

The Effect of Total Quality Management Factors on Employee Satisfaction in Telkom University

Palti M.T. Sitorus¹, Wiji Safitri², and Dodie Tricahyono³

School of Economic and Business, Telkom University, Bandung, Indonesia

pmts_dori@yahoo.com¹, safitriwiji@gmail.com², dtricahyono@yahoo.com³

Abstract. Quality is an inseparable part in educational institution. Human Resources in Educational Institutions need to be observed careful, because most processes in institutions deal with employees. Total Quality Management is believed to be a tool that can improve employee satisfaction which leads to productivity to ultimately improve the quality of the institution. This study was conducted to identify the factors of Total Quality Management in Telkom University and its influence on employee satisfaction. Samples are taken using cluster random sampling. The results obtained are seven TQM factors that exist at Telkom University, which are leadership, measurement and evaluation, curriculum design, process control and environment, implementation of academics program, Top Management planning, and employee involvement. In addition, TQM's significant effect on employee satisfaction amounted to 35.9%.

Keywords. Total Quality Management; Higher Education; Employee Satisfaction.

I. INTRODUCTION

Bandung is one of the biggest cities in Indonesia, which has many education institutions. Based on the data obtained from universitymetric in 2015, list of universities in Bandung and its rank is as follows:

Table 1. Rank List Of University In Bandung And Accredited BAN PT

Rank of University in Bandung	University Name	Rank in Indonesia	Year Established
1	Universitas Padjadjaran	7	11 September 1957
2	Universitas Pendidikan Indonesia	12	20 Oktober 1954
3	Universitas Komputer Indonesia	33	8 Agustus 2000
4	Universitas Kristen Maranata	49	11 September 1965
5	Universitas Katolik Parahyangan	58	17 Januari 1955
6	UIN Sunan Gunung Djati	59	8 Agustus 1968
7	Universitas Widyatama	69	2 Agustus 2001
8	Universitas Telkom	78	14 Agustus 2013
9	Universitas Islam Nusantara	90	30 November 1959
10	Universitas Islam Bandung	93	15 November 1958
11	Universitas Pasundan	96	14 November 1960
12	Universitas Jenderal Achmad Yani Cimahi	202	20 Mei 1990
13	Universitas Langlangbuana Bandung	225	5 April 1982
14	Universitas Nasional PASIM Bandung	324	25 September 2006
15	Universitas Nurtanio Bandung	334	9 Agustus 1999
16	Universitas Sangga Buana Bandung	339	24 Agustus 2006
17	Universitas Al-Ghifari Bandung	395	15 Agustus 2002

^a. Universitymetric, 2015

In Table 1 it can be seen that from the top 10 universities in Bandung, Telkom University is the youngest university among other universities. Though it has only existed for 2 years up to 2015, demand is quite high. In 2015, the number of applicants Telkom University amount to nearly 27,000 people, whereas Telkom University only accept 6,500 persons. While there are 435 foreigners who applied, but only 40 people are accepted. Besides, Telkom University achievement is very significant, in which some departments are accredited A and B.

On the other hand, the quality becomes the main thing that must be provided by the Telkom University in order to produce graduated students who are able to compete globally. The process inside the institution need to be ensured in order to run properly. Almost all processes in the institutions directly relate to the employee. As the components involved directly in the process of transferring services to students, competent employees supported by the facilities provided by the institution are required.

One of the factors employees can work optimally is satisfaction. Employee satisfaction survey data obtained as follows:

Table 2. Table Of Employee Satisfaction (Year 2015)

No.	Questions	Percentage (%)
1.	Internal communication and collaboration on your unit	80
2.	Jobs or tasks performed on your unit	79.2
3.	Assessment of performance / achievement on your unit	76.4
4.	Transparency and clarity of the work program on your unit	75.6
5.	The opportunity to develop competence on your unit	75.2
6.	Career development opportunities / promotions on your unit	74.6
7.	The availability and reliability of facilities working on your unit	72.8
8.	Remuneration and welfare system	72.4
9.	Organizational structure, management, and administration of the University	69.4
10.	Safety and environmental hygiene work	69
11.	Health facility	65.6
12.	The reliability of management information systems	64.6
Average		72.9

^b. Internal Audit Unit, 2015

From 12 employee satisfaction indicators, there are indicators that haven't reached the target yet from the institution (institution target is 75%) this becomes important remembering that all processes connected with the employee (Internal Audit Unit, 2015).

