than 30	75	18.7%
	31-40	136	33.8%

	41-50	123	30.6%
	51-60	53	13.2%
	Older than 61	15	3.7%
Education degree	Below higher school	5	1.2%
	High school	94	23.4%
	College	69	17.2%
	University	199	49.5%
	Above Master	35	8.7%
Occupation	Manufacturing industry	60	14.9%
	Service industry	192	47.8%
	Office holder	79	19.7%
	Freelance worker	36	9.0%
	Others	35	8.7%

Reliability analysis

The numbers for each variable of Cronbach's α of TQM, customer satisfaction, customer loyalty and total measurement list are 0.949, 0.867, 0.857 and 0.947, which meet the suggestion of Kline (1998), Cronbach's α>0.8 is "very good", and shows that this measurement list is reliable as shown in Table 2.

Table 2 Reliability test

Variables	Cronbach's α	Range	Reliability test
TQM	0.949	>0.9	excellent
Customer satisfaction	0.867	>0.8	good
Customer loyalty	0.857	>0.8	good
Total scale	0.949	>0.9	excellent

Factor analysis

In this study, we will apply KMO and Bartlett to check the information compatibility before doing the measurement, integrate with principal component analysis and maximum varimax likelihood method to do the orthogonal rotations and pick the factors with the eigenvalues that are great than 1 as well as consult to the suggestion of Hair et al., (1998) which

is the questions that have the sample >350 and factor loadings>0.30 but are not in random loadings and reach the significant level of 0.05.

Kaiser (1974) suggested that when KMO value>0.7, it fits for factor analysis. Since 0.937 of the KMO value and 7234.801 of Bartlett χ^2 in the TQM measurement list are reaching the significance, this study come out nine dimensions, those being management idea, top management commitment, employee training, empowerment, product/design management, CRM, quality information, continuous improvement and process management.

0.876 of KMO value and 1015.890 of Bartlett χ^2 in the customer satisfaction measurement list are reaching the significance, this study come out a dimension of "satisfaction" and its eigenvalue is 3.623.

0.728 of KMO value and 560.610 of Bartlett χ^2 in the customer loyalty measurement list are reaching the significance, this study come out a dimension of "repurchase" and its eigenvalue is 2.345 (see Table 3).

Table 3 Factor analysis

TQM			
KMO	0.937	Bartlett's test	7234.801
Factor	Eigenvalue	Variance %	Cumulative variance %
Management idea	3.295	7.846%	7.846%
Top management commitment	3.208	7.638%	15.484%
Employee training	3.151	7.502%	22.986%
Empowerment	2.888	6.877%	29.863%
Product design	2.756	6.562%	36.425%
CRM	2.738	6.518%	42.942%
Quality information	2.702	6.434%	49.377%
Continuous improvement	2.262	5.387%	54.764%
Process management	1.622	3.861%	58.625%
Customer satisfaction			
KMO	0.876	Bartlett's test	1015.890
Factor	Eigenvalue	Variance %	Cumulative variance %
Satisfaction	3.623	61.549%	61.549%

Customer loyalty			
KMO	0.728	Bartlett's test	560.610
Factor	Eigenvalue	Variance %	Cumulative variance %
Repurchase	2.345	79.790%	79.790%

Structural equation model

Standardized Structural path and total effects of structural equation model

In the Table 4 finding that the management idea, top management commitment, and empowerment have obvious overall effect in the customer satisfaction and loyalty. In them, the management idea and empowerment have positive influence in the customer satisfaction and loyalty, that is to say, the better management idea and the higher customer satisfaction will enhance the higher customer loyalty. See Figure 2 for standardize structure equation model results.

In terms of the analysis of the path and effect of each variable, this study has 0.19 of standardize total effect and 2.96 of t-value in the effective analysis of management idea to the customer satisfaction, and test of significance reaches the significant level. This indicates that the management idea have a direct effect on the customer satisfaction. Therefore, the path for the effective analysis of management idea to the customer satisfaction is as follows:

Management idea → Customer satisfaction.

As for the effective analysis of management idea to the customer loyalty, it has 0.14 of standardize total effect and 2.93 of t-value and reaches the significant level. For that matter, it means that the management idea have an indirect effect on the customer satisfaction. Therefore, the path for the effective analysis of management idea to the customer loyalty is as follows:

Management idea→ Customer satisfaction → Customer loyalty. Its indirect effect is 0.19×0.72=0.1368.

