

The implementation of total quality management in vocational high schools

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Abstract

The study aimed to find out the implementation of teachers' focus on students and the level of students' satisfaction, the implementation of the involvement of school's communities, the implementation of teacher service measurement, the implementation of the commitment of school's communities, and implementation of teacher services improvement. This particular evaluative research used descriptive-quantitative design. The evaluation model was a discrepancy evaluation model. The research sites were Negeri 2 Pengasih State Vocational High School, Negeri 1 Nanggulan Kulon Program State Vocational High School, Ma'arif 1 Wates Kulon Progo Vocational High School and Muhammadiyah 1 Temon Kulon Progo Vocational High School. The subjects of this study were students, teachers, and principals from four schools. The objects of this research were: (1) the implementation of teachers' focus on students, (2) the implementation of the involvement of school's communities, (3) the implementation of teacher service measurement, (4) the implementation of the commitment of school's communities, and (5) the implementation of teacher service improvement. Data collection techniques were observation, document analysis, and questionnaire. Data collection instruments used observation rubric, document analysis sheets, and questionnaire. The level of implementation reported in a percentage which reports a comparison between the averages score and the maximum score. The results of this study showed that the overall average in four vocational high schools were: (1) the level of teacher's focus on students was 81.13% (very good), and the level of students' satisfaction was 77.69% (students feel satisfied); (2) the level of involvement of school's communities was 80.28% (good); (3) the level of teacher service measurement was 77.50% (good); (4) the level of the commitment of school's communities was 79.77% (good); and (5) the level of teacher service improvement was 77.50% (good). Keywords: total quality management, vocational high school

Keywords: implementation; total quality management; vocational high school; TQM

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INTRODUCTION

Human resources that the society has expected come from well-qualified schools (Syafaruddin, 2002). Well-qualified schools might be manifested by implementing a quality assurance system (Kholis, Zamroni & Sumarno, 2014). The reason is that education domain should generate well-qualified graduates by meeting the improvement of educational management within the schools, the availability of professional teaching staffs, the changes of school culture (vision, mission, objectives and values), the improvement on educational funding, and the optimization of society support toward education. Therefore, well-qualified education might only be manifested through well-qualified management (Rahayuningsih, 2017). Looking at the situation, it might be the appropriate time that the total quality management (TQM) approach that has been adopted from the industry domain is implemented in the education domain (Ismail, 2018; Khadijah, 2015; Rahayuningsih, 2017).

As a philosophy, TQM might serve as a guidance in the efforts of pursuing sustainable improvement (Mangnale & Potluri, 2011, p.253). If TQM has been adopted and integrated into the system of education philosophy then the education domain will have been assisted in improving the quality of each section and degree (Mangnale & Potluri, 2011, p.253). The use of TQM is already effective in terms of implementation within the education domain (Haryanto, 2012; Jamaa, 2010; Purwaningsih, 2010) both in the senior high school education and the engineering vocation education (Hasan, 2016). TQM is the process of integrating all activities, functions and processes into an organization in order to achieve the sustainable improvement in terms of cost, quality, function, transportation and service for the sake of customer satisfaction. Several efforts of reorganization toward the performance with the TQM concept has been implemented by several countries (Altayeb & Alhasanah, 2014; Wong, 1999).

Departing from such situation, the researcher would like to conduct a study that will focus on the teacher focus toward the students, The total involvement of all school members, the measurement of teacher service, the commitment of all school members and the improvement of teacher service. Then, within the study there are five aspects that the researcher would like to investigate. The first aspect is the teacher focus on the students, which implies that schools should establish good relationship with the students. In this aspect, the students should define their needs while the schools should interpret and meet the students' needs. Then, the second aspect is the total involvement of all school members, which implies that all school members should be able to contribute to the school quality. Next, the third aspect is the measurement of teacher service, which implies that the commitment from all school members are necessary in order to attain the better school quality. In order to do that, the leadership of the schools should support the process of changes by providing education, device, system and process for improving the school quality. In the same time, the teachers and the teaching staffs should perform their job in accordance to their responsibility. Last but not the least, the fourth aspect is the commitment of all school members while the fifth aspect is the improvement of teacher service. Both the fourth and the fifth aspect imply that the school should performs every single duty better than the present time. All of these aspects might be manifested if all relevant parties are in full cooperation, encourage both the small-scale and the big-scale changes, and focus their attention toward the preventive efforts instead of problem-solving initiatives.

