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A Framework for Implementing ISO 9000 and Total Quality Culture in Higher Education

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Abstract— This paper presents a framework for implementing ISO 9000 total quality culture for Higher Education Institutions (HEIs). The understanding and practices level, as well as the relationship with organizational performance also presented. The preliminary data were collected through questionnaire approach, and respondent selection is based on simple random sampling methodology. A total of 73 (87.6%) valid data were analyzed. The result indicate 20% of the respondents do not understand or unsure about ISO 9000. From descriptive analysis and correlation coefficient testing, the study found the average level of understanding and practice levels is moderate. The coefficient correlation (r) indicates a strong relationship between the level of understanding and the level of practice for ISO 9000with r = .804, n = 73 (p<.001). The study also disclosed that it is a significant correlation exists between the level of understanding QMS ISO 9000 and the level of practice, the value of r = 0.789 (p<0.001). Finally, the study shows strong significant relationships between the level of understanding and practice of the achievement performance of UUM on the value of r =.796, (p <.001). As a conclusion the awareness training is an essential to ensure the effectiveness of ISO 9000 Quality Management System(QMS) and total quality culture implementation.
Index Terms—ISO 9000 Framework, Total Quality Culture, Organizational Performance, Quality Culture.

I. INTRODUCTION

ISO is an international standard for quality management systems (QMS). It stands for International Organization for Standardization. ISO 9000 is a requirement for a quality management system, and a part of ISO family [1]. ISO 9000 calls for a dynamic, skilled, knowledge and commitment all staff. Today's quality experts advocate ISO 9000 is a good management practice [2]. World class quality has become became an organization dream. Establishing ISO 9000 QMS may be considered as important approach to achieve or exceed customer satisfaction because it implies changes to an existing total quality culture and practices. Such of the benefits gained from ISO 9000 adoption in education are offer the tools for continuous development of main processes of the university,) offer tools for goal-setting and to monitor the fulfilment of the strategy, disseminate good practice through quality manuals, audits and management reviews, help train the staff in new tasks and functions and help the new faculties and departments to organize and to decide on their new practices. Considering the huge benefits of ISO 9000 adoption, almost all of the Public Higher Education in Malaysia had been certified by ISO 9000 QMS.

Regardless of the nature of business, an effective implementing and managing ISO 9000 quality management system is consistently and cohesively focus on total quality culture. Total quality culture approach focuses on long-term profits and continual improvement [3]. Further they elaborate eight total quality perspective: productivity gains are made only as a result of quality improvements; quality means satisfying customer needs and exceeding their expectations; quality is measured by establishing high-performance benchmarks for customer satisfaction and then continually improving performance; quality is determined by product and process design and achieved by effective control techniques; defects are to be prevented using effective control systems and should be measured; quality should be fully integrated throughout the organization; at least 85%

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of quality problems are management's fault and supplier relationships are long term and quality oriented.

A major problem that organization did not achieved their objective is lack of total quality culture. [4] stated that culture plays an important role in managing effecting behavior at work. [5] defined culture as a system of shared values which produce normative pressures on members of the organization. The participation of staff is one of the key principles in developing a quality culture. In addition, ISO 9000 not only goes beyond the traditional meaning of the quality of product or service, but also another dimension of the culture movement. Quality culture and ISO 9000 are closely related in order to reach perfection and quality. Quality culture must be embraced inclusively with ISO 9000. Therefore, the most important aspect of an ISO 9000 QMS implementation is quality culture.

II. ISSUE

It is very common to lose focus of the things that actually add value to the total quality culture toward achieving an excellence business performance. Therefore it is necessary to develop a framework to map those processes and drivers with an integrated in quality management system (QMS). There is strong evidence to agree that organizations that have a well-structured and developed ISO 9000 quality management system outperform their competitors. This will be one of the most important objectives for the company to becoming a world-class organization. The use of a QMS is fundamental to support business performance, and at the end provide many benefits for business performance. Besides there is a great challenge for organizations to effectively translate an ISO 9000 QMS into improvement actions and real benefits. However, there is no study to give intension to integrate ISO 9000 and total quality culture toward better organization performance. To date, there has been no research conducted to integrate TQC with ISO 9000 QMS as integrate quality system. Therefore, this study proposed a framework with the combination of ISO 9000 QMS and total quality culture.

III. LITERATURE REVIEW

Higher Education (HE) has an important role both for student and also for the society, where it represents an aid for the growth and the development of the students and a key for a better life [6]. He added that in HE quality is a multi-dimensional, multi-level, and dynamic concept that relates to the contextual settings of an educational model to the institutional mission and objectives as well as to a specific standard. In general, according

to by [7] quality is a dynamic and ever-changing state associated with product, service, processes, people, and environment that meets or exceeds customer expectations. Meanwhile, [8] positioned that quality is an emerging concept and it notion is conformance to what customer want with visible to specification limits. Quality guru, [9] defined quality into two difference concepts: (i) quality is same as customer satisfaction; and (ii) quality goes beyond product quality, where it is also include the quality of people, processes, and every other aspect of the organization.

