

# THE EFFECT OF THE IMPLEMENTATION OF TOTAL QUALITY MANAGEMENT ON THE SATISFACTION OF STUDENTS AND ITS IMPACT ON THE PERFORMANCE OF MANAGEMENT DEPARTMENT

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**ABSTRACT:** *The aim of this study is to describe the effect of Total Quality Management (TQM) practice on performance, specifically examining and explaining the role of student's satisfaction as the mediating factor for the relation between Total Quality Management practice and the performance of Management Department. The data of this explanatory research is collected through a survey. From the populations of 28 management departments in private universities in Yogyakarta, 26 qualify the criteria of valid C accreditation at the minimum. The respondents are chairperson or secretary of department, lecturers, and 3 to 5 students selected by the department. The employed Generalized Structured Component Analysis (GSCA) indicates that Total Quality Management practice has a significant effect on the performance of department ( $p$ -value=0.005 <0.01). TQM practices significantly affect the satisfaction of student ( $p$ -value= 0.041 <0.05), whereas satisfaction of student significantly affect the performance of department ( $p$ -value 0.082 <0.10). Therefore, the satisfaction of student is proven a partial mediator for the relationship between Total Quality Management practices and the performance of department.*

**Keywords:** TQM Practice; department's Performance; student's satisfaction

## 1. INTRODUCTION

Indonesia has experienced a drop in the performance of higher education. This is shown by the fact that the number of Indonesian students studying in Malaysia and Singapore is higher than the opposite [1]. This happens because of the presumption that the quality of higher education in Indonesia has decreased due to its poor performance. This decrease is also shown by lower satisfaction of college students in Indonesia.

Unsatisfactory performances of Private Colleges also occur in Yogyakarta, Indonesia. In 2013, there are 116 Private Colleges covering 534 departments listed in *Kopertis* (Coordinator of Private Higher Education) *Region V* in Yogyakarta. However, the quantity is not in line with the performance. This fact has been appearing during the last five years of accreditation from BAN PT (the National Accreditation Board of Higher Education in Indonesia), in which the number of department with expired accreditation has increased.

Director General of Higher Education Circular No. 470/D/T/1996 stated that accreditation status of college is a reflection of college's performance and a description of quality, efficiency, and relevance of department. Based on the data from BAN PT, until February 2013, 26% accreditation of departments was expired, while 18% has C accreditation. The condition decreases the interest of students to study in Private Colleges in Yogyakarta.

The phenomenon of department with only C accreditation and not accredited department indicate that the performance of Private Colleges is low. Empirical facts at the national level also show the same condition. Lower performance of colleges is caused by the lack of resources, facilities, new departments, curriculum design, sufficient building, working environment, appropriate systems and procedures, well-planned work schedule, adequate staff development, and high-quality management of the department [2]. These

problems show that the performance of most departments in Indonesia is still low at both national and regional level.

TQM is very popular in profit organization, particularly in entities or manufacturing company, in which it is very successful in maintaining and developing the existence of companies in a competitive business environment. Such conditions have prompted various parties to practice it in service organizations, including colleges [3].

The application of Total Quality Management (TQM) in higher education should consider two fundamental areas. The first is the culture of higher education institutions and introduction of changes in attitudes, the increase of value and confidence, the increase of knowledge about TQM, and the increase of leadership commitment. Second, academic institutions must recognize the institution as a system and see institutions as a system of interconnected parts. They must be proactive in self-evaluation system at the level of institutions and departments, and they must have the initiatives to grow and thrive. TQM practice is something strategic and comprehensive that must be supported by the system and quality culture to enhance the quality of higher education [4]. Some literature has provided evidence that TQM has become a strategic tool to achieve superior performance. Empirical evidences prove that the implementation of TQM has helped improve efficiency, both internal and external. Internal efficiency includes improvement of company's processes, productivity, morale of employee, and relationship between management and labor. External efficiency includes improvement of customer satisfaction, cumulative cost saving effect of competition, innovation of products and services, increase of market share, high reputation, and improvement of the effectiveness of organization's performance [5]. To achieve operating efficiencies, company needs to implement Total Quality Management for a positive effect on business performance [6,7,8] have explained the concept of TQM.

They stated that the implementation TQM was effective and efficient in improving organizational performance.

Empirical facts revealed by several researchers studying the measurement of TQM practices suggested that there was a positive relationship between TQM practices and performance, as in [6,9, 10, 11, 12,13,14]. Others [15] stated a positive relationship between TQM practices and organizational performance. In addition, some researchers in the effect of TQM on business performance, in general, suggested that there was significant relationship between TQM practices and the performance of manufacturing company, as in [16,17,18].

Some researchers studying the effect of TQM on business performance showed that TQM practices did not affect the performance of manufacturing company [19]. Elsewhere [20], they found that TQM practice did not affect business performance. [21] stated that TQM practice did not affect the financial performance of services companies. Inconsistent findings of [20] on the effect of TQM on performance due to customer satisfaction that delivered the company to achieve superior performance are not listed.