Tight business competition and the emergence of various problems related to the reduction in productivity and product quality in the end will bring a solution by giving attention to the human factor. (Hendayana dalam Samsir, 2014). To improve product quality, reduce production cost, creating employee job satisfaction and improve productivity in organizations that create customer satisfaction, approach to Total Quality Management (TQM) in an organization, (Samsir, 2014). Research shows that TQM influence on performance and employee satisfaction and job satisfaction affect the performance of employees, (Sukwadi in Samsir, 2014). Therefore, research in taking the title of "The Effect of Total Quality Management Factors on Employee Satisfaction in Telkom University".

II. LITERATURE REVIEW

2.1. Quality

Quality in higher education nevertheless included into the quality of services. In fact, the context of the quality of universities that students are not products and education is the product, the quality of service that provided by universities for students to improve their knowledge and education, which plays an important role in education, Bergman and Klefsjö dalam Najafabadi, Sadeghi, dan Habibzadeh (2008:13).

According to Ali dan Shastri (2010:10) dimensional quality of education are:

1. Consistency: that the education process involves specification with zero defect approach and quality culture. But limitations in achieving consistent standards and conformance standards.
2. Fitness to purpose: fit customer specifications, based on the minimum ability to achieve goals and customer satisfaction.
3. Value of money: through efficiency and effectiveness.
4. Transformative: education is an ongoing process of transformation which includes empowering and increasing the customer.

The attention of this study is the definition of quality in Higher Education, because it has a definition that is more difficult than manufacturing and service. No quality plays an important role in the Universities, according Owlia and Aspinwall in Najafabadi, Sadeghi, and Habibzadeh (2008: 14). Feigenbaum in Najafabadi, Sadeghi, and Habibzadeh (2008: 14) believes that the competition is "invisible" in the quality of education in those countries become major factors, this is because the quality of products and services is defined as an act, decision-making, and the notion of managers, engineers, workers, and teachers in quality of work.

2.2. Total Quality Management

Total Quality Management refers to the suppression qualities include the entire organization, from suppliers to customers. TQM emphasizes the management's commitment to get a referral company who continues to want to achieve excellence in all aspects of products and services that are essential for companies (Heizer dan Render, 2009:307).

TQM requires continuous improvement that never stops which include persons, equipment, suppliers, materials, and procedure. The basic philosophy is every aspect of the company's operations can be improved. The end goal is perfection that can never be achieved, but always strived (Heizer dan Render, 2009:307).

There are three general approaches TQM in Universities, Harris dalam Ali dan Shastri (2010:11):

1. Customer focus: which is where the idea of service to students is fostered through training and staff development, which promotes student choice and autonomy.
2. Staf focus: related to assessing and improving the contribution of all staff, to the effectiveness of the operations of the institution, for setting policies and priorities. This requires a flat management structure and acceptance of responsibility established action through working groups.

3. The service agreement and seek to ensure compliance with the specification of the key points key measurable in the educational process. Examples are the task evaluation by the faculty within a certain period.

Mulgatroyd dan Morgan dalam Sabet, Saleki, Roumi, dan Dezfoulia (2012:209) applying the principles of TQM are practical in university. The model is based on three factors:

1. Trust: Trust is the foundation, which depends on many aspects of the culture of the organization.
2. Commitment of leadership: leadership Commitment to TQM must be clear.
3. Empowerment: Empowerment is achieved through devolution of responsibility and education

Asif et.al (2013:1883) in the study stated that the critical success factors of TQM in Higher Education in Pakistan is: leadership; vision; measurement and analysis; process control and evaluation; program design and resources allocation; dan stakeholder focus. Meanwhile, in one of study, Zubair (2013: 24) found the critical factor in TQM Universities is: leadership, vision ownership, evaluation standardization, process and continuous improvement, employee training, and student focus.