With all this disagreement about the definition of quality, how would we define quality? As such, in HEI, an example of the quality of research may be attributed to how many people can benefit from the research conducted. It shows a man creating value on quality. Most executives agreed that the value of a person is the sum of the values he or she applies and practices, and on the other hand the value of an organization is the sum of the all the values thought, taught and practiced therein [10]. Therefore, quality is employees intellectually challenging to understand and highly significant for management practices. Referring to [11], some of the key dimensions of quality in HE include excellence, value, consistency, and meeting needs and expectations. For [12], quality in education not only ministerial accreditation of the programmes, but also requires a culture of quality and Quality Assurance and Quality Improvement systems applied to each individual education programmes. According to [13] and [14], all quality assurance processes within an HEI as a quality culture. The integrated quality culture will achieve the strong relationship between staff and management involvement [15] .

Along with this, it emphasizes the fact that managers or the management achieve organizational objectives by arranging and organizing these components accordingly in performing their daily tasks. However, one of the greatest obstacles faced by organizations attempting to implement total quality is the cultural barrier [16]. Similarly, [17] defend that, among the essential elements in knowing where an organization stands on quality is the quality culture. The nutshell nurturing of quality culture is education. Thus, quality culture interacts with the concept of academic identity [18]. Quality culture is the values that guide organization on how improvements are made to everyday working practices and the consequent outputs [19]. The efficacy of QMS implementation is the buy in the quality culture in the organization.

Quality culture must be considered as a major contribution for total quality in the context of organization excellence. Given their sensitivity to total quality, [20] in his book summarized that one of the common the total quality principles is culture. [21], reported that "establishment of an organization-wide quality culture will accompanied by high levels of organizational commitment". In line with this, [22] stressed that "it is necessary that the culture of the organization be changed, responsibility assumed by the management of the business and there is integration in the process of the betterment of the culture". In addition the higher education institutions quality culture must be integrated between organizational culture and national culture [23]. Consequently, the institutional and programs evaluation are becoming compulsory tools to measure the quality assurance, the most quality culture is enhancing. In UUM, this complexity appears to derive from both the relationships established between academics, students and the management staff and external regulation defined by the state and other organizations such as quality assurance agencies as stated by [24].

One of the things that organizations need to consider total quality culture in HEI is to become a reality with a proper framework and constructs. Most importantly, internationalization in HE has resulted in a growing demand for accountability and transparency which has turn led to a need to develop a quality culture [25]. However, the majority of research conducted on the quality of HE focuses on the individual level that is on the student experience, specifically student learning and engagement [26]. Furthermore, organization should embrace a quality management culture as a way of doing business [27]. In addition, according to Harvey [28] there is no one quality assurance framework can address all aspects of quality, so choices one made about what kinds of quality are assessed. Meanwhile, [29] the application of QA processes in HE are discussed in the literature, yet skeptism prevails on the effectiveness of any one QA model. Therefore, this paper will come to the solution in reality to propose the total quality culture framework in HEI as a quality assurance approach. A framework would provide consistent assessment of learning design, context and pedagogy.

IV. OBJECTIVES

The purpose of this paper is to present a framework of ISO 9000 total quality culture practices in higher education. It is based on the process approach concept. Four specific objectives have been defined (a) the magnitude and direction relationship between level of understanding and organizational performance, and level of practicing and organizational performance, (b) the magnitude and direction of the relationship between ISO 9000 understanding and performance (c) the level of practices and performance effectiveness, and what magnitude and direction of the relationship.

V. METHODOLOGY

This study applied quantitative research approach. In specific the descriptive survey had been applied to obtain information concerning the current status of the phenomena to describe "what exists" with respect to understanding and effectiveness or conditions in a situation. A Likert Scale questionnaire was used to assess the level of understanding and implementation of ISO 9000 QMS, as well as how to measure organizational performance as a result of adopting the quality management standard. The target populations are all the administrative officers at the Northern University of Malaysia. The descriptive data includes describing the results through means, standard deviations, and range of scores.

VI. RESULT

The data was reviewed for completeness, coded and tabulated before proceed with further analysis. Descriptive statistics were used to measure, investigate the data distribution and the mean location of variables through Statistical Package for The Social Sciences (SPSS). Out of the total 120 respondents selected 73 useable responses were obtained with the rest declining or not providing a response in time as well as cases of incomplete responses. This represents an 87.6% response rate which was considered enough to provide a valid inference regarding the adoption of ISO 9000 in UUM. Respondents indicated the relative, either understanding of each choice item on a 5-point Likert scale ranging from extremely low to extremely high. For the discussion of the level of understanding or practice, reference will be made to mean values and the corresponding level of understanding (1=extremely low, 2=low, 3=neutral, 4=high and 5=extremely high). The mean, standard deviation and number of responses for each item for understanding are displayed in the table below. The study found that the overall score for the understanding of MS ISO 9000among administrative staff is 3.54 with the highest score is 3.81 and the lowest score is 2.95. The lowest score happened to 'The main clauses of MS ISO 9000:2000 (clause 1 to 7). Meanwhile, the majority of the respondents (n=73) said that they had practiced MS ISO 9000:2000 in their department approximately to the high level, with the overall score above than 3.50. The finding

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indicates that the level of practices is adequately high; between 3.51 to 3.68.

