QUALITY FUNCTION DEPLOYMENT IN HIGHER EDUCATION

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ABSTRACT

There are two types of customers in Higher Education; consisted of internal customers and external customers. Internal customers are actors in the production process, and external customers are the results of end-user production process.

In the educational process, dialogues and debates are always happening between "what was given to students" with "what customers want". This paper covers the implementation of Total Quality Management to improve quality of service in Higher Education. The purpose of this paper is to give advice to Higher Education in developing a running system.

Approach method used the study of literature and some examples from the implementation of Total Quality Management. Higher Education needs to apply Total Quality Management with Quality Function Deployment in order to identify the things that need to be improved in order to improve quality of service and output to the community as a user outcome student.

Key words: Quality Function Deployment, Total Quality Management, Higher Education

I. INTRODUCTION

At the age of globalization, Higher Education challenged to make changes for improvement. Challenge to provide "what is given to students" with "what is desired by the customer" where customer is the graduates of the college.

In this relationship, Akao (1990) has developed a TQM technique called "Quality Function Deployment (QFD)" in order to gain a complete understanding of what is meant by "customer". Basic philosophy of TQM is the effect of customer satisfaction, an organization can experience success. TQM is a management approach for an organization centered on quality, based on the participation of all its members and aiming for long-term success through customer satisfaction and provides benefits to all members of the organization and the community. TQM can be applied in higher education in a variety of activities as follows:

1. Higher education to conduct research in TQM
2. Higher education can teach the principles of TQM
3. Higher education can apply TQM to improve the quality of administration
4. Higher education can apply TQM to improve teaching quality in the classroom.

In an article written Tsoukalidis[9], Quality Function Deployment (QFD) is such a methodological tool with great popularity that used for the development of new products or services or the improvement of existing ones.

QFD is used for improving quality, reducing the number of new products that fail to successfully enter the markets and reduce the costs for the development of products and services, reduce the time between the new product (or service) concept and the final product (or service) that is released to the market and improving the competitiveness of the organizations.

II. LITERATURE REVIEW

2.1. Total Quality Management (TQM)

TQM is a planning and control activities which focus on quality assurance of products and services offered to customers. Total Quality Management can be defined as Total (overall); Quality (excellence of goods or services); Management (action, how to manage, control, direction).

Total Quality Management (TQM) by Heizer and Render[7] (Heizer & Render, 2011:226) is "Management of an entire organization so that it excels in all aspects of products and services that are important to the customer". TQM emphasizes a commitment to get a referral company constantly to achieve excellence in all aspects of the products and services which are all important for the customer so that the company can compete to become the world market leader. Yamit[4] (Yamit, 2004:181) states that, TQM is a management system to improve the overall quality of competitive advantage towards the achievement-oriented customer satisfaction by involving all members of the organization”.

Tenner and DeToro[6] (Tenner and DeToro, 1992:32), three principles of Total Quality Management are (1) focus on the customer (customer focus), (2) an increase in process (process improvement), and (3) the involvement of the total (total involvement). According to Juran (Goetsch[4], 2006:262), three concepts of quality, known as the Juran Trilogy, are

1. Quality Planning, company prepare targets for achieving quality goals.
2. Quality Control, company performs in achieving the goal of quality control.
3. Quality Improvement, company tries to fix or improve the quality of its products.
2.2. Quality Function Deployment (QFD)

One method of TQM is QFD (Quality Function Deployment). According to Heizer and Render[7] (Heizer & Render, 2011:191), Quality Function Deployment is a process of setting customer desires (what customers want) and how to translate them into the attributes of each function. It is a can understand and implement. Cohen[1] (Cohen, 1995:11), QFD is a structured methodology that is used in the design and development of product specifications to determine customer needs and wants, and evaluate the producer service capability to fulfill the needs and desires of customers.

QFD is used to identify and fulfill the needs and desires of customers to the products or services it produces. Besides that, QFD can help company to find innovative responses to customer needs and improve processes to achieve maximum effectiveness. Lou Cohen[1] (Cohen, 1995:23), if QFD have implemented appropriately, the Quality Function Deployment will provide the following results:

1. Improve communication activities intra departments.
2. Customer needs to be taken through the process of direct operational.
3. Less system changes.
5. Lower start-up costs.
7. Identify conflicting needs and desires of many customers.

Kenneth A. Crow[2] in his article said that Quality Function Deployment (QFD) is a structured approach to defining customer needs or requirements and translating them into specific plans to produce products to meet those needs. Marvin[3] in his article (Marvin, 2003) said that the dynamic hierarchy process model for QFD was used to help the product development team make effective decisions in satisfying the requirements of the customer constrained by limited resources. Tsoukalidis[9] (Tsoukalidis, 2009) said that the idea behind QFD is to take into serious consideration the “Wants” of the customers or otherwise the Voice of the Customer. “A main goal of QFD is to translate customers’ demands into target values for the engineering characteristics of a product” (Van de Poel[10], 2007:21).