The philosophy TQM emphasizes on three principles in achieving a certain level of process quality and performance. These principles are related to customer satisfaction, employee involvement, and continuous improvement in performance [22]. According to [23], in order to achieve the objectives of organization, top management must commit to customer satisfaction and creation of an organizational climate emphasizing on customer satisfaction. In general, top management commits to seek job satisfaction of employees to achieve higher performance. Indicators of customer satisfaction in empirical studies have no standard agreement. Authors in [24] found that TQM practice had a stronger effect on consumer satisfaction compared to the effect of TQM on company performance.

Studies above show contradictions and differences of opinion about the effect of TQM practices on business performance in both manufacture and service companies. This research gap is interesting for further investigation. This study aims is to fill the gap and to clarify the effect of TQM on performance using customer satisfaction as the mediating variable for the relationship between TQM practices and performance. In addition, this study also confirms the research of [20] and [19], which stated that the contradiction of findings on the effect of TQM on performance was due to the failure to acknowledge customer satisfaction as a factor that enabled the company to achieve superior performance. Therefore, this research is increasingly important to prove that TQM practices can improve the performance of organizations with customer satisfaction as the mediating variable.

Inconsistent results about the effect of TQM on performance are caused by differences on measurement indicator, inconsistency in the measurement concept of TQM. In [13], they conducted a study on health industry in Turkey using TQM measurement comprising 4 indicators. [25] conducted a study on higher education in Turkey using 10 indicators to measure TQM.

Variations in TQM measurement encourage the researchers to reexamine the effect of TQM on performance using 11 indicators. In addition to using indicators from previous

investigators, the researchers added a new different indicator, which is institutional partnership. This indicator is important since a department can implement a comprehensive quality management easier if it has partnership with other agencies.

This study is conducted in Yogyakarta, as the center of higher education in Central Java housing 534 departments. The high number of Private Colleges in Yogyakarta is not accompanied by any increase in the performance. This condition shows that many private universities in Yogyakarta have not been able to improve the performance of the organization. Based on the results of [26] about the effect of service quality on student's satisfaction in private universities in Yogyakarta, Private Colleges is not optimal in providing quality educational services to students as consumers. Therefore, this study focuses on Management department at almost all higher educations in Yogyakarta.

This study aim is to examine and explain the effect of TQM practices on the performance of management department, as well as to examine and explain the satisfaction of student variable as mediation the effect of TQM practice on the performance of management department. Theoretical contribution of these empirical findings enriches the literature about the concept or theory of quality management, particularly in strengthening integrated quality management or TQM. These findings can be present on the results achieved from the application of Total Quality Management practices. Development of measurement indicators, identification, and explanation about the relationship between variables are expected to become useful for the development of quality management in operational management. Practically, the research results are useful for chairperson, secretary, and professor of management department in providing information to improve and enhance the quality of their departments and to determine the factors that need special attention and considered important in implementing TQM practices. It can also provide input for the leadership of private universities in providing and facilitating the process of high quality education for students.

## **THEORY, HYPOTHESES, AND MODEL**

### **2.1 The Effect of Total Quality Management practices on performance and satisfaction**

Total Quality Management (TQM) is a new paradigm of doing business to maximize organizational performance through the focus on customer satisfaction, the involvement of all employees, and the continuous improvement of products quality, services, people, process, and organizational environment [27]. TQM practices success in the framework of continuous quality improvement will increase the profitability of a company and, in turn, will ensure the sustainability of the company. Lagrosen *et. al.* [28] recommended that, any organization will be able to cope with dynamic environmental change and provide continuous improvement if TQM is applied correctly. The proactive TQM puts the onus of quality to all employees, uses the embedded control system, and detects damage early, so the products meet customer's expectations and are free of defects. To achieve operational-process efficiency, company needs to implement Total Quality Management for the positive effect on business performance [6].

TQM contributes effectively in achieving organizational effectiveness. TQM can minimize costs through a single procurement. If a company concentrate only on few suppliers and provide the training and technology, as well as monitor their performance, variability in supplier products will be reduced, product quality will be improved, costs incurred by delays and rework will be minimized [29]. TQM practices can be implemented to produce better performance. Furthermore, [29] stated that an increase in quality could eliminate waste, reduce cost, and increase financial performance. [2] stated that the core principles of TQM were (a) focus on customer's satisfaction, (b) endeavor for continuous improvement, and (c) involvement of the entire workforce or employees. Others [30] conducted a research on the effect of TQM on financial performance from a sample of 108 companies started the implementation of TQM from 1981 to 1991. The study indicated that corporate performance of companies implementing TQM had increased, as measured through financial data and accounting data available for public. Authors in [31] examined the effects of TQM practices on the performance of 20 MBNQA-winning companies in United States. The study found that TQM practices had a strong relationship with quality and productivity. According to others [32], they used a single construct with secondary data to measure financial performance. They found that, should the program was effectively implemented TQM will be able to improve performance. [6] showed that TQM had a significant relationship with various measures of performance. This finding was consistent with the empirical research elsewhere [31] and [17], which also showed that there is a positive relationship between TQM practices and organizational performance.