2.3. Employee Satisfaction

Job satisfaction is a general attitude toward one's work, the difference between the amount received by an employee reward and the amount they believe what they are supposed to receive, “(Stephen P. Robbin dalam Adrianto dan Raharjo, 2011:12).

Indicators of job satisfaction in the study of Adrianto and Raharjo (2011:17) are as follows:

1. The feeling happy to work.
2. The opportunity to develop and use their expertise.
3. The existence of a positive assessment of the work.
4. The guarantee of the future provided by the company.
5. The existence of stability in employment.

Frame of mind research is as follows :

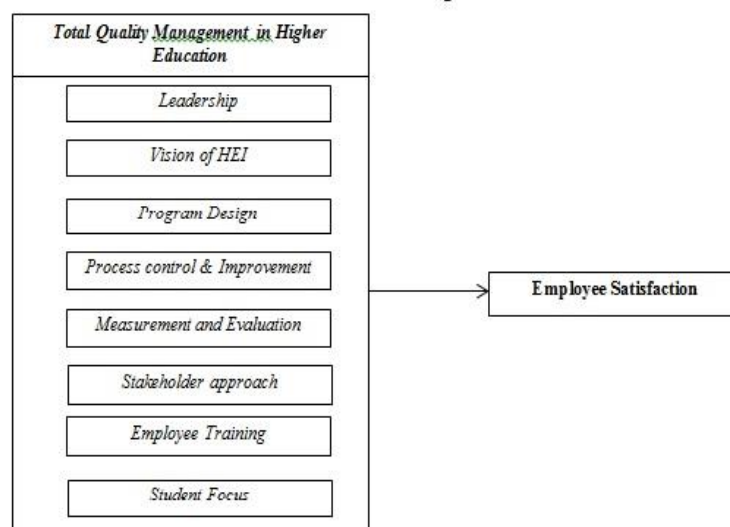


Figure I Frame Of Mind

III. RESEARCH METHODOLOGY

Based on the method, this research is a quantitative research statistical approach of factor analysis and regression. Data are obtained using a questionnaire distributed to employees in Telkom University. The sample in this study amounted to 160 respondents. The sampling technique is done by cluster random sampling with the faculty, academic support personnel, and structural. The number of items in statement of the research is composed of 60 items 55 items statement to Total Quality Management and 5 statement items for employee satisfaction.

IV. RESULT

The number of samples in the research was 160 respondents, to avoid less returns, the author distribute 261 questionnaires. From the 261 questionnaires 113 questionnaires were returned, made up of 55 professors, 44 academic supporting staffs, and 14 structurals.

4.1. Factors Analysis of Total Quality Management

Data were processed using SPSS 20 for Windows. Before conducting factor analysis, the data is tested whether it is feasible to analyze the factors or not. The results of the test using Bartlett's test of Sphericity Test and Measure of Sampling Adequacy (MSA). In addition, if the value of Kaiser Meyer Olkin MSA is greater than 0.5 then it has a significant correlation, and can proceed to the next stage. In the table Anti Image Matrix, especially on the Anti Image Correlation shows MSA value of each variable studied. The value of the MSA is greater than 0.5 which indicate that these variables influence the variables studied.

Table 3. KMO And Bartlett's Tes

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.837
Approx. Chi-Square		3964.917
Bartlett's Test of Sphericity	df	1275
	Sig.	.000

c. Output of SPSS 20 for Windows

Table 3 shows the results of KMO and Barlett's Test. Since the value of the research is $0.000 < \alpha 5\%$, it shows that the variables have a significant correlation. Meanwhile, for the value of Kaiser Meyer Olkin 0837 MSA value is > 0.5 then it has a significant correlation. With this, factor analysis can proceed to the next stage.

PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA
PRT1	0.819	PRT11	0.836	PRT21	0.789	PRT31	0.788	PRT41	0.839
PRT2	0.825	PRT12	0.827	PRT22	0.719	PRT32	0.792	PRT42	0.848
PRT3	0.853	PRT13	0.819	PRT23	0.735	PRT33	0.772	PRT43	0.898
PRT4	0.823	PRT14	0.756	PRT24	0.768	PRT34	0.869	PRT44	0.879
PRT5	0.884	PRT15	0.875	PRT25	0.782	PRT35	0.894	PRT45	0.867
PRT6	0.836	PRT16	0.875	PRT26	0.898	PRT36	0.849	PRT46	0.89
PRT7	0.862	PRT17	0.85	PRT27	0.816	PRT37	0.872	PRT47	0.733
PRT8	0.876	PRT18	0.88	PRT28	0.838	PRT38	0.795	PRT48	0.79
PRT9	0.891	PRT19	0.872	PRT29	0.905	PRT39	0.837	PRT49	0.86
PRT10	0.848	PRT20	0.742	PRT30	0.448	PRT40	0.716	PRT50	0.78
								PRT51	0.872

Figure 2. MSA Value

d. Output of SPSS 20 for Windows

From 51 items on the statement of respondent's perception of the Total Quality Management (TQM), there is one statement item that has a value of less than 0.5 MSA,

which is number 30. Because of this, item number 30 is eliminated because they do not affect the variables studied.

PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA	PRT	Nilai MSA
PRT1	0.818	PRT11	0.841	PRT21	0.853	PRT31	0.845	PRT41	0.837
PRT2	0.825	PRT12	0.818	PRT22	0.712	PRT32	0.785	PRT42	0.842
PRT3	0.844	PRT13	0.818	PRT23	0.752	PRT33	0.805	PRT43	0.899
PRT4	0.824	PRT14	0.82	PRT24	0.765	PRT34	0.87	PRT44	0.883
PRT5	0.886	PRT15	0.871	PRT25	0.787	PRT35	0.896	PRT45	0.867
PRT6	0.828	PRT16	0.889	PRT26	0.901	PRT36	0.862	PRT46	0.9
PRT7	0.858	PRT17	0.862	PRT27	0.814	PRT37	0.867	PRT47	0.754
PRT8	0.878	PRT18	0.876	PRT28	0.842	PRT38	0.793	PRT48	0.799
PRT9	0.907	PRT19	0.89	PRT29	0.903	PRT39	0.845	PRT49	0.865
PRT10	0.845	PRT20	0.848			PRT40	0.719	PRT50	0.792
								PRT51	0.87

Figure 3. MSA Value

^e Output of SPSS 20 for Windows

After the 2nd stage of data processing by eliminating the item that has a value of less than 0.5. All items have a value statement MSA > 0.5. With this, factor analysis can proceed to the next stage. The next step is to conduct factoring.

After doing factoring process and rotation, with regard to the Total Variance Explained formed twelve (12) factors table. With this, the data processing needs to be done to see some consideration, namely:

1. In Table Anti Image if the value <0.5, then the statement is issued and is not entered at the time of subsequent 2nd stage of data processing (anti-image tables in the appendix in this study).
2. In Table communalities if the value <0.5, then the statement is issued and is not entered at the time of subsequent 2nd stage of data processing (communalities table in appendix in this study).
3. Cross loading, ie with a view Table Rotated Component Matrix. If there are items that each statement is unclear which factor into the then issued and was not included when the next 2nd stage of data processing.

After doing iteration as much as four times, forming 7 (seven) factors with Anti-Image and communalities values above 0.5. Figure of the correlation value of the seven factors are as follows:

	1	2	3	4	5	6	7
VAR00001	0.808	0.092	0.048	0.189	0.019	0.342	-0.024
VAR00002	0.873	0.019	0.01	0.225	0.074	0.156	0.041
VAR00003	0.787	0.16	0.184	0.008	0.233	-0.081	-0.015
VAR00004	0.811	0.201	0.041	0.107	0.17	0.036	0.046
VAR00010	0.112	0.162	0.017	0.213	0.122	0.356	0.083
VAR00011	0.221	0.181	0.203	0.052	0.212	0.808	0.076
VAR00012	0.073	0.397	0.045	0.188	0.629	0.27	-0.145
VAR00013	0.29	0.08	-0.017	0.159	0.726	0.13	0.094
VAR00014	0.154	0.044	0.251	-0.016	0.748	0.048	0.208
VAR00023	0.086	0.084	0.845	0.118	0.06	-0.018	0.107
VAR00024	0.218	0.098	0.801	0.234	-0.05	0.089	0.159
VAR00027	0.17	0.088	0.099	0.838	0.173	0.115	0.016
VAR00028	0.222	0.168	0.151	0.761	0.145	0.013	0.125
VAR00031	0.049	0.26	0.116	0.494	-0.089	0.217	0.107
VAR00034	0.23	0.837	0.143	0.134	0.028	-0.023	0.21
VAR00035	0.125	0.827	0	0.224	0.198	0.14	0.122
VAR00036	0.084	0.767	0.146	0.109	0.114	0.273	0.036
VAR00040	-0.062	0.079	0.552	0.004	0.294	0.167	-0.063
VAR00047	-0.052	0.095	0.307	0.074	-0.048	0.166	0.791
VAR00048	0.077	0.205	-0.08	0.138	0.248	-0.013	0.834

