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The Characteristics of Handout in Total Quality Management (TQM) in Ototronic Course

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***Abstract*—Classroom management is an important factor in creating a fun learning process. Each process of learning has to get attention and preparation so that the whole series of learning activities organized to improve student competence. Total quality management (TQM) is a management system that demands to manage quality in every process. In the industrial sector, TQM in is used to manage each process in a series of quality product results. If in the learning process, TQM can be applied as an effort to create graduates with high competence. In this study, an analysis of handout characteristics before applying TQM is applied. Standard teaching materials both theory and practicum applied is planned based on the indicator of learning achievement that would be obtained. Furthermore, the process of preparing the teaching materials should also be followed by the analysis of teaching materials, so that when the remedial students get additional material to be able to complete each sub subject of the course. This research uses research and development method with field study and observation. The result of the development of teaching materials both practicum and theory is needed as an effort to update the study in pursuit of the achievement of the competence of graduates.**

Keywords*—*total quality management; handout characteristic; ototronic; student competency; teaching process

I. INTRODUCTION

The management in education has increased with the aim of improving the quality of the student graduates. So, the opportunity for developing management systems in learning is essential to apply. Some management in learning has been developed a roadmap of TQM based on deming, Juran and Crosby models [1]. Then, Vehachart developing a supervisory system on TQM [2]. And Rezeanu develop TQM, that is coupled with responsibility, procedures, organizational structure, and management resources to improve efficiency in learning process [3]. Besides the management model facilitates teachers to make climate change in learning. In the learning process, quality management needs to get wide opportunities in improving the quality of graduates.

During the learning process is more directed at classroom learning methods. So that variations in learning methods have been applied and improve student learning outcomes [4,5]. Furthermore, the implementation of the learning model, a guideline is needed that is able to adopt classroom management to create a pleasant atmosphere in the class. The handout structure can activate and move the attitudes of students and teachers in the learning process [6]. Erdogana and Kurt concludes that variations in handout structures are able to improve students' completeness in learning and increase self-confidence in students [7].

Student self-confidence arises because of stimulation from the student self and outside factor of the student. Handout is a stimulus from students that have implications for encouraging students to think, analyze and act in accordance with the instructions given by the teacher. This study focuses on making handout that used in learning by adopting the concept of total quality management. The goal is to facilitate classroom management by the teacher, activate students in learning and become student stimulus as an effort to improve students' learning abilities. In the application process, this study develops a handout model based on the success of the TQM indicators as described in Figure 1.

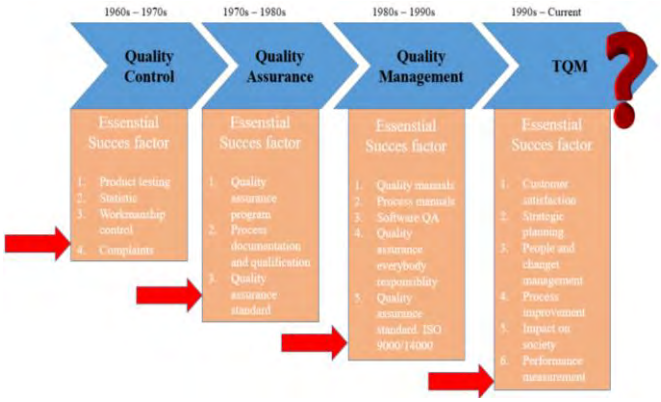

Fig. 1. Key succes of management.

II. TQM CONCEPT

TQM has been used as a management system in industrial sector to increase customer satisfaction. This satisfaction is measured from the product [8]. Furthermore, the total quality management is focused on all processes contained in the production mechanism. All steps in production take a note in special attention, so production results can be controlled, evaluated and controlled properly. This result will be a satisfying result for the customer. The concept will be translated into a learning process in this study. This paper focus

on the process of making handouts for TQM implementation. This result will guide the implementation of TQM for further studies. The development of handouts is based on an essential success factor on TQM as shown in Figure 2. Evaluation of TQM is created by measuring customer satisfaction that has used the product. Whereas in the learning process customer satisfaction is based on the satisfaction of customers who have employed graduates.

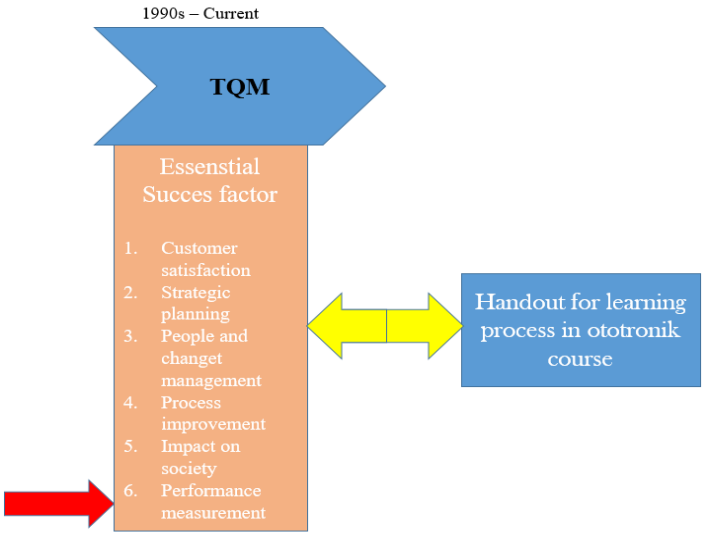

Fig. 2. The essential sucess factor of TQM.