Some researchers have used customer satisfaction in assessing the success of TQM practices. However, indicators of consumer satisfaction have no standard agreement. Kaynak *et.al.*[24] found that TQM practice had a stronger effect on consumer satisfaction compared to its effect on company performance. Further [33], it was found that TQM practice had a positive effect on customer satisfaction. Somewhere else [34], they found that TQM practice affected customer satisfaction. Based on those descriptions, the formulated hypotheses are as follows:

H1: TQM practices affect performance.

H2: TQM practices affect satisfaction.

## 2.2 The Effect of consumer satisfaction on organizational performance

The core principles of TQM are (a) focus on customer's satisfaction, (b) endeavor for continuous improvement, and (c) involvement the entire workforce or employees [2]. Customer focus will move corporate activity to present the best efforts that ultimately will satisfy customers. Efforts to achieve better quality, cost efficiency, and shorter production process cycle make customers more satisfied. They are the responsibility of all workers or employees. Others [35], in the context of TQM, explained that customer satisfaction is the driving factor for organization to improve its performance. Orientation toward consumer is the amount of attention and effort to improve customer satisfaction. Survey of [36] stated

that customer satisfaction was the most important thing that will drive the organization towards improvement. Customer satisfaction has a great effect on the implementation of TQM in increasing the quality of products and services [37]. Based on those descriptions, the following hypothesis is formulated. H3: Customer Satisfaction affects organizational performance.

## 2.3 Customer Satisfaction as a mediator of the effect of TQM practices on performance.

The success of TQM is determined by organization's seriousness in making changes, and companies use customer satisfaction as a measure of success. Empirical studies of [33] found that TQM practices had a positive effect on customer satisfaction. Consumer satisfaction is an important variable and became one of main objectives of company. [24] stated that TQM practice had a very strong effect on customer's satisfaction. [38] found that TQM practice had a strong effect on consumer satisfaction. [39] found that TQM had significant and positive effect on customer satisfaction. [40] found that TQM practice was related positively and significantly to customer's satisfaction.

Customer focus will move corporate activity toward giving the best efforts that will ultimately satisfy customers. Efforts to achieve better quality, better cost efficiency, shorter production process cycles, and higher satisfaction of customers are the responsibility of all workers or employees. [35] in the context of TQM explained that customer satisfaction is the driving factor for the organization to improve its performance. Orientation to consumer reflects the attention and effort of the organization in improving customer satisfaction. The survey of [36] stated that customer satisfaction is the most important thing that will drive the organization towards improvement. Customer satisfaction has a great effect on TQM implementation for higher quality of products and services [37].

Empirical studies show that the relationship of TQM practice and customer satisfaction is the driving factor for organizations to improve their performance. Others [6] found that TQM had a positive effect on customer satisfaction, relationship of employees, operating procedures, and financial results. Some criteria for the Malcolm Baldrige National Quality Award (MBNQA), such as process management criteria, have a direct effect on customer satisfaction and financial performance. It was further found that there was a positive correlation between quality and customer satisfaction, and between customer satisfaction and profitability [41]. The result of his research at major companies headquartered in Netherlands operating across Europe [42] shows that there is a positive relationship between customer satisfaction and business performance. It was also found that there was a positive relation between customer satisfaction and business performance [20]. Customer satisfaction has a great effect on TQM implementation for improvement in quality of products and services. Based on these descriptions, the hypothesis is as follows.

H4: Customer satisfaction mediates the effect of TQM practices on performance.

Based on description above, the conceptual framework of this research model is described in Figure 1 below.

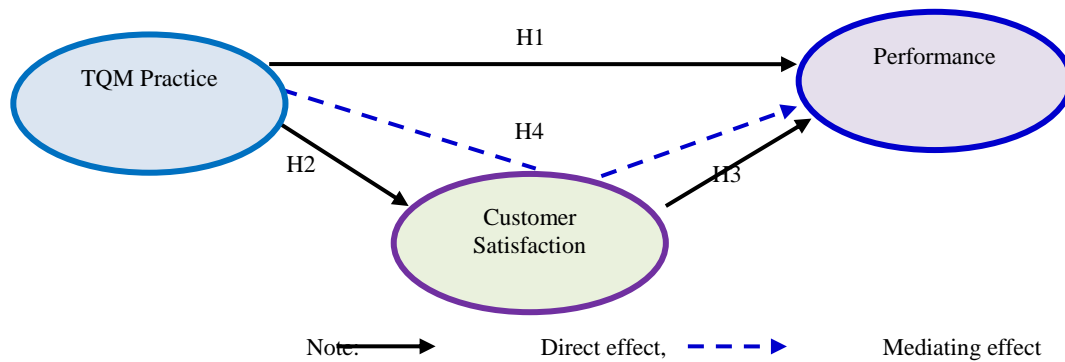


Fig 1: Research Framework

## 2. RESEARCH METHODS

### 3.1 Research type

This study examines the effect of TQM practices on the performance of management departments at private colleges in Yogyakarta using the satisfaction of student as the mediator. This research is an explanatory research since it tries to explain causal relationship between the variables through hypothesis testing.