Figure IV Rotated Component Matrix

^f Output of SPSS 20 for Windows

Table 4. Grouping and factors name

Factor	Question Number	Questions	Factors Name
1	1	Top Management of Telkom University have knowledge regarding the implementation of quality management.	Leadership
	2	Top Management of Telkom University actively participate in the running of management quality	
	3	Top Management of Telkom University know very well about the concept of quality.	
	4	Top Management of Telkom University strongly encourages employee involvement in quality management.	
2	34	Institutions have a performance standard size (eg number of publications, lectures evaluation, attendance, job satisfaction) for evaluate the performance of the institution.	Measurement and evaluation
	35	Measurement of performance standards have been used to evaluate Top Management.	
	36	Measurement of performance standards have been used to evaluate the academic performance and unit.	
3	23	The needs of the business world considered in designing the curriculum.	Curriculum Design
	24	The curriculum is evaluated every year.	
	40	Institutions do an evaluation of employee complaints.	
4	27	Employee expectations have been fulfilled by the Institution.	Process control and improvement
	28	The University has modern facilities (eg laboratories, libraries, computer, internet) for enhance the effectiveness of education.	
	31	Institutions collect statistical data (eg attendance) to control the process.	
5	12	Top Management of Telkom University developed a system to monitor academic activities.	Implementation of Academics Program
	13	Top Management of Telkom University provides facilities for improve the quality of education.	
	14	Top Management of Telkom University assess market needs before launching any program.	
6	10	Top Management of Telkom University designed the short and long term planning.	Top Management Planning
	11	Top Management of Telkom University documenting the long and short term planning.	
7	47	Coordination and collaboration between management and employees has been improved.	Employee Involvement
	48	Employees actively been involved in activities related to quality management.	

With this, after iteration is conducted for four time the 7 (seven) factors are formed: Leadership, Measurement and Evaluation, Curriculum Design, Process control and improvement, Implementation of Academics Program, Top Management Planning, and Employee Involvement.

4.2. Multiple Regression

Classical Assumption Test done before the regression. The classical assumption test is as follows:

1. Normality Test

Terms of the data in the regression is the data should be normally distributed. Tests conducted to determine the normality is to see the images P-Plot. The test results for P-plot in this study are the points spread around the diagonal line, with this it can be seen that the data is normally distributed

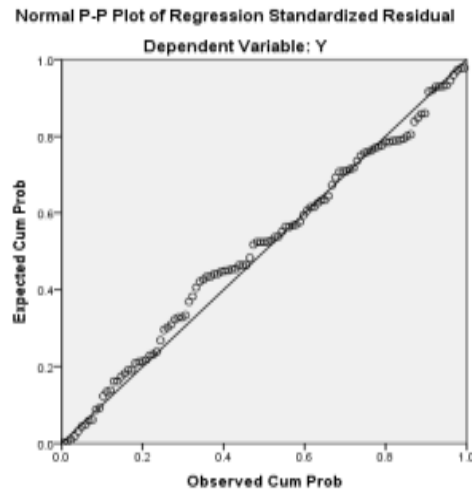


Figure 5 p plot

^g Output of SPSS 20 for Windows

2. Multicollinearity Test

The regression model should be free of problems multicollinearity namely if the tolerance value is more than 0.1 and less than 10 VIF, which means there is no correlation between the independent variables. The results of processing output data for multicollinearity test is for each variable X tolerance value is greater than 0.1 and VIF is less than 10. With this, there is no correlation between independent variables and free from multicollinearity problems