In brief, looking at the importance of TQM implementation on the context of vocational education the researcher would like to perform a study that will identify the TQM implementation on all vocational high schools throughout the Regency of Kulon Progo. Specifically, through the study the researcher would like to identify the effectiveness of the teacher focus on the students and the satisfaction level of the students, the total involvement of all school members (school principals, vice school principals, teachers, administrative staffs and students), the measurement of teacher service, the commitment of all school members (school principals, vice school principals, teachers, administrative staffs and students) and the sustainable improvement of teachers' quality service.

METHOD

The study was a program evaluation research using descriptive quantitative design. The evaluation model that had been implemented was the discrepancy evaluation model. The variables in the study were the teacher focus on the students, the total involvement of all school members, the measurement of teacher service, the commitment of all school members and the sustainable improvement of teachers' quality service. The five variables were measured in different manner. First of all, the teacher focus on the students was measured by using observation, document analysis, and questionnaire distribution to the students and the school principals. Then, the total involvement of all school members and the commitment of all school members were measured by using questionnaire distribution toward the students and the school principals. Next, the measurement of teacher service and the sustainable improvement of teachers' quality service was measured by using document analysis. The results of the document analysis were compared to the level of effectiveness based on the responses from the questionnaires that had distributed to the school principals.

The study took place in Negeri 2 Pengasih State Vocational High School, Negeri 1 Nanggulan State Vocational High School, Ma'arif 1 Wates Vocational High School and Muhammadiyah 1 Temon Vocational High School from January until July 2013. The population in the study was 162 students from Grade XI, 362 teachers and 4 school principals. The students from Grade XI were selected

because they had been experiencing the learning process in the vocational high schools for around two years; as a result, they had experienced and understood the service quality of their teachers well. Then, the samples for the study were selected by employing the proportional random sampling technique. Specifically for the school principal, the number of the sample was 4 respondents and consequently all of the school principals were involved into the study. On the other hand, for the vocational school teacher the number of the sample was 20 respondents from each because the number of sample that should be taken from the vocational high school teacher population was too huge to be calculated by means of proportional random sampling. The selection on the sample from the population of vocational high school teacher was based on both the researcher capacity and the number of the lessons that had been taught in the given vocational high schools.

The variables in the study included 5 pillars of total quality management namely the focus on the students, the total involvement of all school members, the measurement of teacher service quality achievement, the commitment of all school members and the sustainable improvement of teachers' quality service. Each variable had several dimensions that might be benefitted for elaboration and these dimensions were based on the theoretical concept.

The data in the study were gathered by using observation, document analysis and questionnaire distribution. In relation to the data gathering activities, the data gathering instruments that had been used were the observation rubric, the document analysis sheet and the questionnaire. Then, the internal/rational validity test that had been employed was the construct validity. The instruments within the study were designed based on the relevant theory and the results of expert judgment. After the instrument had been designed, the instruments were put into a questionnaire-based test in order to attain their external/empirical validity. The external/empirical validity test was conducted in Negeri 2 Pengasih Vocational High School by distributing 32 questionnaires. The data from the external/empirical validity test were analyzed in order to attain the validity of each item in the instruments. The analysis was performed by identifying the correlation between the score of each item and the total score. In performing the analysis, the technique that had been employed was the Pearson's product moment correlation.

