MAURITIUS RESEARCH COUNCIL

BENCHMARKING FOR CONTINUOUS IMPROVEMENT

Final Report

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Dr F. Khodabocus
Principal Investigator

ABSTRACT

This study was carried out from the author's interests in establishing the reasons why TQM and Benchmarking are not so successful in the Education Sector as compared to Industries in Mauritius. Industries in Mauritius are very successful in adopting their on self assessment activities and identifying potential benchmarks or performance indices that can be compared to peers or international organizations with a view to continuously improving their performance and to be on the competitive edge. The author has had several years of experience working with a team of assessors for assessing industries for the Mauritian Quality Award competition. The framework used for the assessment was the Malcolm Balridge Framework for excellence, which consists of seven criteria namely Leadership, Information analysis, Planning, People Satisfaction, Processes, Performance Results, and Customer Satisfaction. Assessments carried out were very interesting given that companies were able to self assess themselves against an International Framework and results obtained could enable participants to benchmark themselves against Best-in-Class companies. However several queries crop up every year on the low participation rate of the education sector as compared to participation from the manufacturing and service industries. It is the purpose of this study to find out why was the MBNQA framework was not of major interest to the education sector as an approach to improving performance and also to find out if the criteria of the assessment framework are applicable to the education sector.

Objective of Project

The objective of the project was three fold

Part 1 was to identify areas that can be benchmarked for local industries and how to enable benchmarking results to be disseminated.

The work was carried out in collaboration with the Mauritius Quality Institute.

Part II was to identify areas that can be benchmarked for the education and other foreign universities. For example a similar kind of research is being carried out in the UK (HEFCE 2000) to develop a benchmarking methodology for UK universities in collaboration with the private sector.

Part III of the research will be to integrate parts I and II where possible, so that the results of the education sector can be compared with results of the private sector in order to develop a more productive and competitive approach in the tertiary sector.

The first part of the project was undertaken with the help of a research assistant working full time basis on a six months contract. She was trained to understand the Concept of the MBNQA Framework. Several industries were contacted and in general it was observed that even though most companies have won the MQA award and are no longer participating in the award companies, they are running several quality and benchmarking projects to be keep up to date with modern management concepts methods and tools and to improve on the quality of their processes, products and services.

The investigation carried out was to establish: How are companies leading their quality projects and how benchmarking is being carried out in the service and manufacturing sector in Mauritius. Also what are new initiatives being undertaken which would help companies play a key role in the global marketplace. This part of the project was carried out with the collaboration of members of the Mauritian Quality Institute and was very successful. Assessment was carried out by a team of assessors including my research assistant, assessors from the MQI and myself. The Malcolm Balridge Quality Award framework was used as a model for assessment as it is the model used by the MQI for the Mauritian Quality Award.

The second part of the project was more difficult. The investigator had to identify benchmarks for both Secondary Education Sectors and the Higher Education sector.

The two sectors have different mission, objectives, customers and stakeholders, it must be pointed out here that there are no benchmarking programmes as such in the secondary education sector. Furthermore it was difficult to obtain participation from the higher education sectors such as MIE, MGI information provided was not sufficient for a complete analysis.

Finally the author limited the project to only the University of Mauritius our main Higher Education institution of the island. The reason for this decision was that the University of Mauritius cannot benchmark itself against the MIE and MGI because these two institutions are of different missions and objectives and also that the academic processes at the MIE were different to the University. After due consideration of these points the authors decided that the project should concentrate solely on Benchmarking for the University itself.

Some questions for which answers were sought answers for

- Is there a benchmarking programme at the UOM?
- Can the MBNQA criteria for Education meet the needs for the University or vice-versa?
- Does the University of Mauritius benchmark its internal processes against other universities?
- Does the University compare itself with local industries?
- How can the university benefit from such an exercise?
- What are the Benchmarking best practices identified during the study?
- How can local results be compared with universities abroad?
- What would be the constraints?

This report is in five chapters.

Chapter one is a brief literature review in two parts.

Part I: Summary of Research carried out on Total Quality Management Research and Training in European Universities and Business Schools.

Part II: Literature Review on Benchmarking in Education.

Chapter 2: The Planning of the Study.

Chapter 3: Results and Discussion

Chapter 4 Conclusions

Chapter 5 Recommendation and future work.

