

IMPLEMENTING QUALITY MANAGEMENT PRACTICES IN HIGHER EDUCATION INSTITUTIONS – THE CASE OF TECHNOLOGICAL UNIVERSITY (HMAWBI)

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Abstract: Quality Management System (QMS) has taken an integral part in Higher Education Institutions (HEIs) in Myanmar so some institutions have started developing the QMS for recent years to do the quality practices with the harmonization of the professional standards and guidelines. Initially, several attempts/practices have been made to develop methods that would be modelled on ISO 9001 and certified but some of these models were developed to evaluate a business process in the quality field. Education is now looking for a management concept that would direct the collective efforts of all employers (staff) toward satisfying customer (students) expectations by continually improving activities. When designing a QMS, there are many factors to be considered such as how to build the structures, how to set the roles and conceptualise the implementation processes. Moreover, institutions have a strong consideration and incorporation of their own context (internal and external quality assurance), traditions, culture and limitations when setting up QMS, implementing the quality management practices and changing their structures. The research aimed at achieving these objectives: a) To determine the extent to which Quality Management was applied in the Technological University (Hmawbi), and b) To interpret the effectiveness of Quality Management practices applied in Technological University (Hmawbi). In addition, every model or structure has its own strengths and weaknesses so it is important to keep in mind that PDCA cycle should be applied for continual quality improvement (CQI) for QMS.

Key words: Quality Management System (QMS), quality management practices, Higher Education Institutions (HEIs), standards, guidelines, internal and external QA, PDCA, CQI

1. INTRODUCTION

In the last decades, there were several factors that have contributed to raising public concern over higher education institutions' quality, leading to the emergence of quality measurement and devices such as performance indicators, accreditation, programme and institutional assessment and quality audits. Therefore, it is important for higher education institutions to harmonize with the national/regional education systems and standards, but this cannot take place smoothly without implementing the effective quality management and appropriate quality management practices in the institutions of higher education. Every institution needs to have in mind a plan on how to organise and divide the work processes in order to run them smoothly, fulfil its own duties and reach the set goals. In this paper, how quality management (QM) is defined is discussed first, then how to design the QMS including the general considerations for structuring

quality management (QM), roles and responsibilities in the QMS are also discussed.

Moreover, the linkage between internal quality assurance (IQA) and external quality assurance (EQA) is mentioned. In developing the IQA of an institution, the basic statutory National Accreditation Standards must be met. National Accreditation and Quality Assurance Committee (NAQAC) has newly been established since 2017, and has done draft national standards and criteria for all higher institutions in Myanmar needed to follow the guidelines and standards of NAQAC for institutional accreditation. Moreover, as Technological University (Hmawbi) nurtures engineering students, it needs to follow the Engineering Education Accreditation Committee (EEAC) guidelines and standards for programme accreditation in order to be recognized regionally or globally. Criteria and guidelines for programme accreditation of EEAC are referred to Federation of Engineering Institutions of Asia and Pacific (FEIAP). Finally, findings based on the

questionnaires are presented, after that the consideration of PDCA cycle for the improvement of quality management system in the case of Technological University (Hmawbi) is also discussed and recommendation on how and what area of QA should be done more are presented.

2. Background History of Technological University (Hmawbi)

Department of Technical and Vocational Education under Ministry of Education asked for permission to establish another Technical High School in Yangon Division in June, 1985. It was granted to set up with 3 officers and 91 staff (altogether 94 service personnel).

In October 1989, Technical High School (Hmawbi) was first opened in the era of State Peace and Development Council. It was upgraded into Government Technical Institute in 1998 in order to nurture more Middle-run technicians for the Nation. In January 2001, it was upgraded again to Government Technological College to nurture technicians and engineers. On 20th January 2007 it was upgraded to Technological University (Hmawbi).

At present, it is offering seven Engineering Programmes: Civil Engineering, Electronic Engineering, Electrical Power Engineering, Mechanical Engineering, Mechatronic Engineering, Computer Engineering and Information Technology (CEIT) and Architecture.

In order to achieve the quality standard of teaching and learning, and research and development (R&D), Technological University (Hmawbi) is linked not only with other technological universities in Myanmar but also has signed MOUs with some universities in ASEAN region. Teaching syllabuses for each engineering and academic subjects are made up to meet the requirement of international standards.