In order to identify whether an item was valid or not a comparison will be made between r_{xy} and r_{table} . If $r_{xy} \geq r_{table}$ then the item was valid. Afterwards, the valid items were put into the reliability test. An instrument would have been considered having high level of reliability if the instrument were able to yield consistent results. The reliability index was calculated by using the Cronbach's Alpha formula:

Table 1. Results Questionnaire Reliability Test

Respondents	Variable / Aspect Under Assessment	Coefficient of Reliability	Reliable / Unreliable
Students	The teachers' focus to the students	0.814	Reliable
	The total involvement of all school members	0.815	Reliable
	The commitment of all school members	0.845	Reliable
	The students' satisfaction	0.853	Reliable

Note:

The r-table for N = 32 was 0.349.

Departing from the analysis results, it might be concluded that the questionnaire for the students might serve as the data gathering instrument. In addition, the questionnaire for the students had been consulted to the experts and the results of the consultation showed that the questionnaire for the students had already meet the requirements of validity and reliability.

Then, the stages within the data analysis were as follows: (1) data entry; (2) calculation of the scores that had been attained from the observation; (3) document scrutinization; (4) calculation of the scores that had been attained from the questionnaire; (5) definition on minimum score, maximum score, mean score and standard deviation by using SPSS Version 21.00; (6) calculation on the percentage for the level of TQM implementation effectiveness; (7) definition on the category for the level of TQM implementation effectiveness; and (8) matching the calculation results of TQM implementation effectiveness level based on the observation and the results of document analysis to the calculation results of TQM implementation effectiveness level based on the questionnaire.

The criteria for the effectiveness level of TQM implementation in each variable were defined by referring to the criteria of effectiveness that had been proposed by Usman & Akbar (2008) as follows:

Table 2. Criteria of Effectiveness

Interval	Effectiveness Level of Implementation
81.00% – 100.00%	Highly Effective
61.00% – 80.00%	Effective
41.00% – 60.00%	Moderately Effective
21.00% – 40.00%	Ineffective
0.00% – 20.00%	Highly Ineffective

On the other hand, the criteria for the students' satisfaction level were defined by adjusting to the effectiveness level of TQM implementation as having been displayed in Table 3 as follows:

Table 3. Criteria of Students' Satisfaction

Interval	Effectiveness Level of Implementation
81.00% – 100.00%	Highly Satisfied
61.00% – 80.00%	Satisfied
41.00% – 60.00%	Moderately Satisfied
21.00% – 40.00%	Dissatisfied
0.00% – 20.00%	Highly Dissatisfied

RESULTS AND DISCUSSIONS

Results

Negeri Pengasih 2 State Vocational High School

From the observation the learning activities performed by 20 teachers, the researcher has found the data with the description in Table 4 below.

Table 4. The Description of the Data from the Observation toward the Learning Activities Performed by the Teachers in Negeri 2 Pengasih State Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	18	26	20.85	1.981
Commitment of all school members	12	16	13.25	1.118

Then, from the questionnaires that have been completed by 121 students the researcher has found the data with the description in Table 5 below.

Table 5. The Description of the Data from the Questionnaires that Have been Returned by the Students of Negeri 2 Pengasih State Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	18	38	30.81	3.070
Students' satisfaction	27	47	36.24	3.918
Total involvement of all school members	20	39	30.82	3.085
Commitment of all school members	24	40	30.94	2.976

Next, from the questionnaires that have been completed by the school principal the researcher has found the data with the description in Table 6 below.

Table 6. The Description of the Data from the Questionnaire that Has been Returned by the School Principal of Negeri 2 Pengasih State Vocational High School

Variable / Aspect Under Measurement	Minimum Total Score	Maximum Total Score	Attained Total Score
Teachers' focus to the students	10	40	32
Total involvement of all school members	8	32	26
Measurement of teachers' quality service achievement	10	40	32
Commitment of all school members	8	32	26
Sustainable improvement of teachers' quality service	10	40	31

Negeri 1 Nanggulan State Vocational High School

From the observation the learning activities performed by 20 teachers, the researcher has found the data with the description in Table 7 below.