### 3.2 Population and sample

The populations of this research are 28 management departments at private colleges in Yogyakarta. The total populations in this study are observed using saturated sample. The criteria of the population is department with valid C accreditation at the minimum (26 departments are qualified). The respondents are chairperson or secretary of management department considered capable to assess the implementation of TQM practices and the performance of the departments. The next respondents are students who are at least in the 4th semester and considered capable of assessing student's satisfaction toward the academic activities of management department. Each department selects its 3 to 5 students for this research.

#### Data collection

The data of this study is collected through a survey using a questionnaire containing items of variable measurement generally used in research. The measurement uses 5-point Likert scale, starting from 5 = strongly agree to 1 = strongly disagree. This method aims to obtain information based on questionnaires. The data is collected directly by asking the willingness of respondents to fill out a questionnaire about TQM practices, performance, and the satisfaction of student according to their perception. After the analysis, in case of unclear data is found, additional information through in-depth interviews from the respondents shall be explored.

### 3.3 Data analysis

The data analysis employs Generalized Structured Component Analysis (GSCA), developed by Heungsun Hwang, Hec Montreal, and Yhoshio Takane in 2004 based on

variance. The assumptions to be met in GSCA analysis related to structural modeling are (1) the relationship between the latent variables is linear and additive, in which the test can be performed using SPSS software through Ramsey approach test or curve fit (using the principle of parsimony); (2) the sample size in GSCA is based on resampling (bootstrapping), does not require a large sample, and can employ non-probability sampling techniques.

## 3. DATA ANALYSIS AND RESULTS

GSCA analysis approach uses least squares method in its parameter estimation process. GSCA is a component-based SEM method. It is very important and useful for the calculation of score. It applies to a very small sample [43]. The structural model is evaluated by observing the value of path coefficient among variables. The model testing is done after the relationship model is built in accordance with the result of observation data and the overall goodness-of-fit model. Structural relation model aims to determine the relationship between the variables designed in this study. Structural model testing and hypothesis testing are done by looking at value of estimated path coefficients and critical point (CR \*) significant at  $\alpha = 0.05$ . Mediation test detects the position of intervening variables in the model.

Mediation test is conducted to determine the mediatory relationship between variables (complete, partial, or non-mediation). GSCA test can be done through the coefficient difference. Coefficient difference approach uses inspection methods to perform the analysis without involving the mediating variables. Table 1 shows the mean value, estimate loading, AVE, and the alpha of each indicator. Measurement models for all latent variables showed estimate value loading of  $>0.60$ , and there are some near 0.60 that can be still accepted. CR values for all indicators are significant  $\alpha = 0.05$ .

**Table 1: Mean, Estimate Loading, AVE and Alpha**

Constructs	Indicators	Mean	Loading		AVE	Alpha
			Estimate	CR		
TQM	Leadership	4,22	0.770	14.85*	0,622	0,943
	Measurement and Evaluation	3,93	0.843	19.17*		
	Process Control and Development	4,15	0.887	25.46*		
	Benchmarking	3,90	0.728	13.37*		
	Curriculum design	4,37	0.814	16.71*		
	The quality of management system	4,02	0.849	25.74*		
	Involvement of lecturers	4,06	0.870	42.99*		
	Recognition and Awards	3,77	0.599	8.37*		
	Education and training	3,91	0.817	15.24*		
	Focus on student	4,39	0.673	6.55*		
	Partnership agencies	3,95	0.775	9.66*		
	Customer Satisfaction	Learning process	4,07	0.966		
	Student Academic Services	3,59	0.880	34.58*		
Department Performance	Grading	3,77	0.669	11.8*	0,545	0,791
	Trends of Registrants Number	3,50	0.577	7.5*		
	Timeliness of students graduate program	3,93	0.882	18.78*		
	Cumulative Performance Index Values	3,97	0.819	11.77*		
	Waiting period to work	3,70	0.622	9.17*		
	Tendency to resign	4,14	0.704	2.09*		

Note: CR \* = a significant at  $\alpha = .05$ , AVE > .05 and Alpha > .70

It reflects that all relationships of indicators are positive and valid to measure the latent variables, namely the TQM practice, the satisfaction of student, and the performance of department.

AVE (Average Variance Extracted) for all latent variables is greater than 0.50 [43]. It means all latent variables have good discriminant validity. Research instrument measures all latent variables. Furthermore, all latent variables have the alpha value of greater than 0.70. It means that the entire instrument has a high composite reliability. It can be concluded that instruments used to measure all latent variables have a high compatibility and reliability.

