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THE DEVELOPMENT OF MEASUREMENT INSTRUMENTS FOR TOTAL QUALITY MANAGEMENT PRACTICES IN HIGHER EDUCATION INSTITUTION

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Abstract - **Total Quality Management (TQM) is widely accepted as a management process in the industry to meet changing and competing in the marketplace as well as focusing on quality in the management of the production of goods and their services. Most researchers agreed that TQM practices in the industry can be adapted and practiced in educational institutions. They also believed that the principles of TQM practice can contribute to enhancing performance in higher education. This article aims to provide a framework or measurement instrument that emphasizes on continuous improvement for TQM practice measurement at higher education institutions. This instrument is based on a comprehensive theoretical and literary study of previous studies, particularly in the environment of TQM practice measurement in education. In addition, the TQM philosophy and comparative analysis of the use of TQM in industry and higher education provide theoretical and practical background for this article. TQM analysis in higher education is done by considering various critical factors such as existing educational practices and TQM practice barriers. Analysis also focuses on customer orientation, continuous improvement, and employee engagement at all levels. This paper proposes nine-dimensional measurement instruments that can be used as self-assessment in higher education institutions. These nine dimensions are the top management commitment; strategic planning; focus on customer satisfaction; data and information management; human resource management; system and management processes; campus facilities: teaching and learning delivery; and benchmarking.**

Keywords: *Quality Management, TQM, Higher Education, Measurement*

I. INTRODUCTION

Quality is on everyone's lips today as it can make the difference between success and failure in today's competitive world. Today, quality is more than product reliability; it means a comprehensive quality effort in which each individual and every organization participates. Quality is the key to surviving in most major businesses in the world and quality improvements have been recognized by many firms as strategies to compete. The urge for quality comes from two sources, that is, the ever-changing needs and expectations of customers, and the competitive forces.

Quality is a business process output. To achieve quality and compete in today's environment requires the concept and methodology of Total Quality Management (TQM) (Calvo-Mora, A., Leal, A., and Rolda´n, J. L. 2006: 99-122). As the business world becomes more competitive, quality becomes a must for every product or service marketed. Therefore, every company needs to focus their attention on the quality. Moreover, they should realize that this is the only way to put themselves in front of their competitors or at least to equip them with the ability to compete with others. They have to accept the fact that without their quality they cannot survive and definitely will be left behind.

Competitive economies, continuous cost reduction and quality improvements are important for organizations to stay in operation. Competitiveness is measured by 3 things: Quality, Price and Delivery. The theory behind quality costs suggests that, when the quality improves, the cost goes down by reducing the failure and cost of the assessment. Satisfying customers in terms of Quality and Price will benefit the market. The absence of quality problems also eliminates the need for "hidden operations" aimed at addressing failures and wastes, and the benefit of transmission performance from increased output and higher productivity.

We cannot avoid seeing how quality has evolved into the most important competitive weapons and many organizations have realized that TQM is a new way to manage the future. TQM is wider in its application than guaranteeing the quality of the product or service - it is a way of managing the entire business or organization to ensure customer satisfaction at every level, internally and externally (Sahney, S., Banwet, D.K., Karunes, S. 2008: 502-519).

Among the issues faced by previous researchers on the implementation of TQM in higher education are concerns about appraisal, accreditation, rating and ranking that receive remarkable attention from governments, planners and policy makers. This affects educational institutions and is forced to increase yields, become more efficient, effective and customer-oriented, in order to gain competitiveness (Sahney, S., Banwet, D.K., Karunes, S. 2008: 502-519).

This article aims to provide TQM practices measurement instruments which emphasize continuous improvements to quality measurement in higher education institutions. Based on theoretical study of the quality management dimension in this environment, this article reports on the literature review conducted from previous studies. TQM philosophy and comparative analysis of TQM usage in industry versus higher education provide theoretical and practical background for this work.

II. QUALITY AT GLANCE

A small group of American quality experts or gurus have advised industries around the world and how they

should manage quality. Most gurus seem to provide different solutions to management problems and quality control. In essence they speak the same "language" but they use different "dialect". Therefore, it may be useful to consider the approach, the similarities and the differences (TABLE I). The most prominent quality teachers are Crosby (Crosby, Philip B. 1987), Deming (Deming, W. E. 1991), and Juran (Juran J. M. 1982). One thing they have in common is that they realize that there are no shortcuts for quality, no quick fixes, and those improvements require full commitment and support from the superiors and the participation of all employees.