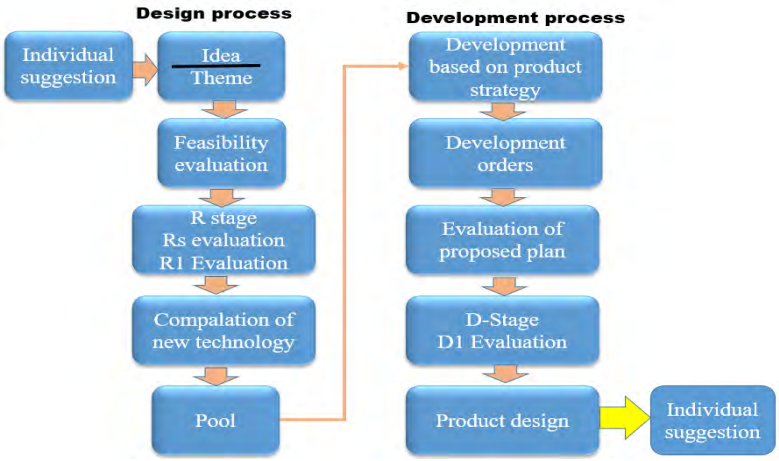

Fig. 3. Research methodology flowchart.

In this study the measurement of handouts will only be characteristics and opinions of students from the handouts. For in-depth research in the future, the results of this evaluation process will be carried out by asking for advice from the company where the graduate works.

III. Research Methodology

The research methodology in this study is research and development as shown in Figure 3. Before the implementation step in the design stage, we analyzed the existing ototronic handouts, meaning to find out the advantages and disadvantages of existing handouts. In addition, we also study handouts that have been made by other researcher or other institutions. By predicting future technological developments and discussions on automotive vehicles practitioners the Padang, we plan a grid of handouts to be made in this study. To validate the handouts that have been made, 5 handout experts have been requested. As for material validation, 10 automotive experts were around the city of Padang. Their opinion will be a reference as the development of the handout that will be made. In addition, the contents of the handout will also be adjusted to the ability of students, so this handout can be a supporter of student competence in learning. This handout was applied to automotive students, Faculty of Engineering, Padang State University (FT UNP), who took up 34 technical students.

IV. Results and Discussion

An expert validation of the handout that has been created can be concluded that this handout is in a good category, while the material test that has produces a medium category. Important notes when this handout will be made more complete with a deep level, material experts suggest that the learning process be carried out also has variations. This is because students' abilities are not in the same levels. In addition, the background of students from senior high schools and vocational high schools causes their basic abilities in the automotive field are not the same levels.

This suggestion will be followed up as an effort to develop the next handout, so that handouts in chronic learning have different characteristics, ranging from basic, intermediate and advanced. This characteristic should be followed by different learning methods. The aim is that students can periodically be able to improve their ability in the field of ototronic.

Another characteristic of the handout has been written by material experts is that the elaboration of the basic technical ototronic should be created. This means that students in learning the basic ototronic, they can find only by reading in the handout. This makes it easier for them to understand the course.

At the secondary level, an analysis of the series of control systems in the muscles is increased, the aim is that the basic abilities of students develop gradually. They not only rely on the basics of the course material that has been studied, but also in the advanced section. This is in addition to having an impact on their basic and secondary knowledge, but also the characteristics of themselves that develop gradually. Basic skills that are associated with intermediate abilities in students 'abilities enable an increase in students' self-confidence.

Whereas in the advanced handout, additional material should be higher on the analysis of concepts and examples of problem to the system in the field. Then, in the learning process should be combined with practice in the workshop. So the handouts that are created also bridge the student practicum process in the laboratory. Learning methods in this process must also be distinguished from basic and secondary handouts. Thus the concept of handouts developed from basic, intermediate and advanced has a synergy in improving students' abilities in the course of ototronic.

According to the student's suggestion, this module is made to be understood, fun and has its own challenges for students to learn. In this part of the handout are also included some exercises that support students to put forward their knowledge on muscle methods. They feel they will be faced with the technology in the field and they will meet in the future. This is what can make students challenged in learning.

V. Conclusion

In the handout on TQM must have different implementation steps starting from the basic, intermediate and advanced. Each level must be accompanied by a different learning method, this is consistent with the essential factor of TQM. The evaluation is carried out periodically with great care. In the process of getting more ideas, we recommend that each handout in the TQM process get as much input from automotive experts as possible. Each expert has a different point of view, so that they complement each other in the process of improving the handout.

References

[1] S.D. Anastasiadou, "The roadmaps of total quality management in the greek education system according to deming, juran, and crosby model in light of the EFQM model." Procedia Economic and Finance, vol.3, 2015.

[2] R. Vehachart, "The development of supervision for total quality management in basic education institutions in the three southern border provinces." Procedia Social and Behavioral Sciences, vol.9, 2010.

[3] O.M. Rezeanu, "The implementation of quality management in higher education." Procedia Social and Behavioral Sciences, vol.15, 2011.

[4] W. Purwanto, "Improving the student score academic by using cooperative collaboration, the study case in SMK N 1 Padang." Thesis of Jurusan Teknik Otomotif, Fakultas Teknik, Universitas Negeri padang, 2008.

[5] W. Purwanto and D. Fernandez, "Meningkatkan kemandirian belajar mahasiswa pada mata kuliah motor diesel dijurusan otomotif fakultas teknik universitas negeri padang." Jurnal Pakar Pendidikan, vol.6, 2012.

[6] S. Srimaa, P. Wannapiroonb, and P. Nilsook, "Design of total quality management information system (TQMIS) for model school on best practice." Procedia - Social and Behavioral Sciences, vol.174, 2015.

[7] M. Erdogana and A. Kurt, "A Review of Research on Classroom Management in Turkey." Procedia - Social and Behavioral Sciences, vol.186, 2015.

[8] M. Monica, P. Mitroia, L. Luminita, Todorescue and A. Greculescu, Procedia Sosial and Behavioral Sciences, vol.191, 2015.