Table 7. The Description of the Data from the Observation toward the Learning Activities Performed by the Teachers in Negeri 1 Nanggulan State Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	19	26	21.70	1.750
Commitment of all school members	11	16	12.75	1.209

Then, from the questionnaires that have been completed by the students the researcher has found the data with the description in Table 8 below.

Table 8. The Description of the Data from the Questionnaires that Have been Returned by the students of Negeri 1 Nanggulan State Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	21	36	29.75	3.015
Students' satisfaction	21	45	33.63	4.581
Total involvement of all school members	23	39	30.56	3.415
Commitment of all school members	26	40	30.69	3.007

Next, from the questionnaires that have been completed by the school principal the researcher has found the data with the description in Table 9 below

Table 9. The Description of the Data from the Questionnaire that Has been Returned by the School Principal of Negeri 1 Nanggulan State Vocational High School

Variable / Aspect Under Measurement	Minimum Total Score	Maximum Total Score	Attained Total Score
Teachers' focus to the students	10	40	32
Total involvement of all school members	8	32	25
Measurement of teachers' quality service achievement	10	40	30
Commitment of all school members	8	32	25
Sustainable improvement of teachers' quality service	10	40	29

Ma'arif 1 Wates Vocational High School

From the observation the learning activities performed by 20 teachers, the researcher has found the data with the description in Table 10 below.

Table 10. The Description of the Data from the Observation toward the Learning Activities Performed by the Teachers in Ma'arif 1 Wates Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	17	24	20.15	1.785
Commitment of all school members	10	14	11.60	1.231

Then, from the questionnaires that have been completed by 86 students the researcher has found the data with the description in Table 11 below.

Table 11. The Description of the Data from the Questionnaires that Have been Returned by the students of Ma'arif 1 Wates Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	21	36	30.03	2.541
Students' satisfaction	21	44	35.09	4.118
Total involvement of all school members	18	36	29.78	3.066
Commitment of all school members	18	40	30.09	3.483

Next, from the questionnaires that have been completed by the school principal the researcher has found the data with the description in Table 12 below

Table 12. The Description of the Data from the Questionnaire that Has been Returned by the School Principal of Ma'arif 1 Wates Vocational High School

Variable / Aspect Under Measurement	Minimum Total Score	Maximum Total Score	Attained Total Score
Teachers' focus to the students	10	40	32
Total involvement of all school members	8	32	26
Measurement of teachers' quality service achievement	10	40	31
Commitment of all school members	8	32	26
Sustainable improvement of teachers' quality service	10	40	30

Muhammadiyah 1 Temon Vocational High School

From the observation the learning activities performed by 20 teachers, the researcher has found the data with the description in Table 13 below.

Table 13. The Description of the Data from the Observation toward the Learning Activities Performed by the Teachers in Muhammadiyah 1 Temon Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	19	27	22.30	2.155
Commitment of all school members	9	15	12.20	1.322

Then, from the questionnaires that have been completed by 41 students the researcher has found the data with the description in Table 14 below.

Table 14. The Description of the Data from the Questionnaires that Have been Returned by the students of Muhammadiyah 1 Temon Vocational High School

Variable / Aspect Under Measurement	Minimum Score	Maximum Score	Mean Score	Standard Deviation
Teachers' focus to the students	24	38	29.93	2.328
Students' satisfaction	29	46	36.41	4.050
Total involvement of all school members	24	38	30.49	2.551
Commitment of all school members	21	38	30.15	3.518

Next, from the questionnaires that have been completed by the school principal the researcher has found the data with the description in Table 15 below

Table 15. The Description of the Data from the Questionnaire that Has been Returned by the School Principal of Muhammadiyah 1 Temon Vocational High School

Variable / Aspect Under Measurement	Minimum Total Score	Maximum Total Score	Attained Total Score
Teachers' focus to the students	10	40	31
Total involvement of all school members	8	32	26
Measurement of teachers' quality service achievement	10	40	31
Commitment of all school members	8	32	27
Sustainable improvement of teachers' quality service	10	40	30

Departing from these scores, the description of TQM effectiveness from the four vocational high schools in general might be consulted in Figure 1.