Coefficients ^a								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1 (Constant)	.931	.431		2.163	.033			
Leadership	.128	.073	.162	1.749	.083	.714	1.400	
Measurement and evaluation	.086	.085	.099	1.017	.312	.650	1.538	
Design Kurikulum	-.108	.073	-.129	-1.478	.143	.797	1.255	
Process control and improvement	.253	.103	.234	2.446	.016	.646	1.503	
Implementasi Program Akademik	.048	.100	.045	.477	.635	.617	1.477	
Planning Top Management	.163	.078	.194	2.088	.039	.708	1.412	
Employee Involvement	.190	.075	.218	2.518	.013	.816	1.225	

a. Dependent Variable: Y

Figure 6. Vif value

^h Output of SPSS 20 for Windows

3. Heteroscedasticity Test

A good regression model requires no heteroscedasticity problem namely the points on scatter plot spread above and below or in 0 and does not form a specific pattern. The output

data processing indicates that the points spread above and below or around 0 and does not form a specific pattern, therefore there is no heteroscedasticity problem.

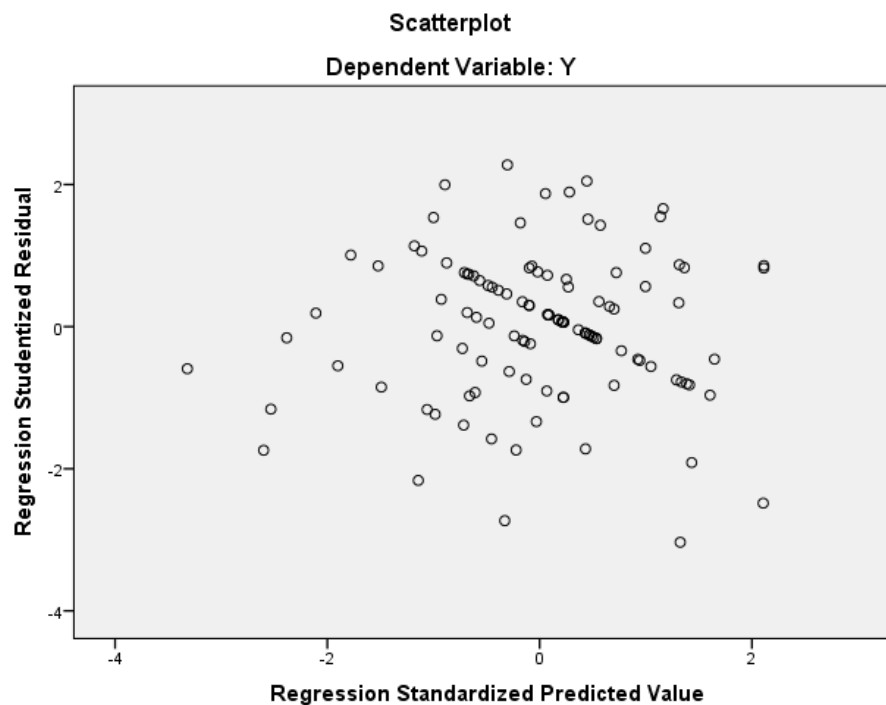


Figure 7. Scatterplot

ⁱ. Output of SPSS 20 for Windows

4. Autocorrelation Test

The regression model is free of autocorrelation problem if the value of the Durbin-Watson count is between dU and $4-dU$ which means it has no correlation between confounding variables in a given period with prior periods confounding variable. To find the durbin Watson table value is by looking dU columns (where k is the number of independent variables and n is the number of samples). With this, the value dU is shown at 1.8264. regression model that is free from the problem of autocorrelation can be indicated by the value of Durbin Watson count between $dU - 4 Du$ (1.8264-2.1736). With this, it can be concluded that there is no autocorrelation (1,837 were in the $dU - 4 Du$ range).