INTRODUCTION

Despite still having many supporters and much use outside higher education, total quality management (TQM) has had a remarkably small impact on colleges and universities in Mauritius. While numerous institutions of higher education in Mauritius have sponsored quality initiatives, nearly all of these have focused on non-academic activities.

Thus, for higher education in Mauritius TQM has concentrated on processes such as registration, finance, and purchasing. It has ignored the most critical questions facing academics such as faculty tenure, curriculum development and scholarship assistance.

Whereas in today's education environment specially in US and UK educational programmes, creating a sustainable TQM organization requires an understanding of the short- and longer term factors that affect the organization and the education market. Pursuit of education excellence requires a strong future orientation and a willingness to make long-term commitments to students and key stakeholders - the community, parents, employers, workforce, suppliers, partners, and the public. An organization planning anticipate many factors, such as changes in educational requirements and instructional approaches, resource availability, student's and stakeholders' expectations, new partnering opportunities, workforce development and hiring needs, technological developments, the evolving Internet environment, changes in demographics and in student and market segments, changes in community and societal expectations and needs. A major longer-term investment associated with the organization's improvement is the investment in creating and sustaining a mission-oriented assessment system focused on learning. This entails faculty

education and training in assessment methods. In addition organization leaders should be familiar with research findings and practical applications of assessment methods and learning style information. A focus on the future includes developing the educational workforce, accomplishing effective succession planning, creating opportunities for innovation, and anticipating public responsibilities and concerns.

However the implication for TQM is that, while it may take years for it to be adopted at all by an organization, once TQM and its tenets have been accepted, they become part of the generally accepted managerial jargon and are very difficult to change. Many managers would rather go along with easier solutions and appropriate (but beneficial) innovations. This is one reason why the use of TQM does not cease even when it has lost its effectiveness in most arenas. Higher education alone is not an exception to this rule. This report discusses the TQM and Benchmarking culture as it is in Mauritian Industries and in the educational sector and the Higher education sectors of Mauritius. The study sets out to establish if TQM components and the MBNQA framework are taught in the curriculum for both Engineering and management programmes and to understand the gap in quality culture that exists between industries and the education sector. There seems to be a lack of competition in the higher education sector as there is no drive for internal comparisons or benchmarking as seen in Europe and other larger countries.

CHAPTER 1: LITERATURE REVIEW

Part I: Summary of a research carried out on Total Quality Management Research and Training in European Universities and Business Schools.

Introduction

This part of the literature review gives an outline of the results of a survey to find out how significant a role TQM plays in the teaching and research programmes within training in Europe in general and in particular, which aspects of TQM are being researched or studied. It is believed that for benchmarking and quality programmes to be well understood in our business and education sector TQM should be taught and researched in our curricula for higher education. Also there must be close working collaboration between industry, the higher education sector, the public sector and the health care sector for further research and transfer of knowledge. Work carried out at the Quality Management Center, in Manchester in collaboration with the European Foundation for Quality Management (EFQM) reveals that European Universities and Business schools are active in the field of TQM.

As such a wide variety of information was available on line and in literature in the field of benchmarking between educational institutions and industry and on Industry-Academic Links in the UK. What was interesting is that quite recently in 1995, universities in UK have created a Commonwealth University Management Benchmarking Club. However in Mauritius some work still remains to be done in this respect. The following review gives a summary of research carried out on Total Quality Management Research and Training in

European Universities and Business Schools. The information of the study puts emphasis on the important tenets of a TQM programme for businesses.

Survey

The source of the findings and information reported below is a paper (Dale B. and Van der Wiele 1996) published in a Business and Technical Management magazine. (The International Journal to Business and Technical Management Education. Vol 2 No 5). The aim of the research was to study the degree to which TQM forms part of teaching curriculum and research programmes and, in particular, to identify which aspects are being taught. A questionnaire was distributed to 1000 universities from the TQM directory available. Use was made of the EFQM mailing list for academic staff in those universities and business schools.

Results indicate that for a number of universities the TQM related activities are not concentrated on one center, faculty or department. There appears to have been some sorting out of those universities who are committed to working on TQM over the longer term and those who simply saw it as the fashion and treated the subject in a rather superficial manner.