Figure 1 shows that the pillar of TQM implementation that has earned the lowest effectiveness level in Negeri 2 Pengasih State Vocational High School, Ma'arif 1 Wates Vocational High School and Muhammadiyah 1 Temon Vocational High School is the measurement of teacher quality service. On the other hand, Figure 1 also shows that the pillar of TQM implementation that has earned the lowest effectiveness level in Negeri 1 Nanggulan State Vocational High School is the sustainable improvement of teachers' quality service.

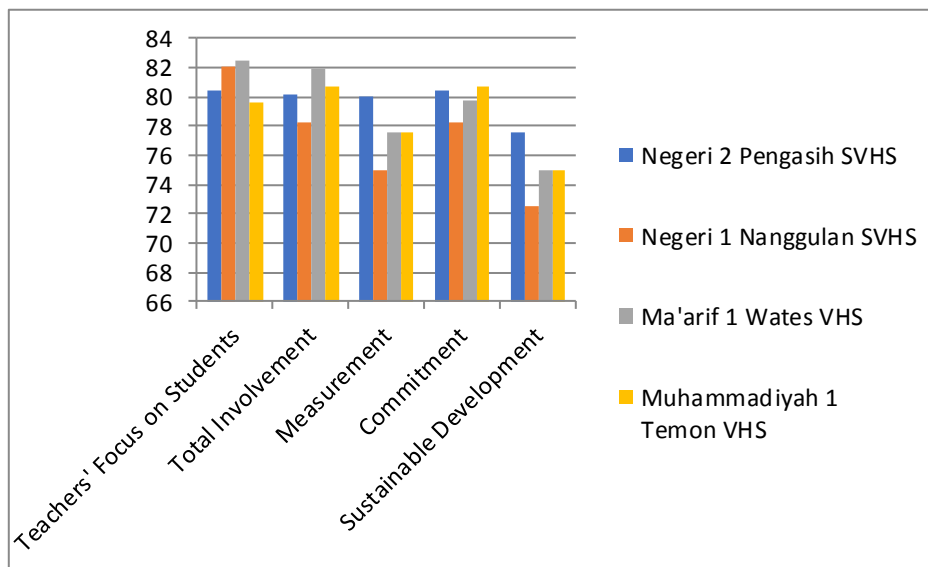


Figure 1. The Comparison on the Effectiveness Level of TQM Implementation throughout the Four Vocational High Schools in the Regency of Kulon Progo