TABLE I. COMPARISON OF QUALITY GURUS

	Crosby	Deming	Juran
Definition of quality	Conformance to requirement	A predictable degree of uniformity and dependability at low cost and suited to the market	Fitness for use
Degree of senior management responsibility	Responsible for quality	Responsible for 94% of quality problems	Less than 20% of quality problems are due to workers
Performance standard/ motivation	Zero defects	Quality has many 'scales'; use statistics to measure performance in all areas; critical of zero defects	Avoid campaign to 'do perfect work'
General approach	Prevention, not inspection	Reduce variability by continuous improvement, cease mass inspection	General management approach to quality especially 'human elements'
Structure	14 steps to quality improvement	14 points for management	10 steps to quality improvement
Statistical Process Control (SPC)	Reject statistically acceptable level of quality	Statistically method of quality control must be used	Recommends SPC but warns that it can lead to 'tool-driven' approach

Based on the above discussion, the definition of quality can be classified into five main groups (Lagrosen, S., Seyyed-Hashemi, R. and Leitner, M. 2004: 61-69):

(1) Transcendent definitions. These definitions are subjective and personal. They are eternal but go beyond measurement and logical description. They are related to concepts such as beauty and love.

(2) Product-based definitions. Quality is seen as a measurable variable. The bases for measurement are objective attributes of the product.

(3) User-based definitions. Quality is a means for customer satisfaction. This makes these definitions individual and partly subjective.

(4) Manufacturing-based definitions. Quality is seen as conformance to requirements and specifications.

(5) Value-based definitions. These definitions define quality in relation to costs. Quality is seen as providing good value for costs.

III. TQM IN BRIEF

There are several definitions of TQM. Among them, TQM as a management process and a set of disciplined coordinates to ensure that the organization consistently meets and exceeds the needs of the customers. TQM involves all divisions, departments and organizational levels. Superior management arranges all its strategies and operations around customer needs and develops a culture of high employee involvement. TQM is also illustrated in two main views - continuous improvement as well as tools and techniques / methods used (Venkatraman, S. 2007: 92-112). In general, TQM covers management and business philosophies and the focus is shifting based on the scenario in which TQM is used. Whether in industry or higher education, TQM's philosophy is about customers.

IV. TQM IN HIGHER EDUCATION

The level of TQM awareness has increased rapidly over the last few years. There are many discussions about TQM subjects in education and are considered today's main issues for research and analysis. Some studies are underway with the aim of understanding, evaluating and measuring quality in education. While TQM has a grass roots set up in the industry, there is a strong impression to adapt TQM in educational organizations. Many researchers feel that the principle of TQM is sure to contribute to higher education improvement, especially towards curriculum reform.

Additionally, literature reviews on TQM's experience at universities and higher education institutions also show a strong positive relationship between the implementation of TQM practice and organizational performance, and student achievement. It can also be implemented in higher education to enhance student potential and curriculum reforms.

Most previous studies relate to administrative and administrative duties, followed by teaching and learning.

There are three main focus areas in determining TQM in higher education; (1) customer satisfaction - see quality as an internal process transformation; (2) process orientation; and (3) continuous improvement.

V. INSTRUMENTS COMPARISON

Previous studies have shown that quality management practices in manufacturing, services and higher education used quality measurement instruments. These instruments are derived from key factors for the successful implementation of quality management. These factors have been provided by the contributions of quality leaders, formal assessment models and measurement studies (Abdullah, M.M., Jegak Uli and Tarı, J. J. 2008: 436-452).

Based on the previous studies, the most widely used practices in quality management are as follows: top management leadership; strategic planning; customer

focus; measurement, analysis and knowledge management; employee engagement; management of people; education and training; human resource Management; process management; supplier management; impact on society; and decisions / business decisions. Based on the comparison also shows that although the industry and education differ from the perspective of the business process, some results are the same. Generally there is no difference in the general dimensions of TQM practice in manufacturing, services and higher education, which are basically used and customary dimensions made in accordance with specific industries or organizations.

VI. THE DEVELOPMENT OF MEASUREMENT INSTRUMENTS FOR TQM PRACTICES IN HIGHER EDUCATION

Among researchers, there is a consensus that TQM is a way of managing an organization to improve its effectiveness and overall performance. There is less consensus on the main dimensions of TQM, or whether the overall concept of TQM. No TQM uniform view exists today. To date, TQM has given different meanings to different people (Zhang, Z., Waszink, A., & Wijngaard, J. 2000: 730-755).

TQM in education is discussed in different literature from authors to other authors, although there are general themes formed as follows: leadership; basic and strategy; customer focus; measurement, analysis & knowledge management; management of people; and system processes and management. Through the literature review, conceptual, empirical and prescriptive practitioners, we have identified nine of the following TQM practices: The nine dimensions are (1) top management commitment; (2) strategic planning; (3) customer satisfaction focus; (4) data and information management; (5) human resource management; (6) system and processes management; (7) campus facilities: (8) teaching and learning delivery; and (9) benchmarking.