Evaluation of GSCA models in this study begins with a measure of fit for measurement model aimed to examine the validity and the reliability of the research tool in explaining or reflecting the latent variables. The examination of measure of fit in overall model is a measure of goodness of fit that combines the measurement model and structural model with FIT test, Afit, GFI and SRMS. Afit of 0.535 is adjusted FIT from the nearly same FIT value. Variables affecting department's performance described in this research are TQM practices and student's satisfaction. It is better if the interpretation accuracy of the model uses corrected FIT or Afit (Adjusted FIT). Afit value is always lower than the FIT since the variance proportion increases to adjust the corrected variables. Viewed from the value of Afit, diversity of TQM practices, this research model can explain the performance of department, and the satisfaction of student variables by 53.50%, and the remaining 46.50% is explained by other variables. Therefore, Afit have the accuracy or precision of a good model because the value is above 50%. GFI and SRMR are proportional to the difference between the sample covariance and covariance estimation parameters produced by GSCA. The GFI value is of  $0.991 \geq$  cut-off point of 0.90, so the model can be said having appropriate form. However

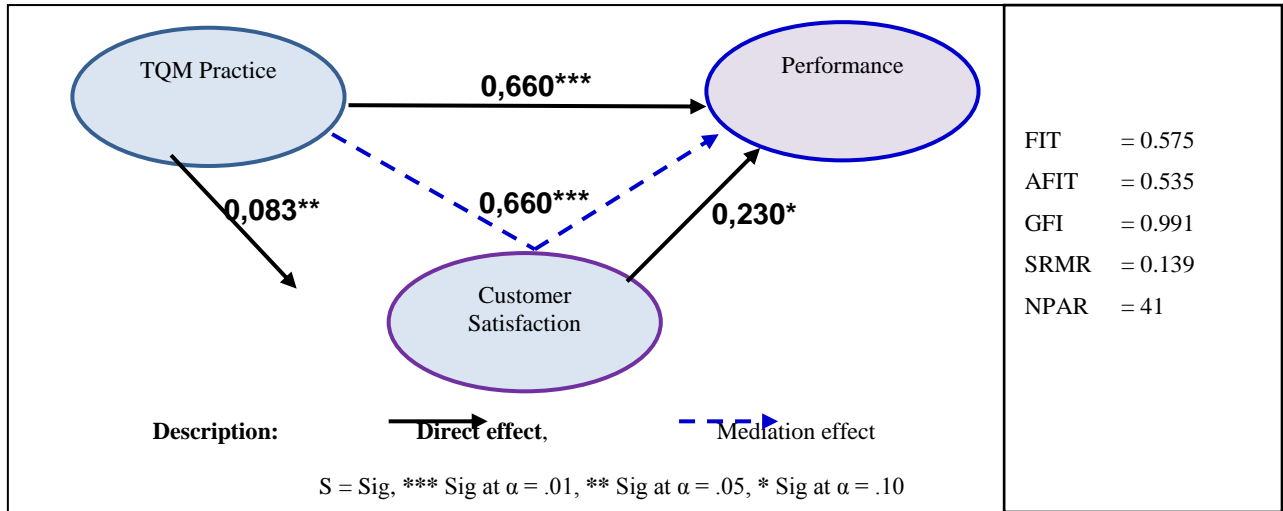
the SRMR value is of  $0.139 > 0.1$ . Thus, it is a poor fit (less appropriate models). This is because the direction of indicators measure between variables is unknown, but it can be tolerated since the SRMR value is close to zero [43]. NPAR value of 41 indicates the number of free parameters, which include the loading coefficient (c), weight coefficient (w), and path coefficient (b) of this study. Based on the goodness-of-fit of structural model and the overall model with FIT test, Afit, GFI and SRMS, it can be concluded that model in this study can explain 53.50% of the variance that has been corrected. Similarly, the value of GFI = 0.991 and the value of SRMR = 0.139 indicate a good model fit, as shown in path diagram of Figure 2.

The test result shown in Figure 2 and Table 2 explains that direct effect of TQM practices on the performance of department is significant. The effect of TQM practices on the satisfaction of student is significant, and the effect of student's satisfaction

on the performance of department is also significant. In addition, indirect effect between TQM practices on the satisfaction of student and the performance of department is also significant.

**4.1 The effect of TQM Practices on the Performance of Department**

The effect of TQM practices on the performance of management department has the estimated value of path coefficient of 0.660 in a positive direction. It means that the relationship between TQM practices and the performance of department is unidirectional. This result can be proved with the critical value (CR) of 5.3 \* with a probability value (p-value) of  $0.00 < \alpha = 0.01$ .



**Fig 2: Path Coefficient Diagram and Hypothesis Testing**

**Table 2: Testing hypotheses and Path Coefficient of GSCA**

Direct Effect		Path Coefficient	C.R	P-Value	Result
H1	TQM Practice → The performance of department	.660	5.3*	.00 ***	Significant
H2	TQM Practice → The satisfaction of student	.083	5.05*	.04 **	Significant
H3	The satisfaction of student → The performance of department	.230	1,42	.08 *	Significant
Hypothesis test for mediation variable					
Indirect effect		Path Coefficient	Mediation Type		Result
H4	TQM→Satisfaction→Performance	.660	Partial Mediation		Significant

Note: CR \* Sig at  $\alpha = 0.05$  \*\*\* at  $\alpha = 0.01$  Sig, \*\* Sig at  $\alpha = 0.05$ , \*  $\alpha = 0.10$  Sig on

The tests suggested that better TQM practice led to a better performance of management department. This means that results of this study empirically supports that TQM practices has unidirectional relation and is significantly affect the performance improvement of management departments. Thus, the first hypothesis (H1) is accepted.