Zheng, Xiaosong and Pulli, Petri[13] (Zeng and Pulli, 2005) said that QFD is a design approach that translates customer requirements into the appropriate technical requirements at each stage of the production process. So, quality function deployment is a systematic process to integrate customer requirements into every aspect of the design and delivery of products and services (Cudney and Elrod, 2011:46). QFD is a system that utilizes customer demands to meet client missions by outlining what the customer wants in a service or product. QFD is a planning process that translates customer needs into appropriate company requirements at each stage, from research and product/service development to engineering, manufacturing, marketing/sales, and distribution.

According to Deming[11] (1986), TQM in the organization, variations of “performance” work systems made minimize. PeterSenge[18](1990), “learning organization” needs to manage the entire system by empowering each person to develop and continuously improve their work.

In other words, the learning process provide tools to teachers and students to work together for the teaching-learning process optimizations. The main concept of TQM is continuous improvement activities. Learning theory is a means of continuous operational improvements to the teaching and learning process. It should be set:

1. perceptions of risk of did not change greater than the risk of change;
2. necessary to formulate the clear “vision” about a better system;
3. need strategic plans and a clear action plan to realize the “vision”.

Integrated Quality Management or Total Quality Management (TQM) is an approach to the quality of education through improved quality related components. M. Jusuf Hanafi, et al (1994:4) defines Total Quality Management (TQM) is a systematic approach, practical, and strategic to improve and control the quality in organization, which priority to the interests of customers. Total Quality Management of Higher Education is a way of managing institutions based on the philosophy that improving the quality should be organized and carried out by all elements of integrated early institution of continuous services to education as a civilizing process in accordance with and even exceeds the needs of customers both present and future.

III. RESEARCH METHODS

The method used in this article to review the literature and study of existing reports. In the Integrated Quality Management of Higher Education is understood as a Unit Services, the service learning. As a unit services, which served the University are: 1) Internal Customer: lecturers, librarians, laboratory assistants, technicians and administrative personnel, 2) external customers consists of: primary customers (students), secondary customers (parents, government and the community), tertiary customer (usergraduates in the public and business).

3.1. Quality of Education Services

Quality of education services can be determined by comparing the customer perception of service received with service expected. If the customer service received more than expected then it can be said quality service. Conversely, if the service is less than expected, the service can be said to be not qualified. However, if the service received with expectations, the service quality is called satisfying. Dimensions of educational services can be explained by:

a. Physical evidence (tangible), based on Government Regulation (Peraturan Pemerintah No. 19/2005 On National Education Standards in Article 42 of Chapter VII of Article Infrastructures Education Standards) containing the following:
1. Each education unit required to have tools which include furniture, educational equipment, educational media, books and other resources, consumables, and other equipment necessary to support the learning process.

2. Each educational unit must have infrastructure includes land, classrooms, educational unit leaders, educators space, administrative space, library space, laboratory space, workshop space, space production unit, cafeteria space, power installations and services, sporting, place of worship, a place to play, a place to be creative, and space/place as needed to support the learning process.

b. Reliability, the ability to deliver the promised services immediately or quickly, accurately, and satisfactorily.
c. Responsiveness, willingness of the staff to help the students and provide rapid response services.
d. Assurance, covers the knowledge, competence, courtesy, respect for students, and has a trustworthy nature, free from danger and doubt. As stated in Article 28 of Government Regulation (Peraturan Pemerintah No19/2005), which contains: Educators must have academic qualifications and competencies as agents of learning, physical and spiritual health, as well as having the ability to achieve national education goals.
e. Empathy, ease of relationship, good communication, personal attention, and understand the needs of learners.

According to Maxwell, the six dimensions of quality education services:
1. Access related to the ease of getting education services.
2. Profile match the level of education of the population and groups who need them.
3. Effectiveness of education service providers (faculty) to serve or create the desired result.
4. Equity distribution of resources services institution.
5. Socially acceptable include environmental conditions, communication and freedom, or privacy.
6. Efficiency and economical (costs right).

Success in Total Quality Management of Higher Education is measured from the level of customer satisfaction, both internal and external. Higher education is successful if it is able to provide similar services or exceed customer expectations. Seen type customers, the Higher Education is successful if:
1. Student satisfaction with Higher Education services and enjoy a pleace of learning situation, such as satisfied with the subjects received, satisfied with the treatment by faculty and leaders, satisfied with the facilities provided by the college.
2. Parents of students are satisfied with the services, such as satisfied that receive periodic reports on the progress of students and college programs.
3. User graduates (industry and society) are satisfied for accepting graduates with qualities expected.
4. Faculty and staff are satisfied with college services, such as the division of tasks, the relationship between faculty/staff/management, salary/fee, etc. (Panduan Manajemen Sekolah, 2000:193).