Table 5. Durbin Watson Value

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.599 ^a	.359	.316	.47680	1.837

a. Predictors: (Constant), X7, X1, X3, X6, X4, X5, X2

b. Dependent Variable: Y

ⁱ. Output of SPSS 20 for Windows

To determine whether the Total Quality Management factors has significant effect on employee satisfaction is partially or simultaneous hypothesis test with significance test. Partial hypothesis testing is as follows:

Coefficients ^a								
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics		
	B	Std. Error	Beta			Tolerance	VIF	
1	(Constant)	.931	.431		2.163	.033		
	Leadership	.128	.073	.162	1.749	.083	.714	1.400
	Measurement and evaluation	.086	.085	.099	1.017	.312	.650	1.538
	Design Kurikulum	-.108	.073	-.129	-.1478	.143	.797	1.255
	Process control and improvement	.253	.103	.234	2.446	.016	.666	1.503
	Implementasi Program Akademik	.048	.100	.045	.477	.635	.677	1.477
	Planning Top Management	.163	.078	.194	2.088	.039	.708	1.412
	Employee Involvement	.190	.075	.218	2.518	.013	.816	1.225

a. Dependent Variable: Y

Figure 8. Partial hypothesis

^k Output of SPSS 20 for Windows

Based on Figure VII, partial hypothesis are:

1. Based on the calculation of the leadership SPSS Sig value is 0.083 (0.083 > 0.05). This shows leadership has no significant effect on employee satisfaction.
2. Based on the calculation the value of Measurement and evaluation value is 0.312 (0.312 > 0.05). Measurement and evaluation has no significant effect on employee satisfaction.
3. Based on the calculation of the value of Sig SPSS Curriculum Design is 0.143 (0.143 > 0.05). Curriculum Design has no significant effect on employee satisfaction.
4. Based on the calculation of the value of Sig SPSS Process control and improvement value is 0.016 (0.016 > 0.05). With Process control and improvement have a significant effect on employee satisfaction.
5. Based on the calculation of the value of Sig SPSS Academic Program Implementation value is 0.635 (0.635 > 0.05). The Academic Program Implementation has no significant effect on employee satisfaction.
6. Based on the calculation SPSS of the value of Sig from Top Management Planning value is 0.039 (0.039 > 0.05) This shows Top Management Planning has significant effect on employee satisfaction.
7. Based on the calculation of SPSS Sig value employee evaluation involvement value is 0.013 (0.013 > 0.05). This shows employee involvement has a significant effect on employee satisfaction.

The results are: three factors that have significant effect on employee satisfaction. They are process control and improvement, top management planning, and employee involvement. The regression equation is:

$$Y = 0.931 + 0.128X_1 + 0.086X_2 - 0.108X_3 + 0.253X_4 + 0.048X_5 + 0.163X_6 + 0.190X_7 + e$$

Meanwhile, to determine the simultaneous hypothesis from research is to look at the table of Anova results from SPSS results. Simultaneous hypothesis proposed in this study is:

- H0 : $\rho_{YX} = 0$, There is no significant effect between Total Quality Management on Employee Satisfaction in Telkom University
- H1 : $\rho_{YXi} \neq 0$, There is significant effect between Total Quality Management on Employee Satisfaction in Telkom University.

Table 6. SIMULTANEOUS TEST

ANOVA ^a					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	13.355	7	1.908	8.393	.000 ^b
Residual	23.870	105	.227		
Total	37.226	112			

a. Dependent Variable: Y

b. Predictors: (Constant), X7, X1, X3, X6, X4, X5, X2

^a Output of SPSS 20 for Windows

As can be seen in Table VI the Sig is $0.000 > 0.05$. With this, the simultaneous hypothesis in this study is accepted that there is significant influence between the variables of Total Quality Management to satisfaction of employees in Telkom University by 35.9% and the remaining 64.1% is influenced by other variables.

V. CONCLUSION

Total Quality Management factors that exist in Telkom University are: Leadership, Measurement and evaluation, Curriculum Design, Process control and improvement, Implementation Academics Program, Top Management Planning, and Employee Involvement.

Total Quality Management has significant effect on Employee Satisfaction at the University of amounted to 35.9%. Then the effect of each variable from 3 Total Quality Management factors to Employee Satisfaction that have a significant influence on employee satisfaction are process control and improvement at 0.253, top management planning at 0.163, and employee involvement at 0.19.

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