Research Objective 1: The relationship between the level of understanding ISO 9000 practices.

Correlation analysis used to measure the relationship between the level of understanding and ISO practices. Referring to Table 1, coefficient correlation or Pearson Correlation (r) has shown there is a linear relationship between the level of understanding with the level of practice for ISO 9000:2008, such that as the level of understanding increases, so does the level of practices. The correlation is positive and statistically significant strong (r =. 804), n = 73, p <. 001).

Table 1: Relationship between level of understanding and ISO 9000 practices

		LoU	ISO 9000 Practices
LoU	Corr.	1	.804**
	Sig. (2-Tailed)		.000
	N	73	73
ISO 9000 Practices	Corr.	.804**	1
	Sig. (2-Tailed)	.000	
	N	73	73

**. Sig. at the 0.01
LoU=Level of Understanding; PE= Performance Effectiveness

Research Objective 2: The relationship between the level of understanding and organizational performance.

Table 2 displays test result of Pearson Correlation analysis. The linear relationship found r = 0.789 with the value 0.001 p <. Information such as the table 2 shows significant correlation exists between the total level of understanding ISO 9000with department performance.

Table 2: Relationship between level of ISO 9000 understanding and organizational performance

		LoU	PE
LoU	Corr.	1	.789**
	Sig. (2-Tailed)		.000
	N	73	73
OP	Corr.	.789**	1
	Sig. (2-Tailed)	.000	
	N	73	73

**. Sig. at the 0.01
LoU=Level of Understanding; PE= Organizational Performance

Research Objective 3: The relationship between the level of practices and organizational performance.

Table 3: Relationship between level of ISO 9000 practices and organizational performance

		ISO 9000 Practices	OP
ISO 9000 Practices	Corr. Sig. (2-Tailed)	1	.796** .000
	N	73	73
OP	Corr. Sig. (2-Tailed)	.796** .000	1
	N	73	73

**. Sig. at the 0.01
OP= Organizational Performance

Table 3 shows there is a strong positive relationship between the level of ISO 9000 practices and organizational performance. The coefficient correlation (r) shown the level of practice for ISO 9000and the organizational performance is very strong (r =. 796), n = 73, p <. 001)

Research Objective 4: Propose TQC Framework

Based on the unity of purpose (employees work together toward the common goal) and ISO 9000 Requirements, the organization work as integrated system to achieved intended goals. Organization should prepare the strategic plan with the scientific approach and able to reach the desired maturity level in a realistic timeframe (long term commitment). Then, it is compulsory the all employees are working in a team and trained. This will support them to disseminate the vision, mission, values and way of working together. It is also essential to get everyone involved and give them a power. The model emphasis in which employee shall receive education and training. The model also need to conduct an assessment to measure organization performance. After assessment, organization should take a responsibility to continuously improve the total quality culture based on input-process-output. ISO 9000 QMS is a complex system consisting of comprehensive components dealing with the quality of processes and products.

Performance goals are used to quantify the intended results that will obtained if the organization implement ISO 9000 QMs and the driver of TQC.
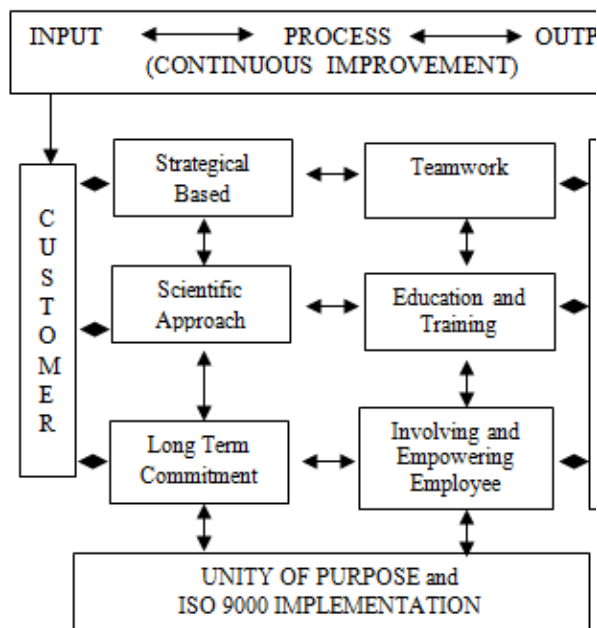
Figure 1(Propose):
Higher Education Total Quality Framework

VII.   CONCLUSION

The Total Quality Culture (TQC) is not top management's or CEO's Total Quality Culture. TQC is a process and management of interaction and integration among the system and employees of different departments. A core process is driven by customer and aided by internal processes. These processes have effects on the organization performance. Unity of purpose and ISO 9000 implementation become the other supported driver. Meanwhile to find the balance between the core process and supported drive, continuous improvement must be the permanent organization works and it is never ending activity. Top management developed the overall quality culture, but it's up to each employee to do their part. Top management cannot execute Total Quality Culture by itself; it requires the total involvement of employees in the organization including administrative staff.

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