Technological University (Hmawbi) is located in Hmawbi Township, Yangon Division, the Republic of the Union of Myanmar. It has a wide campus, about 32 hectares (78 acres). Under the Department of Higher Education, Ministry of Education, Technological University (Hmawbi) offers bachelor's degree programmes in Engineering and Architecture.

Quality Management System office has been set up since 2014 and Quality Management Representative has been appointed. Quality Management System of Technological University

(Hmawbi) has been audited and certified by Bureau Veritas Certification Body in Thailand and got ISO 9001:2008 Certificate since August 2015 for the quality management of teaching-learning process. Moreover, Technological University (Hmawbi) has also set up Internal Quality Assurance (IQA) system since then and Rector is mainly in charge of coordinating QA matters and she also formed a QA team. The assigned staff in IQA team are fulltime staff in this university but some take lectures in their respective departments.

In addition, Technological University (Hmawbi) is also an ISO 9001:2015 certified higher education institution and has adopted the AUN-QA guidelines and criteria and Engineering Education Accreditation Committee (EEAC) guidelines and standards as its quality framework. The university has participated in the ASEAN-QA Project Phase III (TrainIQA 2016-2018) supported by DAAD, DIES, HRK and AUN-QA and AUN-ADB training workshops since 2009.

3. LITERATURE REVIEW

3.1 The Concept of Quality Management

The word "quality" was derived from the Latin word *qualis*, meaning, "what kind of". With a wider variety of meanings and connotations attached to it, quality is a difficult and elusive term to define, having thus been referred to as a "slippery concept" (Pfeffer and Coote, 1991). It is called slippery because it has a wider variety of meanings. It has been defined with different perspectives and orientations, according to the person, the measures applied and the context within which it is considered. From the perspective of the consumers or users, the product or service-based definition is more useful. From the perspective of the organization providing goods/services, the process-perspective is more useful. The different terms like strategic quality management, total quality improvement, and total quality leadership are actually examples showing the different emphasis placed on particular aspects of what is generally called quality management (Sangeeta and Banwe, 2004).

Concerning with the continuous quality improvement, it can be noted the importance of processes and the necessity for a never-ending improvement strategy using the plan-do-check-act (PDCA) cycle. Harris (1992) defined the stages in a PDCA cycle developed for course improvement as designing QMS to actually meet students' needs (plan), implementing QMS (do), assessing whether QMS is effective on teaching & learning process

and management process (check), and modifying according to assessment findings (act).

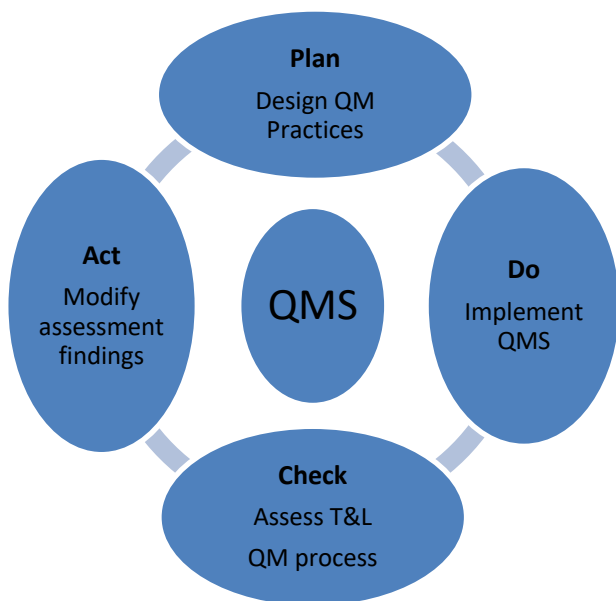


Figure 1. PDCA Cycle for implementing QMS

3.2 Implementing the Quality Management System (QMS)

The following need to be considered when it comes to design and implement QMS in higher education institutions.

1. Define Organizational Mission, Values, and Priorities

The starting point for quality management system is to get clear on the goals of the institutions and the path to meet those goals. This includes setting priorities and timelines for progress and mapping out the critical processes. It is critical for the institutions to be honest about its priorities. Frequently they fall into the trap of saying what sounds good, but has no commitment to that value with actual management attention or resources.