In a number of universities the TQM expertise was concentrated in the work of one academic, and that person retired, his/her TQM research and teaching was not taken over by colleagues. Perhaps this says something about the planning processes of universities and pinpoints the small number of academics who have the in-depth knowledge, skills and expertise in the subject of TQM to be able to take up the challenge of teaching and researching the subject.

Respondents were asked to indicate on a five-point scale of 1 (no expertise) to 5 (major expertise), their strength in teaching, research and consultancy. Teaching scores the highest (4.5), followed by research (3.9) and consultancy (3.5). **It is,**

however, hard to imagine how an academic can teach TQM in an effective manner without carrying out either research or consultancy in the subject.

The studies further state that developments in TQM and Benchmarking often comes from the experiences of companies in their advancement of TQM, and it is by working in close proximity to Best-in class companies that trends can be identified. TQM is a practical subject, and knowledge and understanding acquired through reading are not enough without the development of skills and practice.

Table 1: Extent to which each of the listed aspects of TQM forms part of teaching

	Mean	**Standard Deviation**	**N**
Quality understanding and awareness	4.54	0.76	85
Understanding customer needs and expectations (including customer satisfaction surveys, customer satisfaction measurement, customer loyalty, customer relationship	4.19	0.93	85
Corporate culture and organizational change	4.01	0.92	84
Problem solving tools	3.99	1.18	84
Employee involvement and empowerment	3.86	1.04	85
Process control	3.81	1.17	83

Quality Assurance Systems	3.76	1.18	82
Business Excellence Models (Including Award modules e.g. AQA and related quality management self-assessments	3.66	1.29	83
Strategic quality planning	3.64	1.10	83
Business Process management	3.58	1.17	85
Measurement of performance	3.54	1.10	83
Product design and development	3.36	1.16	83
Competitor analysis and Benchmarking	3.33	1.19	81
Supplier partnership	3.12	1.06	83
Reliability Engineering	3.04	1.4	81

Total Quality Management Teaching

Results indicate that TQM is taught more as a subject at postgraduate level (76 out of 88 respondents) in comparison to undergraduate level (62 out of 88 respondents)

Respondents were asked to indicate on a five-point scale from 2 (no part at all) to 5 (major part) the extent to which each of 15 predetermined aspect or elements of TQM forms part of their teaching. Table 1 indicated that these TQM aspects are ranked according to mean value. The top ranked aspect is 'quality understanding and awareness' followed by 'understanding customer needs and expectations' and 'corporate culture and 'organizational change'.

Table 2: Extent to which aspect related to the categories of the EQA model are taught as part of TQM courses

	Undergraduate			Postgraduate		
	Mean	**Std Dev**	**N**	**Mean**	**Std Dev**	**N**
Customer satisfaction	3.90	1.09	69	4.3	0.95	74
Management of processes	3.80	1.17	70	4.17	1.08	76
People satisfaction	3.50	1.09	70	3.92	0.95	73
People management	3.43	1.13	69	3.99	1.04	74
Policy and Statement	3.38	1.06	69	4.08	1.06	74
Management of resources	3.28	1.15	69	3.32	1.13	74
Business results	3.25	1.19	69	3.68	1.22	75
Leadership	3.19	1.05	69	3.89	1.15	74
Impact on Society	2.65	0.94	69	3.12	1.14	73

Table 3: Time spent on TQM-related research by business sector

	Time spent		
	Median	**Mean**	**N**
Services (large Organization)	6-10 per cent	18.9 per cent	81
Services (Small and medium enterprises)	8-10 per cent	13.9 per cent	81
Manufacturing (large organizations)	20-25 per cent	23.9 per cent	81
Manufacturing (small and medium enterprises	17-20 percent	25.3 per cent	81
Public sector (e.g. education, health government)	10-15 percent	18.1 per cent	81

Respondents were asked to indicate on a five point from 1(not part at all) to 5 (major part) the extent to which aspects relating to each of the categories of the European Quality Award (EQA) model are taught as part of their TQM courses at both undergraduate and postgraduate levels. More attention in teaching on TQM, at undergraduate as well as at postgraduate level, is given to customer satisfaction and management of processes, with impact on society getting the least attention. The relatively low ranking for the categories of policy and strategy and business results might suggest that insufficient attention is still being given in universities to the managerial issues relating to TQM and that the main focus within TQM is still from a marketing perspective (attention to customer satisfaction) and a technical perspective (attention to process control and reliability techniques.