**4.2 The Effect of TQM Practices on the Satisfaction of Student**

The data analysis shows that the estimated coefficient value of direct effect path of TQM practices on the satisfaction of student is of 0.083 at critical point (CR) value of 5.05, and the probability value (p-value) is of 0.04,  $p\text{-value} < \alpha = 0.05$ . This shows empirical evidence that TQM practice affects the satisfaction of student. This analysis explains that department management has given full attention to TQM practice, so that TQM practices in management department are able to contribute significantly to the improvement of student’s satisfaction. Therefore, the second hypothesis (H2) is accepted.

**4.3 The Effect of the Satisfaction of Student on the Performance of Department**

The data analysis shows that the estimated coefficient value of direct effect path of the satisfaction of student on the performance of department has the value of 0.230 at critical point (CR) 1.42, and the probability value (p-value) is of 0.08  $< \alpha = 0, 10$ . This means that the satisfaction of student is empirically proven to increase the performance of management department. Therefore third hypothesis (H3) is accepted.

**4.4 Satisfaction of student as the mediator of the effect of TQM Practices on performance**

The data analysis shows that the estimated coefficient value of direct effect path of TQM practices on the satisfaction of student is 0.083 with critical point (CR) value of 5.05 and probability value (p-value) of  $0.04 \leq 0.05$ . It means that TQM practice has a significant and positive effect on the satisfaction of student. The satisfaction of student affects the performance of department on the path coefficients of 0.230, the value of its critical point (CR) is of 1.42, and the probability value (p-value) is of 0.08, which is smaller than  $\alpha = 0.10$ , indicated significant. Therefore, the fourth hypothesis (H4) is accepted. The accepted Alpha value = 0.10

concludes that the variable of student's satisfaction is a partial mediating variable.

#### 4. DISCUSSION

Measurement model of TQM practices is adopted from measurement indicators of [13; 25;44; 45;5]. The test result on the effect of TQM practices on the performance of management department is positive and significant. It means that better TQM practice leads to the increase of management department's performance. Table 1 shows that the timeliness of students' graduation and students' GPA are assessed quite good by the respondents because the average value of indicator is close to 4. In addition, student's tendency to withdraw from a department management can be decreased, assessed by respondents with a mean value of above 4. It can be concluded that TQM practices can improve the punctuality of student's graduation time, increase the students' GPA, and reduce student's withdrawal rate. This condition reflects performance improvement of management department.

These findings also reflect that management departments on Private Colleges at Yogyakarta are supposedly to have B accreditation ratings. It can be concluded that TQM practices can improve the performance of department, which is reflected by better accreditation ratings issued by National Accreditation Board. In addition, the inspection result of Quality Assurance Agency in each Private College shows performance improvement of management department. The contribution of Quality Assurance Agency improves the institution's cultural quality in the implementation of TQM practices, which is assessed good by respondents. Therefore, TQM practices can improve the performance of management department. The result of this study reinforces the quality theory, also called Chain Reaction Theory of [29], which stated, "good quality leads to higher productivity, which, in turn, can build long-term competitive strength". The results also reinforce the philosophy of TQM [46], which says, "Total Quality Management seeks to make improvements on an ongoing basis to provide a set of practical tools to any educational institution to meet the needs, desires, and expectations of its customers, current and the future". The result of this study also reinforces [28], who stated, "If TQM is applied correctly, it will enable the organization to cope with dynamically changing environment and to provide continuous improvement in overall business activity which is focusing on customer".

These findings reinforce the notion of [2], who stated, "TQM implementation is a way to improve performance on an ongoing basis at every level of operation in each functional area of an organization". In addition, they are consistent with the opinion of [7] and [8], who stated, "TQM application is effective and efficient in improving organizational performance". They are also consistent with the findings of other previous researchers [44;5]; who suggested that high TQM practices could directly improve organizational performance.

The research found that TQM practice has a significant effect on the satisfaction of student at  $\alpha \leq 0.05$ . This means that better TQM implementation practices can increase the satisfaction of student. Furthermore, the satisfaction of student affects the performance of management department at

$\alpha \leq 0.10$ . It can be concluded that the satisfaction of student become a partial mediating variable.

The analysis of Quality Assurance Agency's contribution explains the that establishment of a quality culture reflected in the establishment of Quality Assurance Agency to realize TQM practices in management department takes a long time, more than 15 years. Management department that has been equipped with Quality Assurance Agency for more than 15 years shows better results, i.e. better TQM practice that increases the satisfaction of student, which leads the higher performance of management department.

The conclusion is that TQM practice in management department can run well if the cultural quality reflected in the establishment of Quality Assurance Agency has been running for a long time, which is over 15 years. The perceptions, knowledge, mentality, and attitudes of the chairperson and secretary as well as the entire faculty and staff in the department have already been established well and there is a willingness and awareness of quality culture that TQM practices can improve the satisfaction of student, which subsequently leads to higher performance of management department. These results are consistent with criteria of Malcolm Baldrige National Quality Award (MBNQA). It is also consistent with the research results of [41, 42, 20].