2. Map the Major Processes

Most QMS programmes are process based systems. This requires understanding how operational activities fit together to achieve the desired outcomes. Start by mapping out the major, overarching processes (for example teaching-learning, purchasing, production, and design) with their inputs, activities, and outputs. Once major processes are defined, map the primary sub-processes that comprise the overarching organizational processes.

Creating a useful, formal description of how the institution works is a firm requirement for

QMS. Critical processes should be documented in the quality manual, in procedures, or other QM documentation.

3. Define Roles and Responsibilities in the Quality Management System

Now that processes are defined, as well as the desired outcomes, people in the institution have to take responsibility for ensuring the desired results actually happen. Top managements are given the responsibility for their processes. They create objectives that align with the institutional goals, policies and priorities, and put in the place the needed resources like staff, equipment, knowledge, and budget.

It needs to make sure that staff have the needed skills, education, or training necessary to properly execute their roles. Where there are gaps, take steps to close them with continuing education and training. A commitment to on-going training is critical to organizations that want to improve.

4. Regularly Review and Improve the System

After the institution has an overall direction, defined processes, and responsible process owners, the next step is to analyse how QMS is working and also analyse if the process objectives are being achieved. The institution is reaching, or at least moving toward its goal. If not, the top management and QMS team need to consider what needs to change to get the targeted outcomes. In this process, a reflective evaluation is required, and then concrete steps are taken to improve. If objectives are always easily reached, or seem unreachable, then a review of the objectives is needed for continual quality improvement (CQI).

3.3 The Linkage between IQA and EQA

Quality assurance can be used to describe all activities and mechanisms related to quality, both at the system level (external quality assurance) and at the level of teaching and learning in higher education institutions (internal quality assurance). Therefore, Internal quality assurance (IQA) refers to internal processes that an institution has developed in order to monitor and improve the quality of its students' learning experience and make sure to have achievement of established goals, objectives and standards, whereas external quality assurance (EQA) brings in a third party, to review the learning experience offered by an institution or a study programme and achievement of established goals, objectives and standards. Moreover, IQA must be a continuous,

on-going process whereas EQA can usually be conducted only at intervals, perhaps several years apart. Hence, external QA alone cannot lead to sustained improvements in the quality of the learning experiences offered by any institution, but can help in assessing the credibility of the results of internal evaluation. So, it can be said that IQA and EQA are two sides of the same coin. Without IQA, there is no sustainable quality enhancement in higher education institutions (HEIs).

QUALITY ASSURANCE (system)

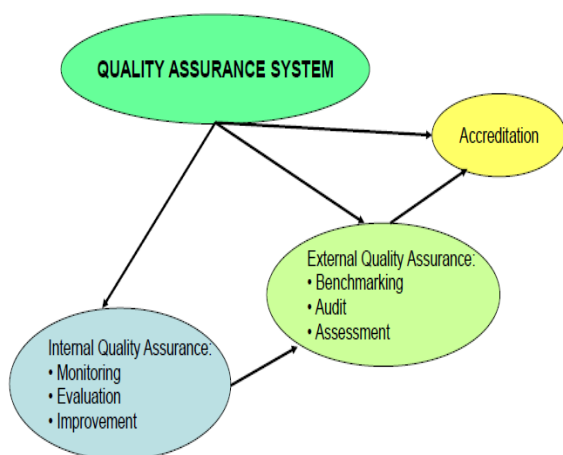


Figure 2. Linkage between IQA and EQA

3.4. QUALITY MANAGEMENT PRACTICES

Technological University (Hmawbi) was awarded the ISO 9001:2008 certification in 2015 and applied for recertification of 9001:2015 in July 2018. It investigated and documented the most critical quality management practices such as: conducting continuous trainings; managing changes in procedures; conducting internal auditing, conducting management review meeting (MRM); checking student enrolment; analyzing overall pass rate; collecting and analyzing staff and student satisfaction and so on.

Conducting continuous trainings: Whenever there were any changes in the departmental procedures, the heads of departments have the responsibility for conducting continuous training for their staff. This was to ensure that the staffs were continuously informed of the current status of the procedures.