Evaluating the quality of educational services necessary for a comprehensive approach to education services are services which have characteristics quite complex compared to other services. Education services are capital intensive and labor intensive (requiring dedicated human resources personnel, capabilities, and skills specific). There are two approaches to provide quality services to the users of educational services:
1. Triangle Services An interactive model of service management among educational institutions with the education service users (students), consists of three elements, namely:
   a) Strategy Service, provide quality service with the best possible and effective based on the concept or mission that can be easily understood by all individuals in Higher Education.
   b) Human Resources, there are lecturers who deal directly with customers in the learning process, the employee who prepared facilities of learning process and security of institution.
   c) Service System Procedure to provide service to customers involving all facilities owned physical and human resources available.
2. Total Quality Service (TQS)
   Total Quality Service is a condition when an institution has the ability to provide quality services to customers and Higher Education (government or privates) and employees. TQS has five elements are interrelated to each other:
   a) Market and Customer Research, research on the structure and dynamics of the market place are Higher Educations that include identification of market segments, demographic analysis, and analysis of existing strengths within the market itself.
   b) Strategy Formulation, a strategic planning process to retain existing customers and reach new customers.
   c) Education, Training, and Communication. Education and training is essential in the development and improvement of quality of service (knowledge and abilities) of human resources so that they are able to provide quality services to its customers. As communication plays a role in distributing information to any individuals involved in Higher Educations.
   d) Process Improvement, each hierarchy level management to continuously improve the process of
service providers and actively gives new ways to improve service.

e) Assessment, Measurement, and Feedback plays a role in informing the education service providers how much they are able to meet the desires and expectations of its customers. The results of performance evaluation and feedback can be used as a basis to provide fringe benefits to they see them selves, and provide cues to educational institutions about what still needs to be fixed, when repaired, and how to fix them.

3.2. The gap between Institutions and Customers

Disparities in educational institutions can make educational institutions notable to provide quality services to its customers that

1) The first gap: between customer expectations and perceptions of management educational institutions (the management of educational institutions misunderstand what the customer expectations of educational institutions).

2) The second gap: between the perception of the management of educational institutions regarding customer expectations and service quality specifications (mistake in translating into the form of service quality benchmarks).

3) The third gap: between service quality specifications and service delivery to customers (inability of the human resources of educational institutions meet the quality standards specified service).

4) The fourth gap: between service delivery and external communications to customers educational institutions (educational institutions are notable to fulfill his promise as promoted).

5) The fifth gap: between customer expectations and reality of service received (the customer's expectations are not met)

According to Zeithaml, there are several ways to eliminate the gap between institutions and customers:

1) Eliminate the first gap by providing an opportunity for customers to express their dissatisfaction to Higher Education, to find out the wishes and expectations of the customers in other Higher Education, conduct-depth research about the customer, the customer panel form, performa comprehensive study on customer expectations, improve the quality communication between human resources in Higher Education, and reduce bureaucracy.

2) Eliminate second gap by improving the leadership qualities of Higher Education, improving human resource commitment to quality service, encourage human resources more innovative and responsive to new ideas, as well as the standardization work to be achieved effectively.

3) Eliminate the third gap by clarifying job descriptions, increase specific between human resources, technology and work, measuring performance and remuneration in accordance with the performance, build cooperation between human resources, as well a streching the customer as part of a large family of Higher Education.

4) Eliminate the fourth gap by smoothing the flow of communication between organisational units within Higher Education, providing consistent service, giving greater attention to the vital aspects of quality of service, ensure that the message conveyed externally not establish customers' expectations that exceed the ability of Higher Education as well as encourage customers to be come better customers and loyal.

3.3. Improved Quality of Education Services Strategy

Strategies to improve the quality of education services can begin with a focus on user education services (customer). The first step of TQM is considered students as customer who must be served.

The second strategy is leadership. Awareness of quality in educational institutions dependent on factors intangibles, especially the attitude of upper management (head of college/rector) on the quality of education services. Achievement level of quality is not the result of the application of the short-term to improve competitiveness, but through the implementation of TQM requires the continuous leadership. Rectorate, Director General of Higher Education and administrators participate in focus and give direction to the regions and Higher Education, invites faculty and staff to be willing to accept it as his own vision. Leaders need to have personal characteristics that include encouragement, motivation to lead, honesty and integrity, self-confidence, initiative, creativity/originality, adaptability/flexibility, cognitive ability, and knowledge and charisma. Quality of managerial leadership must be able to inspire at all levels of management in order to be able to demonstrate the same leadership qualities, necessary to develop a TQM culture.