#### 5. CONCLUSIONS, LIMITATIONS, AND FURTHER RESEARCH

The conclusions of this research are as follows. TQM practices directly have significant effect on the performance of management department and the satisfaction of student. The result shows that higher TQM practice increases the performance of management department and the satisfaction of student. In addition, variable of TQM practices significantly affects the satisfaction of student, and the satisfaction of student significantly affects the performance of management department. It indicates that the satisfaction of student partially mediates the relation between TQM practices and the performance of management department.

Measurement of TQM practices is reflected by indicators of process control and development, which is the most dominant indicator for TQM practices in management department. Measurement of satisfaction of student indicator is reflected by learning process, which is the most dominant measurement of student's satisfaction. Indicator of student graduation timeliness is the most important indicator to measure the performance of management department. TQM practices can be implemented in management department with the assumption that quality culture is reflected Quality Assurance Agency for more than 15 years.

The object of this study is limited to management department, so the result cannot be generalized to other colleges. In addition, the respondent of this study is limited to the chairperson or the secretary of department and senior lecturers, who assess the TQM practice. Thus, it does not describe the actual conditions.

The accuracy of the models in this study is only 53.50%, which enables subsequent researchers to develop a research model with more variables, such as the quality of the organizational culture, organizational competitiveness, facility ownership, ownership of resources. They can also

develop the measurement model on the performance of department, such as the number of research and dedication, department spending, lecture halls, laboratories, and library services.

## REFERENCES

- [1] Academy of Management Review, Vol. 19 No. 3, 472–509 (1994).
- [2] Agus, A dan Hassan Z. *Enhancing production performance and customer performance through total quality management (TQM): strategies for competitive advantage*. Procedia Social and Behavioral Sciences 24. 1650–1662 (2011).
- [3] Anderson, J.C., Rungtusanatham, M., & Schroeder, R.G. *A theory of quality management underlying the Deming Management Method*.
- [4] Bayraktar, E., Tatoglu, E., and Zaim, S. *An instrument for measuring the critical factors of TQM in Turkish higher Education*. Total Quality Management. Vol. 19, No. 6 (2008)
- [5] Brah S.A. Tee S.S.L and Roa B.M. *Relationship between TQM and performance of Singapore companies*. International Journal of Quality & Reliability Management. Vol. 19 No. 4 (2002).
- [6] Choi T.Y and Eboch K. *The TQM Paradox: Relations Among TQM Practices, Plant Performance, and Customer Satisfaction*. *Journal of Operations Management*. 17 (1998).
- [7] Cortes E.C., Moliner J. P., Tari J.J., and Azorin J. F. M. *TQM Managerial Factors*
- [8] Cruickshank, Mary. *Total Quality Management in the higher education sector: A literature review from an international and Australian perspective*. Total Quality Management & Business Excellence. Volume 14, Issue 10 (2003).
- [9] Deming, W. Edwards. *Out of the crisis*. Cambridge: Cambridge University Press (1986).
- [10] Demirbag, M, Tatoglu, E, Tekinkus, M, and Zaim, S. *An Analysis of relationship between TQM implementation and organization performance*. Journal of Manufacturing Technology Management. Vol. 17. No. 6 (2006).
- [11] Dilber, M., Bayyurt, N., Zaim, S., and Tarim, M. *Critical Factors of Total Quality Management and Its Effect on Performance in Health Care Industry: A Turkish Experience*. Problems and Perspectives in Management. No. 4 (2005).
- [12] Easton, G. S. & Jarrell, S. L. *The effects of total quality management on corporate performance: An empirical investigation*, Journal of Business, 71 (2), 253-308 (1998).
- [13] Forza, Cipriano and Filippini, Roberto. *TQM effect on quality conformance and customer satisfaction: A causal model*. Int. J. Production Economics Vol. 55, pp. 1-20 (1998).
- [14] Fynes, Brian, and Voss, Chris. *The moderating effect of buyer-supplier relationships on quality practices and performance*. International Journal of Operations & Production Management. Vol 22. No 6, pp 589-613 (2002).
- [15] Gaspersz, Vincent. *Total Quality Management*. Bogor: Vinchristo Publication. (2011).
- [16] Government Accounting Office. *Report to the House of Representatives on Management Practices, US Companies Improve Performance Through Quality Efforts*. United States General Accounting Office, Washington, DC (1991)
- [17] Hackman, J.R., & Wageman, R. *Total quality management: empirical, conceptual, and practical issues*. Administrative Science Quarterly, 40 (2), 309–342 (1995).
- [18] Han, S.B, Chen, S.K, Ebrahimpour, M, *The Impact of ISO 9000 on TQM and Business Performance*. Journal of Business and Economic Studies. Vol. 13, No. 2 (2007).
- [19] Hanik, U. *Implementation TQM in the improvement of the quality of education*. Semarang: RaSAIL Media Group. (2011).
- [20] Hasan, M. and Kerr, R.M. *The Relationship between Total Quality Management Practices and Organizational Performance in Service Organizations*, TQM Magazine. Vol. 15 No 4 (2003).
- [21] Hendricks, Kevin B. and Singhal, Vinod R. *Does implementing an effective TQM Program actually improve operating performance empirical evidence from firms that have won quality awards*. Management Science, vol. 44 No. 9, 1258-74 (1997).
- [22] Hendricks, Kevin B. and Singhal, Vinod R. *Firm characteristics, total quality management, and financial performance*. Journal of Operations Management 19 (2001)
- [23] Joiner, Therese A. *Total quality management and Performance the role of organization support and co-worker support*. International Journal of Quality & Reliability Management. Vol. 24 No. 6 (2007)
- [24] Kaynak H. *The relationship between total quality management practices and their effects on firm performance*. Journal of Operations Management. 21 (2003).
- [25] Khan, Muhammad Asif. *Total Quality Management and Organizational Performance Moderating Role of Managerial Competencies*. International Journal of Academic Research. Vol 3 No. 5 (2011).
- [26] Krajewski L.J., Ritzman L.P. and Malhotra M.K. *Operations Management: processes and supply chain global edition*. Ninth Edition. Pearson (2010).
- [27] Kumar V., Choisine F., Grosbois, D. And Kumar U. *Impact of TQM on company's performance*. International Journal of Quality & Reliability Management. Vol. 26 No. 1 (2009)
- [28] Lagrosen, S., Seyyed-Hashemi, R. and Leitner, M. *Examination of the dimensions of quality in higher education*. Quality Assurance in Education, Vol. 12, pp. 61-9 (2004).
- [29] Lakhali, Lassa'ad, Pasin, Federico., and Limam M. *Quality management practices and their effect on performance*. International Journal of Quality & Reliability Management. Vol. 23 No. 6 (2006).
- [30] Marhum, M. *The Prospect Of Higher Education In Indonesia*. Lampung State Polytechnic. (2013)