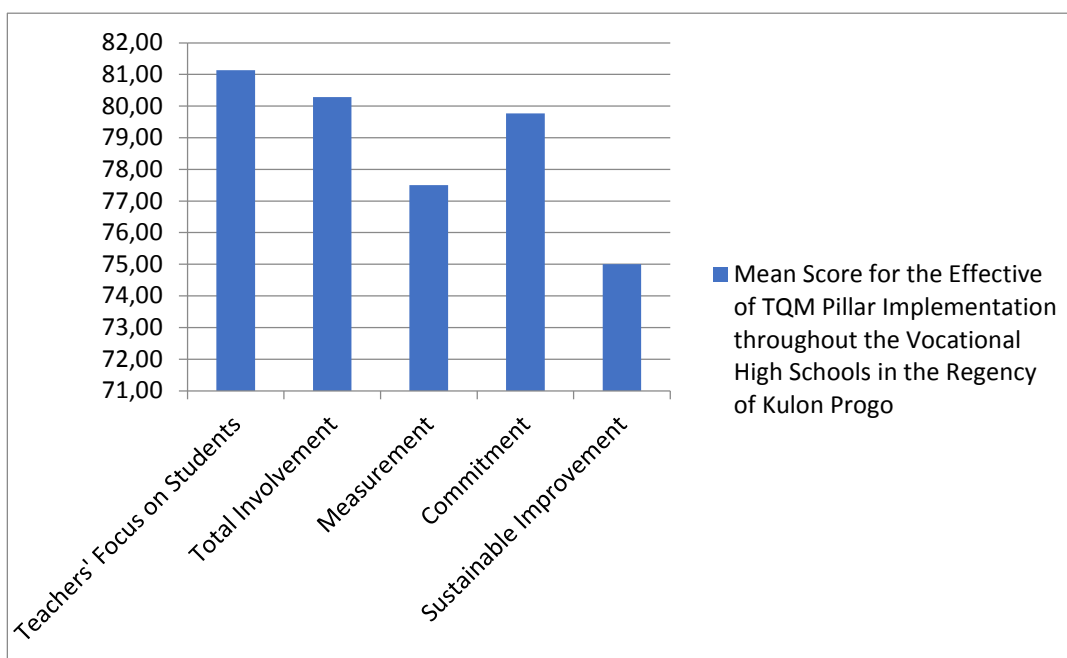


Figure 2. The Mean Score on the Effectiveness Level of TQM Implementation in the Four Vocational High Schools throughout Kulon Progo

Discussions

The main technique that has been employed for measuring the focus on the students is observation. The description that has been attained from the results of observation is indeed in accordance to the results of document analysis. However, the results of observation are slightly different from the results of students' questionnaire and the results of principals' questionnaires. The reason might be that the observation has been planned several days before; as a result, it is very possible that the learning activities have been specially prepared.

The total involvement of all school members is measured by the main instrument namely the students' questionnaire and the complimentary instrument namely the principals' questionnaires. From the results of both questionnaires, there is a slight difference in the effectiveness level due to the introduction level toward the teachers and the administrative staffs by the principals and the students.

In general, the students are well familiar only to the teachers who have been teaching in their classrooms to some administrative staffs. On the other hand, the principals are more familiar to all teachers and administrative staffs in comparison to the students. However, the students' opinions are might be more objective since the students are the main external customer. There are several studies that might be of reference with regards to the situation (Haryanto, 2012; Jamaa, 2010; Altayeb & Alhasanat, 2014; Sallis, 2002; Toar, 2016).

Negeri 2 Pengasih State Vocational High School

First, the results of document analysis for the measurement of the teachers' quality service achievement show that there is a document of quality measurement in the form of program evaluation. The program evaluation records the implementation percentage, the analysis on the results of final semester examination, the students' achievements in multiple competitions, the students' violation toward the school regulation and the conduct of self-assessment.

Second, the results of data analysis on the commitment of all school members show that there is a difference on the effectiveness level for the commitment of all school members. Based on the results of the observation and the results of the principals' questionnaires, the difference is very slight. Therefore, it might be concluded that the results of the principals' questionnaires support the results of the observation. However, the results of the calculation from both the observation and the principals' questionnaires have quite significant difference in comparison to the results of the students' questionnaires. The reason is that not all students are familiar to the teachers and the teaching staffs.

Third, the results of the document analysis toward the sustainable improvement of teachers' service quality show that there is a document in the form of private course schedule for Grade XII students, remedial and enrichment program and review on the test items of final semester examination. The only drawback is found in the frequency of training program and the compatibility of the training program to the teachers and the administrative staffs. Although the sustainable improvement has been performed, according to the perception of the principal the level of effectiveness that has been achieved is 80.00% (effective).

Negeri 1 Nanggulan State Vocational High School

First, the results of document analysis for the measurement of the teachers' quality service achievement show that there is a document of quality measurement in the form of program evaluation. The program evaluation records the implementation percentage, the analysis on the results of final semester examination, the students' achievements in multiple competitions, the students' violation toward the school regulation and the conduct of self-assessment. The only aspect that has been absent from the program evaluation is the measurement of the students' satisfaction level. Despite the absence, the aspects that have been included in the program evaluation show that the components on the measurement of teachers' quality service achievement has already been fully implemented.

Second, the results of data analysis on the commitment of all school members show that there is a difference on the effectiveness level for the commitment of all school members. Based on the results of the observation and the results of the principals' questionnaires, the difference is very slight. Therefore, it might be concluded that the results of the principals' questionnaires support the results of the observation. However, the results of the calculation from both the observation and the principals' questionnaires have quite significant difference in comparison to the results of the students' questionnaires. The reason is that not all students are familiar to the teachers and the administrative staffs.