Managing Changes in procedures: The document control manager was responsible for handling document amendments. A proper amendment

system was created following the documented procedure on document preparation and amendment. Any changes were initiated by filling in a change request form, which recorded the changes made.

Conducting internal audit: Audit team and quality management representative have the responsibility for planning the audit schedule and conducting audit as scheduled. They have to decide whether the records and documents that all departments use have the conformity of standards and guidelines.

Conducting management review meeting (MRM): Whenever the internal audit has been completed that has been at least once a year, the management review meeting was conducted. The purpose of the meeting was to review the quality management system to ensure its continuing application; effectiveness and implementation were in line with the needs of the organization. Prior to the external audit, the audit team is responsible for conducting an independent audit within their own departments to ensure that all quality records were updated, finalized and properly filed and the quality records were properly controlled.

Checking overall pass rate: A review of the records relating to the overall pass rate at the university reveals that a progressive trend is in evidence.

Collecting and analyzing staff and student satisfaction: A survey was conducted to collect information on the level of the teaching staff and student satisfaction. A survey conducted in the second semester of every year. The responsible authorities gather information and data, analyse them and report them to the top management.

4. METHODOLOGY

The research methodology was based on the case study. An open ended and closed ended questionnaire was used to collect data, the questionnaire was prepared which were answered by the Heads of Departments, teaching staff and non-teaching staff respectively. A random sampling method was used to obtain a sample from the population of forty-five (45) out of nearly 250. The collected data has been analyzed in line with the aims of the study namely, to determine the extent to which Quality Management System was designed and applied in the Technological University (Hmawbi) and to interpret the quality management practices used in the Technological University (Hmawbi).

4.1. Data Analysis, Findings and Discussion

The collected data has been analyzed and interpreted in line with the aims of the study. The respondents were: head of the administrative department, head of the student affairs department, registrars, the departmental heads and teaching staff from engineering and academic department. Forty-five (45) out of nearly 250 members of the respondents were sampled and the questionnaires were administered.

All the respondents were asked to indicate the extent to which Quality Management is applied in the Technological University (Hmawbi) and the results are displayed in Table 1. below.

Table 1. the Quality basis of TU (Hmawbi)

TU (Hmawbi)'s Quality Basis	Frequency (Yes)	Percentage
ISO 9001:2015	45	100
EEAC	45	100
AUN-QA	18	40

From the results in Table 1, the Quality Management System standards created by ISO are meant to certify the processes and the system of an organization and not the product or service itself. Technological University (Hmawbi) has got the ISO 9001:2015 certificate and applied quality management to a great extent which has a satisfactory level in most of its academic process. Moreover, altogether (6) programmes have been assessed by the experts from EEAC and also provisionally accredited and recognized by Myanmar Engineering Council.

Three staff from each engineering and academic department including respective head of the department were given the training on "PDCA Approach to SAR Development at Programme Level" in November 2015 with the help of AUN-QA Expert under the project of ASEAN-QA SQUARED Real Life Workshop. This training workshop was based on the AUN-QA Model and intended for the participants to interpret the AUN-QA criteria for programme level. But some trained heads and teaching staff were transferred to other universities so the participants who took part in this questionnaire have little knowledge on AUN-QA guidelines and standards.

Table 2. Documenting Policy Statement

TU (Hmawbi)'s Policy in its academic function	Frequency (Yes)	Percentage
The policy is appropriate to the purpose of TU (Hmawbi).	32	71
It provides framework for establishing and reviewing quality objectives.	28	62
There is a specific commitment in the quality policy to comply with requirements and continually improve the effectiveness of QMS.	41	91
It is reviewed for continuing suitability.	38	84

Concerning with the second item of questionnaire, which only got 62%, quality management policy is important for an organization which is committed to quality education. Although the participants know that the Quality Management Policy implemented in their university is appropriate to the purpose of the University, some have limited knowledge on how it is established and how to review quality objectives for continual quality improvement. Therefore, according to the overall results shown in Table 2, the respondents need the awareness on establishing of quality statement and how and who participated in establishing quality policy.