- [31] Mehra, Satish and Ranganathan, Sampath. *Implementing total quality management with a focus on enhancing customer satisfaction*. International Journal of Quality & Reliability Management. Vol. 25 No. 9 (2008).
- [32] Munawaroh, Munjiati. *Analysis of the influence of the quality services on customer satisfaction in the education in Yogyakarta*. Journal of Siasat Bisnis. No. 5. Vol. 2 (2000).
- [33] National Accreditation Board of Higher Education (BAN-PT). *The academic paper accreditation program undergraduate studies*. Accreditation national board of higher education, Jakarta. Indonesia (2008).
- [34] Ooi K. B., Lin B., Tan., and Chong A. Y. L. *Are TQM Practices Supporting Customer Satisfaction and Service Quality?* Journal of Services Marketing, 25/6 (2011).
- [35] *Performance in Spanish Hotel Industry*. Industrial Management and Data System. Vol. 108 No. 2 (2008).
- [36] Prajogo, D.I, and Sohal. A.S., *The relationship between TQM practices, quality performance, and innovation performance*. International Journal of Quality and Reliability Management. Vol 20. Iss. 8 (2003).
- [37] Ramlawati. *Implikasi Praktek Total Quality Management (TQM) Terhadap Daya saing, Kepuasan Konsumen, Dan Kinerja Bisnis Pada Perusahaan Manufaktur di Kota Makasar*, Disertasi Universitas Brawijaya. Malang (2011).
- [38] Sallis, Edward. *Total Quality Management in Education*, Translated by Ahmad Ali Riyadi dan Fahrurrozi, printed IX, Yogyakarta: IRCiSoD (2010).
- [39] Samsom. Danny, and Terziowski. Mile. *The Relationship between Total Quality Management Practices and Operational Performance*. Journal of Operations Management. No. 17 (1999).
- [40] Sayeda. B., Rajendran. C., and Lokachari. P.S. *An Empirical study of total quality management in engineering educational institutions of India. Perspective of management*. Benchmarking an International Journal. Vol 17. No. 5 (2010).
- [41] Sila, Ismail. *Examining the effects of contextual factors on TQM and performance through the lens of organizational theories: An empirical study*. Journal of Operations Management 25 (2007)
- [42] Sinclair, David. And Zairi, Mohamed. *Business process re-engineering and process management: A survey of current practice and future trends in integrated management*. Business Process Re-engineering & Management Journal, Vol. 1 Iss: 1, pp.8 – 30 (1995).
- [43] Sit. W. Y., Ooi K. B., Lin B., and Chong A. Y. L. *TQM and Customer Satisfaction in Malaysia's Service Sector*. Industrial Management and Data System. Vol 109. No. 7 (2009).
- [44] Solimun. *Modeling Generalized Structured Component Analysis (GSCA)*. Department of statistics FMIPA, Brawijaya University, Indonesia (2012).
- [45] Tjiptono, F dan Diana, A. *Total Quality Management*. Yogyakarta: Andi offset (2001).
- [46] Ugboro I.O and Obeng K. *Top management leadership, employee empowerment, job satisfaction, and customer satisfaction in TQM organization: an empirical study*. Journal of Quality Management, 5 (2000)
- [47] Venkatraman S. *A framework for implementating TQM in higher education program*. Quality Assurance in Education. Vol 15. No. 1 (2007).
- [48] Yasin, M.M., Kunt, Jafar A.M. and Zimmerer, T.W., *TQM practices in service organizations: an exploratory study into implementation, outcome and effectiveness*. Managing Service Quality. Volume 14 · Number 5 · (2004).