The third strategy is continuous improvement. This relates to the commitment (Continuous Quality Improvement or CQI) and process (continuous process improvement). Commitment to quality begins with a dedication to the mission statement and a common vision, and empowering all participants to incrementally realize this vision (Lewis and Simth, 1994). Continuous improvement depends on two elements. First, learn the processes, tools, and skills appropriate. Second, apply new skills on small projects achievable. Continuous quality improvement efforts in the educational institutions must use an open system approach over the core functions of education institutions, student learning. There are three approaches that are used to ensure the quality of Higher
Education, namely (1) accreditation approach, (2) outcomes assessment approach, and (3) an open system approach (Lewish & Smith, 1994).

Continuous improvement is essential in implementing quality wheels on every aspect of the work, understand the benefits of long-term quality cost approach, pushing all the improvements both large and small, focusing on prevention rather than problem resolution.

The fourth strategy is human resource management. Human resource is the most vital assets of the organization and internal customers that determines the quality of services and the end of an institution. Success or failure of TQM implementation is determined by the readiness, willingness, and competence of human resources within the institution to realize them seriously.

The fifth strategy is management by fact. Decision-making must be based on real facts about the quality obtained from various sources throughout the organization and not solely on the basis of intuition, presumption, or organizational politics. Various tools have been designed and developed to support the collection and analysis of data, and making decisions based on facts.

IV. RESULTS

The process of change must occur on teachers. If the teacher as an individual adjusts her teaching method is based on the theory of the learning process, while the system of educational institutions do not change, then it is not the best way of TQM in educational institutions. Conversely, if the system has to change to support what happens in the classroom, while teachers do not change their teaching methods, the students are not prepared to be a good student results.

Students are seen as passive recipients of information and have characteristics that do not change. In view of the "receptive-accrual", setting the teaching materials provided to the students, and the setting of the consequences for governance form the desired student behavior. Course as a teaching method embodiment of view "receptive-accrual", in this case teachers pass the information to the students who then store that information and put it back without modification.

With the development of "cognitive psychology" and the dominance of cognitive science to the learning process, then there was a change in the model that focuses on what's going on in the students. Today the students perform complex information-processing activities. This prompted the development outlook "cognitive mediational". This view recognizes that in order to understand and remember the information received requires the student to undertake constructive activities and aims are clear. Good teaching facilitates cognitive activities and help students to develop a way to manage the learning process.

In view of the learning process "cognitive- mediational", the concept of the structure of knowledge is a foundational concept. In research on adult learning process is no big influence of variables on what students already know. The tendency of students to build a network that receives the information described by the structure of knowledge. When we say that learning occurs when students handle incoming information, this means that students associate the incoming information with knowledge structure that serves as a veil or filter to the incoming information. Behold, the concept is similar to the structure of the knowledge paradigm. Without a paradigm, a person will experience a load that is too heavy and cannot pick and process the information that makes sense.

Analogous to this, students who received new information that is inconsistent with the structure of knowledge will have difficulty processing information and live it unless the student can change the structure of knowledge. In view of the "cognitive- mediational", is the responsibility of the teachers to enable students' cognitive processes in order to process the information it receives.

V. CONCLUSIONS

Total Quality Management (TQM) is a systematic approach, practical, and strategic in the operation of an organization which put the interests of the customer. This approach aims to improve and control the quality. So, TQM is a way of managing the institution based on the philosophy that improving the quality should be organized and carried out by all the elements of integrated early institution of continuous service to education as a civilizing process in accordance with and even exceed the needs of customers both present and that will come.

Higher Education needs to apply Total Quality Management with Quality Function Deployment in order to identify the things that need to be improved in order to improve quality of service and output to the community as a user outcomes student.

Improved quality is one of the prerequisites to enter the era of globalization that filled with competition. For the improvement of the quality of service is one way to improve the quality of education in order to survive in the global era. Direct improvement of the performance of an
educational institution will affect the increase in consumer satisfaction (internal or external customers).

The lecturers better implement the view of "cognitive-mediational" rather than the conventional view of "receptive-accrual". The opinion was expressed by considerations:

1. Cognitive models of learning helps the teachers about what should be done to encourage students to perform cognitive activities rather than just conveying information to students: this is important because it can help lecturers to focus on the variables that affect the learning process;

2. After can control these variables, so that students acquire the cognitive characteristics can be implemented through teaching.

If the data transformation begins simultaneously at the "peak" with the leadership to make changes to the system, and at the level of "basic" work with teachers to improve the quality of teaching by using modern learning theory, the improvement in higher education will be fast.

REFERENCES


