



## International Journal Of Engineering Sciences & Management Research

### A STUDY TO FIND OUT THE KEY PARAMETERS AFFECTING THE QUALITY OF EDUCATION IN A TECHNICAL INSTITUTE

**Dr. Devendra S. Verma\*, Latesh Kadu**

\* Department of Mechanical Engineering, IET DAVV, Indore, Madhya Pradesh, India  
Department of Mechanical Engineering, IET DAVV, Indore, Madhya Pradesh, India

**DOI:** 10.5281/zenodo.51148

**KEYWORDS:** Quality, Quality Function Deployment, Customers (Students) requirement, Technical parameters, Technical Institute.

#### ABSTRACT

Quality Function Deployment is one of the best management tools of TQM. QFD helps in come across the customer's needs and requirements before actually delivering the product or service to the customer. This paper is based on the review of various literatures, research papers and study in a technical institute. Having a basic part of QFD in education, the purpose of this paper is to identify the technical parameters towards the fulfillment of customer's (student) requirements obtained through the questionnaire in respect to improve the quality of education in a technical institute.

#### INTRODUCTION

In this competitive era, TQM become the integrated part of most of the firm delivering products or services. Now a day, Quality is the most important competitive factor throughout the world and this competition escalate the demand for the quality product and services. In this customer demanding market, every firm have to meet the quality aspects demanded by the customers. To achieve these quality aspects almost every business have adopted the various technique of total quality management such as Six sigma, JIT, Kaizen model, Kanban model etc, are the most general techniques of TQM.

Quality Function Deployment is one of the planning tool of TQM, which is introduced by any firm to meet the customer expectations. The phrase quality function deployment is the literal translation of Japanese Kanji words, "Hin Shitsu Ki No Ten Kai". The real meaning of phrase QFD is customer driven product development. According to the QFD principle, first of all identify the requirements/needs of the customers then develop the process and perform the activities accordingly to achieve these requirements. The American Supplier Institute Inc.[1] defined quality function deployment as a system for translating consumer's requirements into appropriate company requirement at every stage, from research through product design and development, to manufacture, distribution, installation and marketing sales and service.

The major benefit of QFD process is that it excites the proactive product development instead of reactive product development, which results in fewer and earlier design changes, decrease development time, fewer start-up problems, lower start-up cost, fewer field problem and more satisfied customer.

#### LITERATURE REVIEW

##### QUALITY

Quality can be defined as "the degree of excellence of something". The quality is defined by British Standards Institution, 1978 as "The totality of features and characteristic of a product or service that bear on its ability to satisfy stated or implicit needs". Crosby,[2], defined quality as "conformance to requirement", According to Feigenbaum, [3], "quality is value".

##### QUALITY IN EDUCATION

According to the Marshall, [4], "Quality in higher education is a complex concept that has eluded clear definition." Directly or indirectly, the quality in education affects many of its stakeholders such as students, teacher, employers, non-teaching staff, government etc. All the mentioned stakeholders have a different view of quality in education. Although, education sector is the base of development of any nation, it is lacking in applying the techniques to improve the quality of education.

The difficulty in the adoption of TQM seems to be due to certain structural and traditional characteristics of higher education institutions. There are also some special challenges that are not encountered in other



## International Journal Of Engineering Sciences & Management Research

organizations, Vikram Singh et al. [5]. According to Sahney et al. [6], the definition of TQM in Education is as follows:

“Total Quality Management in education is multi faceted. It includes within its ambit the quality of inputs in the form of students, faculty, support staff and infrastructure; the quality of processes in the form of learning and teaching activity; and quality of outputs in the form of the enlightened students that move out of the system”.

### CUSTOMER

As there are many stakeholders in an educational institute, it becomes somewhat difficult to recognize the true customer so that keeping view on which all the activities to be executed to meet their requirements. According to the Fox Valley Technical College “Students and employers both are customers, as students use our services and employers are ultimate consumers of our graduates” Spanbauer [7]. Oregon State University, considers its customer in this light “Our students are our purpose for existence” Coate [8]. Thus in General the customer of educational institute may be either student, employer or both.

### QFD IN HIGHER EDUCATION

Quality Function Deployment (QFD) can be defined as a method of transferring customer needs and requirements into technical specifications for new product and service development before actual production. The founder of QFD, Akao, defined QFD as “A method for developing design quality aimed at satisfying the consumer and then translating the consumer’s demand into design targets and major quality assurance points to be used throughout the production phase” Akao [9]. Application of QFD in education may prove to be beneficial to improve quality of higher education. Identifying Customer requirements, evaluating priorities of the requirements, identifying technical characteristics are the main steps in a QFD analysis, Vikram Singh et al [5]. Clayton [10] used QFD to provide productive quality learning. Jaraiedi and Ritz [11] applied QFD to improve advising and teaching processes at West Virginia University.

### METHODOLOGY

A step-by-step methodological development has to be done for the analysis as follows:

#### **I .Identification of customer’s (here the customer includes the students of the institution) requirements/needs.**

In our study, we consider students as the customer. The requirements/needs of the customers (students) are identified and determined through the various literatures, guidelines of AICTE and survey.