As for the effective analysis of top management commitment to the customer satisfaction, it has -0.16 of standardize total effect and -2.40 of t-value, and test of significance reaches the significant level. This means that the top management commitment will have direct effect but negative influence to the customer satisfaction. For the effective analysis of top management commitment to the customer loyalty, it has -0.11 of standardize total effect and -2.39 of t-value and reaches the significant level, that is to say, the top management commitment has no direct effect on the customer loyalty, but customer satisfaction can influence it indirectly. Hence, the path for the effective analysis of top management commitment to the customer loyalty is as follows:

Top management commitment→ Customer satisfaction → Customer loyalty. Its indirect effect is -0.16×0.72=-0.1152.

In terms of the effective analysis of empowerment to the customer satisfaction, this study have 0.32 of standardize total effect and 4.78 of t-value, and test of significance reaches the significant level, that is to say, there is a direct effect between empowerment and the customer

satisfaction. Therefore, the path for the effective analysis of empowerment to the customer satisfaction is as follows:

Empowerment→ Customer satisfaction.

For the effective analysis of empowerment to the customer loyalty, we have 0.24 of standardize total effect, 4.66 of t-value, and test of significance reaches the significant level, which means there is no direct effect between empowerment and the customer loyalty, but customer satisfaction can influence it indirectly. Therefore, the path for the effective analysis of empowerment to the customer loyalty is as follows:

Empowerment → Customer satisfaction→ Customer loyalty. Its indirect effect is 0.32×0.72=0.2304.

In the path and effective analysis for PA-LV, we have 0.72 of standardize total effect and 21.07 of t-value in the effective analysis of the customer satisfaction to the customer loyalty, and test of significance reaches the significant level. This means that there is a direct effect between the customer satisfaction and loyalty. Therefore, the path for the effective analysis of the customer satisfaction to the customer loyalty is as follows:

Customer satisfaction → Customer loyalty.

Table 4 Standardized direct effects, indirect effects and total effects

Dependent variable / Independent variable		Customer satisfaction		Customer loyalty	
		Effects	t	Effects	t
Management idea	Direct effects	0.19	2.96**	-	-
	Indirect effects	-	-	0.14	2.93**
	Total effects	0.19	2.96**	0.14	2.93**
Top management commitment	Direct effects	-0.16	-2.40*	-	-
	Indirect effects	-	-	-0.11	-2.39*
	Total effects	-0.16	-2.40*	-0.11	-2.39*
Employee training	Direct effects	0.02	0.34	-	-
	Indirect effects	-	-	0.01	0.34
	Total effects	0.02	0.34	0.01	0.34
Empowerment	Direct effects	0.32	4.78***	-	-
	Indirect effects	-	-	0.24	4.66***
	Total effects	0.32	4.78***	0.24	4.66***
Product design	Direct effects	-0.05	-0.70	-	-

	Indirect effects	-	-	-0.04	-0.70
	Total effects	-0.05	-0.70	-0.04	-0.70
CRM	Direct effects	0.08	1.17	-	-
	Indirect effects	-	-	0.06	1.17
	Total effects	0.08	1.17	0.06	1.17
Quality information	Direct effects	0.08	1.15	-	-
	Indirect effects	-	-	0.06	1.15
	Total effects	0.08	1.15	0.06	1.15
Continuous improvement	Direct effects	-0.08	-1.40	-	-
	Indirect effects	-	-	-0.06	-1.40
	Total effects	-0.08	-1.40	-0.06	-1.40
Process management	Direct effects	0.05	0.68	-	-
	Indirect effects	-	-	0.03	0.68
	Total effects	0.05	0.68	0.03	0.68
Customer satisfaction	Direct effects	-	-	0.72	21.07***
	Indirect effects	-	-	-	-
	Total effects	-	-	0.72	21.07***