The role of the nine core elements of TQM practice measurement instruments in higher education institutions is described as follows: **Top Management Commitment** - In this category, leadership elements should examine the leadership and involvement of top management in establishing and maintaining customer focus, setting and delivering insights, values, goals a clear, high expectation and a leadership system that will promote excellence in performance. It should also examine internal systems and leadership policies that will affect staff and students and public responsibilities, creating partnerships with industry, parents, and the general public. Improvements in leadership effectiveness can be achieved through participant management styles that include input from a comprehensive 360-degree feedback system from internal and external stakeholders.

Strategic Planning - This category emphasizes that the sustainability of long-term tertiary education institutions and competitive environments is a key strategic issue that should be an integral part of the overall planning of higher education institutions. This category identifies how the institution sets strategic direction and develops strategic objectives to guide and strengthen the performance of all institutions. This category also identifies how the institution transforms strategic goals into action plans and how the institution transports a whole set of strategic objectives and action plans at all levels of the institution.

Customer Satisfaction Focus - This category needs to identify how the institution determines the needs, requirements, expectations and priorities of students, stakeholders and market focus. This includes specifying different performance measurements and how the targets can be achieved. Some achievement steps can be made based on student satisfaction surveys, student forums and dialogue sessions, industry needs and satisfaction surveys and evaluation of teaching and learning effectiveness. This category also identifies how institutions of higher learning build relationships with students and stakeholders and determine the key factors that attract students and bring to the satisfaction of students and stakeholders.

Data and Information Management - In this category, data management elements and information should identify the management and the effectiveness of data usage and information to support overall mission-related performance excellence. It should ensure the reliability and access of essential information required for day-to-day operations management. It will also focus on making analysis of facts and information and respond to the situation quickly and effectively. This category also needs to identify the management and effectiveness of knowledge management and all information on basic performance and comparative information, as well as how such information is analyzed and used to optimize the performance of the institution.

Human Resource Management - This category is also known as education and training, which focuses on human resource practices. This category is one of the most important factors for successful TQM implementation. Employees should be regarded as valuable resources, eligible to receive education and training throughout their careers. All management, supervisory, and employee staff should receive quality education and training such as quality awareness education and quality management education. This category needs to identify how staff and training developments are in line with the objectives of the institution. It will also identify efforts to build and maintain a conducive climate for achievement of excellence, comprehensive participation and organizational growth. Some of the strategic thrusts of this element are manpower development such as employee recruitment, training and career development, staff performance and quality recognition and work environment.

System and Process Management - This category needs to identify the key aspects of process management, including student education design, education delivery, service and business operations. It should examine how the main process is designed innovatively, effectively managed and constantly improved. Performance results of this element will identify the performance and improvement of students by using the key steps and indicators. This category also identifies the process of organizational support and operational planning regarding financial management and planning for continuity of operations, with the aim of improving overall operational performance.

Campus Facilities - Facilities are something that is provided to complement the convenience, convenience and convenience of the user / student. This element sees the provision of campus infrastructure, as well as teaching and learning facilities. An educational institution will be equipped with a number of facilities such as library, lecture room, cafeteria, student hostel and others. Similarly, campus services are the infrastructure provided by the university to provide convenience and comfort to university students and staff. This category identifies the facilities and services provided and offered by the institution to internal or external customers.

Teaching and Learning Delivery - Teaching is a task and activity performed on a joint effort by lecturers and students. Learning is an interaction process between lecturers and students so that the process of mastering knowledge and knowledge can take effect. Delivery of teaching and learning is the activity of communicating information between lecturers and students undertaken in somewhere. This category identifies teaching and learning delivery systems conducted within an institution. The diversity of delivaries will benefit the institution, coupled with the technology era that is becoming a new intermediary.

Benchmarking - The rapid change in market environment needs to respond appropriately. In this case, the institution should compare its services and practices against business partners to improve performance through benchmarking. To meet customer needs on an ongoing basis, higher education institutions need to benchmark their services and processes by analysing their leading competitors in the same industry or other industries that use the same process.

VII. CONCLUSION

This article suggests that higher education institutions use this instrument for self-assessment to measure the performance of each institution / department. This instrument can be clearly defined and complete to examine the performance of each institution. The end result proves a competitive environment amongst the institutions, promoting each institution to develop a unique market niche, and improve operational efficiencies. The best performance measurement system can effectively link institutional perspectives and strategies, integrating different operational targets and institutional functions combined with the faculty's performance.

Each institution can use it to develop objectives and strategies that transmit operational phrases as the core source of the institution to meet the daily tasks of each member, focusing on its vision and mission of education, using a key findings strategy and promoting quality of service as high quality of service can meet customer needs and overcome customer expectations.

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