Third, the results of the document analysis toward the sustainable improvement of teachers' service quality show that there is a document in the form of private course schedule for Grade XII students, remedial and enrichment program and review on the test items of final semester examination. The only drawback is found in the frequency of training program and the compatibility of the training program to the teachers and the administrative staffs. Although the sustainable improvement has been performed, according to the perception of the principal the level of effectiveness that has been achieved is 70.00% (effective).

Ma'arif 1 Wates Vocational High School

First, the results of document analysis for the measurement of the teachers' quality service achievement show that there is a document of quality measurement in the form of program evaluation. The program evaluation records the implementation percentage, the analysis on the results of final semester examination, the students' achievements in multiple competitions, the students' violation toward the school regulation and the conduct of self-assessment.

Second, the results of data analysis on the commitment of all school members show that there is a difference on the effectiveness level for the commitment of all school members. Based on the results of the observation and the results of the principals' questionnaires, the difference is very slight. Therefore, it might be concluded that the results of the principals' questionnaires support the results of the observation. However, the results of the calculation from both the observation and the principals' questionnaires have quite significant difference in comparison to the results of the students' questionnaires. The reason is that not all students are familiar to the teachers and the administrative staffs.

Third, the results of the document analysis toward the sustainable improvement of teachers' service quality show that there is a document in the form of private course schedule for Grade XII students, remedial and enrichment program and review on the test items of final semester examination. The only drawback is found in the frequency of training program and the compatibility of the training program to the teachers and the administrative staffs. Although the sustainable improvement has been well performed, according to the perception of the principal the level of effectiveness that has been achieved is 75.00% (effective).

Muhammadiyah 1 Temon Vocational High School

First, the results of document analysis for the measurement of the teachers' quality service achievement show that there is a document of quality measurement in the form of program evaluation. The program evaluation records the implementation percentage, the analysis on the results of final semester examination, the students' achievements in multiple competitions, the students' violation toward the school regulation and the conduct of self-assessment.

Second, the results of data analysis on the commitment of all school members show that there is a difference on the effectiveness level for the commitment of all school members. Based on the results of the observation and the results of the principals' questionnaires, the difference is very slight. Therefore, it might be concluded that the results of the principals' questionnaires support the results of the observation. However, the results of the calculation from both the observation and the principals' questionnaires have quite significant difference in comparison to the results of the students' questionnaires. The reason is that not all students are familiar to the teachers and the administrative staffs.

Third, the results of the document analysis toward the sustainable improvement of teachers' service quality show that there is a document in the form of private course schedule for Grade XII students, remedial and enrichment program and review on the test items of final semester examination. On the contrary, parts of the document that have been absent are the records of teachers' training program, administrative staffs' training program and students' training program. Then, the only drawback is found in the frequency of training program and the compatibility of the training program to the teachers and the administrative staffs. Although the sustainable improvement has been performed, according to the perception of the principal the level of effectiveness that has been achieved is 77.50% (effective).

CONCLUSIONS

The percentage on the effectiveness of TQM implementation throughout the vocational schools in the Regency of Kulon Progo with regards to the five pillars of TQM implementation might be described as follows. First, for the teachers' focus on the students the level of teachers' effectiveness within the teaching-learning process in the classroom is 81.13% (very effective) while the students' satisfaction toward the teachers' service is 77.69%. Second, the effectiveness level for the total involvement of all school members (school principals, vice school principals, teachers, administrative staffs and students) is 80.28% (effective). Third, the effectiveness level for the measurement of the

teachers' quality service achievement is 77.50% (effective). Fourth, the effectiveness level for the commitment of all school members (school principals, vice school principals, teachers, administrative staffs and students) is 79.77% (effective). Fifth, the effectiveness level for the sustainable improvement of teachers' quality service is 75.00% (effective).

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