Note: *p<0.05； **p<0.01； ***p<0.001

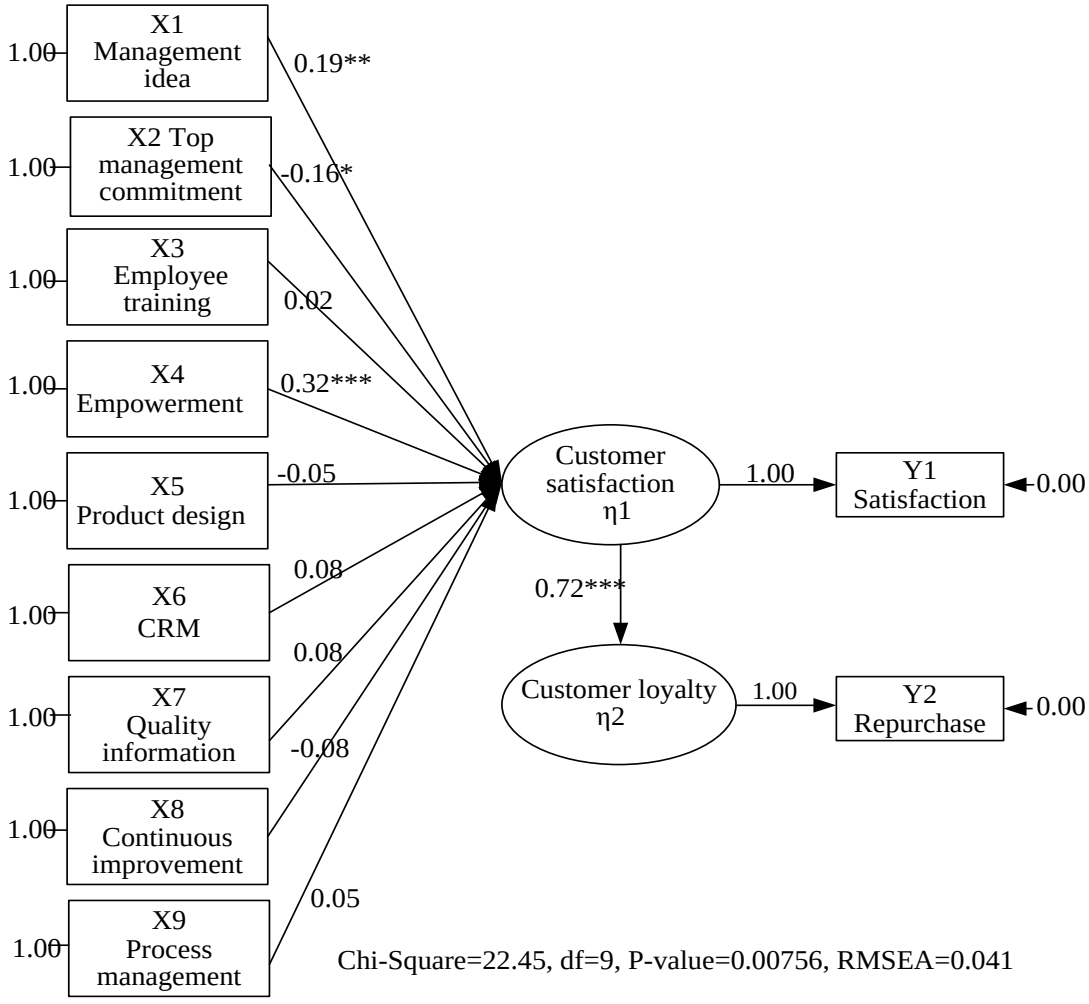

Figure2

Structural equation model results

Conclusions

TQM is one of the most prominent operations management in the 20th century. A large number of studies have been done on TQM practices and their impact on customer satisfaction and loyalty. TQM supporters have long accepted the idea of institutional theory and have emphasized on its isomorphic nature. In other words, TQM includes a common set of management practices and principles that can surpass organizational and national boundaries. This study came out and finally carries out nine dimensions that have higher commonality in service industry, those being management idea, top management commitment, employee training, empowerment, product/design management, CRM, quality information, continuous improvement and process management. It measures the customer satisfaction by the dimension of "satisfaction". It measured the customer loyalty by the dimension of "repurchase".

In conclusion, after evaluate this study measure and structure models by SEM, we find that under the adjustment of TQM, the customer satisfaction will have a positive impact on the customer loyalty. In them, management idea, top management commitment and

empowerment have significant effect on customer satisfaction, that is to say, management idea, top management commitment and empowerment can adjust the customer satisfaction. Moreover, the better management idea and empowerment are the higher customer satisfaction it has. The top management commitment for customer satisfaction is in opposite direction. The customer satisfaction in the potential variables has significant effect on customer loyalty. This means that the customer satisfaction has a positive impact on the customer loyalty and the higher customer satisfaction will enhance the higher customer loyalty.

Acknowledgements

The authors would also like to thank the National Science Council of Taiwan, R.O.C. for financially supporting this study in 2012 (Number: NSC 101-2221-E-412-001).

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