#### **II. Development of questionnaire.**

A questionnaire is developed on the basis of these requirements/needs and responses are collected from the customers.

The questionnaire consists of 5 Quality Dimensions as primary requirements as follows:

- i. Teaching and learning process;
- ii. Training and placements;
- iii. Responsiveness;
- iv. Infrastructure;
- v. Facilities.

These 5 requirements are further classified into 12 secondary requirements. The customers were asked that a particular requirement either “Not at all important, Moderately Important, Important or Very important” and the responses are collected in this way.

#### **III. Identification of appropriate technical requirements / academic design requirements in the institution.**

If the customer’s requirements/needs are “What’s” then the technical parameters to meet these needs serve as “How’s”. Technical parameters should be such that, these tend to meet the requirements as close as possible. In our study, we go through the various literatures, research papers, and guidelines provided by the education policy makers. These various literatures, clearly indicate that there are certain parameters which are utmost important to follow for achieving the various requirements/needs of the customers describe in the questionnaire.

The following are the technical parameters to meet the requirements/need:

- Flexibility;
- Faculty Development Program (FDP);
- Competent with IT;



## International Journal OF Engineering Sciences & Management Research

- Course Development ;
- Industrial Exposure;
- Campus Recruitment Training (CRT);
- Special GD and PI classes;
- Timely Feedback;
- Qualification;
- E-services.

### **IV. Determination of sample size**

### **V. Prioritize the customer's requirements.**

### **VI. Relating the customer's requirements/needs with technical parameters.**

### **VII. Identify the relationship among technical parameters.**

### **VIII. Prioritize the technical parameters.**

### **IX. Development of House of Quality (HOQ).**

### **X. Make decision.**

The first three steps are carried out in our study so far, the remaining steps will be done in next phase of the study.

## **CONCLUSION**

As education is the pillar of development of any nation, quality education is very important aspect. In this concern, this paper is an attempt to highlights the basic requirements of students in a technical institute and along with find out the technical parameters through which an institute can achieve the goal of quality education.

Having the collection of responses on the requirements/needs of the customers and technical parameters to achieve those needs, next step in the study is to implement these factors into the QFD to develop the House of Quality, so that we can point out the importance of each technical attribute in order to meet the requirements/needs for the quality education.

## **REFERENCES**

1. American Supplier Institute Inc., Quality Function Deployment, Executive Briefing, 1987 USA.
2. Crosby, P.B., 1979. Quality is Free, McGraw Hill, New York, NY
3. Feigenbaum, A.V., 1951. Quality Control: Principles Practice and Administration, McGraw Hill, New York, NY.
4. Marshall SJ., 1998. Professional development and quality in higher education institutions of the 21<sup>st</sup> century, Australian J Educ. 42(3): 321-334.
5. Vikram Singh et al. 2008. Evaluation of Quality in An Educational Institute: A Quality Function Deployment Approach, Educational Research and Review Vol. 3 (4), pp. 162-168, May 2008.
6. Sahney, S., D.K. Banwet and S. Karunes, 2002. Quality Function Deployment and Interpretive Structural Modelling for Development of a Total Quality Education Framework for a Developing Country, Proceedings of the 7<sup>th</sup> International Conference on ISO 9000 and TQM, (VII-ICIT), Centre for Management Quality Research (CMQR), Royal Melbourne Institute of Technology, Melbourne.
7. Spanbaure SJ 1987. Quality First in Education ...Why Not?, Fox Valley Technical College Foundation, Appleton WI.
8. Coate LE 1990. TQM at Oregon State University, J.Quality and Participation, 1990a (12): 90-101.
9. Akao, Y., ed. 1990. Quality Function Deployment, Productivity Press, Cambridge MA, Becker Associates Inc.



## International Journal OF Engineering Sciences & Management Research

10. Clayton, M. 1993. Treading the Quality Path : A progress report from Aston University, in pipe, D.W. (ED.), Quality Management in Universities, Australian Government Publishing Service, Canberra, 450-453.
11. Jaraiedi, M. and Ritz, D. 1994. Total Quality Management applied to Engineering Education, Quality Assurance in Education , 2(1), 32-40.
12. Anil R Sahu et al. 2008. Key Factors affecting the effectiveness of Technical Education- An Indian perspective, Proceedings of the World Congress on Engineering, Vol II, July 2-4, 2004 UK.
13. Glenn H Mazur [2008], Delighting Customers into QFD, VOC meets Voice of Process, 14th International Symposium at QFD Institute.
14. Jnanesh, N.A. and KusumakaraHebbar, C. 2008. Use of Quality Function Deployment Analysis in Curriculum Development of Engineering Education and Models for Curriculum Design and Delivery, Procceding of the World Congress on Engineering and Computer Science2008. October 22-24,2008, San Fancisco,USA.
15. Muhammad Imran Qureshi et al. 2012. Quality Function Deployment in Higher Education Institute of Pakistan, Middle-East Journal of Scientific Research 12(8): pp. 1111-1118, 2012.