Table 3. Establishing Quality Objectives

Quality Objectives	Frequency (Yes)	Percentage
The top management has established quality objectives.	45	100
Quality objectives are measurable.	45	100
Quality objectives are consistent with the quality policy.	38	84

As shown in Table 3, respondents know who established the quality objectives, and have awareness on whether the quality objectives are

measurable or not. But 84% of respondents said quality objectives are consistent with the quality policy and the rest are not sure.

Table 4. Documentations

Documentations	Frequency (Yes)	Percentage
Have documented quality policy and objectives.	45	100
Have documented a quality manual, procedure, work instruction, documented information.	45	100

According to the results shown in Table 4, all respondents have awareness on documentation process used in technological university (Hmawbi).

Table 5. Internal Audit

Internal Audit	Frequency (Yes)	Percentage
Conduct internal audit at planned intervals.	45	100
Findings are reported to the top management.	45	100

Concerning with the conducting internal audits, the respondents definitely know that internal audit is carried out as planned schedule.

Table 6. Professional development trainings

Trainings	Frequency (Yes)	Percentage
Heads of the department ask to the top management for the training needed for the professional development.	40	89
Top management usually planned the necessary trainings for the staff.	38	84

The results in Table 6 show that 89% of respondents know that heads are responsible for asking top management to arrange the necessary training and workshop for their professional development. Nearly 85% of respondents are aware that top management plans the training and workshop for them.

Table 7. Curriculum Development

Curriculum Development	Frequency (Yes)	Percentage
All the departments design their own curriculum and syllabus.	5	11
All the departments review the curriculum yearly.	36	80
Stakeholders usually involve in Curriculum Review Meeting (CRM).	34	76

It can be seen in Table 7 that only 11% of the respondents know that all the departments design their own curriculum and syllabus. As all the technological universities in Myanmar apply the same curriculum and syllabus implemented by the subject team, some teachers did not know the importance of designing the curriculum. They think that this is the responsibility of the respective subject team. But they know that curriculum review meeting is conducted yearly, involving all stakeholders and the results from discussion are used as inputs in subject meeting. Therefore, concerning with CRM, 80% said CRM is carried out yearly and 76% said stakeholders participate in CRM.

Table 8. Teaching Learning Process

T&L Process	Frequency (Yes)	Percentage
All teachers documented CLOs	45	100
All teachers write lesson plans for the subject they teach every semester in advance	45	100
All teachers prepare assessment plan (PAC, and exam)	45	100
In order to improve the T & L process, students are asked to evaluate on teachers' performance every year.	45	100

As shown in Table 8, all respondents know that writing learning outcomes, and lesson plans are carried out prior to the academic year and also student evaluation on teachers'

performance in the class is conducted at least once in a year.

5. CONCLUSION

Quality management system of Technological University (Hmawbi) is derived from ISO 9001:2015, which is actually in line with the International Organization for Standardization created the Quality Management System (QMS) standards in 2015. Based on the survey conducted internally, TU (Hmawbi) has practised quality management system to a satisfactory level in most of its academic process.

Based on the results from data analysis and findings of the research, it can be concluded as follows: first, Technological University (Hmawbi) has applied quality management to a great extent in most of this academic process. Second, a quality management policy is important for a university which is committed to quality service delivery. Technological University (Hmawbi) has ensured that the Quality Management Policy is appropriate to its purpose; and it provides the framework for establishing and reviewing quality objectives. Third, it has to a very great extent done the following: provided evidence of its commitment to the development and implementation of the QMS; defined its processes to ensure its academic/educational products meet the regulatory requirements; implemented actions necessary to achieve planned results and continual improvement of their educational processes; and lastly communicated the importance of meeting customers or stakeholders as well as statutory and regulatory requirements.

Moreover, Technological University (Hmawbi) documented its measurable objectives and a proper documentation of every process. It has to a very great extent made use of a quality manual which is well documented.

5.1. Recommendation for Further Research

Areas of this research that were identified generally include a study on designing the quality management practices used in Technological University (Hmawbi) and all the studies are very limited because of the time constraint. Therefore, it is recommended that further research should be done to determine how Quality management can contribute to teaching learning process and customer satisfaction and what benefits the university can get by implementing the quality management system in every sector or process under the higher education institutions. Moreover,

study on challenges faced in implementing the quality management practices in universities should be done as further research in order for higher education institutions (HEIs) to lead to quality education.

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