It was observed that most attention is devoted to understanding customer needs and expectations, quality understanding and awareness, corporate culture and organizational change, measurement of performance, and employee involvement and empowerment. There still seems to be a need by academics to undertake research on quality understanding and awareness, which must have something to do with trying to find more empirical evidence for practical experiences within companies.

Conclusion

TQM research, education and training are becoming more widespread within European universities and business schools. The respondents for the above survey cover most of the countries in Europe, and the total number of students participating in a TQM course, either undergraduate or post experience, indicates that TQM is becoming part of the academic programmes of many students. One of the objectives of the EFQM policy was that business schools and universities are encouraged to develop, implement and upgrade quality management education programmes. The evidence from this survey indicates that this is now being achieved.

Those universities and business schools who are really serious about teaching and researching TQM over the longer term are emerging. However, a number of universities have fallen by the wayside in their willingness to sustain teaching and research interests in TQM. I**t is strongly felt that TQM and its components including benchmarking and identifying performance indices in industry, education and other sectors should be introduced in all engineering as well as managerial programmes at the University of Mauritius**. This observation was made while carrying out the survey using the MBNQA framework for education at the University.

The body of knowledge in the field of TQM is growing rapidly. There are two reasons for this first, the volume of TQM teaching material has been developed in the universities and, second, the various TQM- related research activities being undertaken. However a number of problems are being experienced in undertaking research, of which the lack of time is the most difficult.

PART II : LITERATURE REVIEW ON BENCHMARKING IN EDUCATION

Introduction to Benchmarking in Higher Education

For most institutions of higher education there is a desire to learn from each other and to share aspects of good practice. In general it is to be noted that benchmarking is a process that does not provide simple solutions. It is an on-going, systematic process for measuring and comparing the work processes of one organization with those of another by bringing an external focus on internal activities. Benchmarking in the education sector has traditionally manifested itself in the educational system in various ways: Professional associations, both academic and non-academic, meet to share common interests; numerous visits by delegations from one higher education system to examine practice in another; and where formal quality assessment or accreditation systems exist, their ultimate dependence upon the maintenance of the goodwill of universities exist by giving opportunities for their own staff to take part as assessors of other institution. Hence improving performance by collaboration or comparison with other universities is nothing new in higher education.

What is new, however, is the increasing interest in the formalization of such comparison. The development of benchmarking is a recent innovation in the higher education sector. It arises from other initiatives concerning quality

assurance and the drive to increase the effectiveness of university management. Benchmarking is directly relevant to current UNESCO concern as described in its policy paper 'Change and Development in Higher Education"(1995).

So why the current interest in benchmarking within the higher education. It is to be pointed out here that benchmarking has so far been a major issue and been very successful in the private sector in the sense that it provides greater international competitiveness. The private sector has always been at the forefront of the quality movement and with the rapid growth of information technology it has made data collection and management possible. The private sector has always felt the need to ensure productivity and performance that compares with the 'best' in any particular field. For many companies corporate survival necessitated looking beyond statistical performance indicators to examine the processes by which productivity is to be achieved and how similar improvements could be obtained in different cultural settings. In order to achieve these, companies developed the concept of benchmarking : the focus of attention is often on the processes used by comparator organization, and the identification of output data to analyze the effectiveness of the process. The intention is not only to copy best practice but to adapt it to different organizational cultures and reapply some of the operational principles that come from it. Some of the most interesting forms of benchmarking take place with either different kind of organization or across international boundaries.

At the same time other developments in the 'quality movement' bought such initiatives as business process re-engineering, international quality systems (ISO 90001 and so on), and total quality management (TQM) to the fore, with the latter being particularly influential with its emphasis on factors such as continuous improvement, customer focus, strategic management, the need for explicit systems to assure quality, the requirement for accurate data through techniques

such as statistical process control, and in order to implement the organizational changes required- a view of leadership and supervision that stresses employee empowerment and delegation.

Almost all such approaches to quality management emphasize evaluation, and broadly this can only be undertaken in four main ways: against defined objectives or standards; against measures of customer satisfaction; against expert and professional judgment; and against comparator organizations; with analysis on all four approaches being undertaken over a defined time scale. Thus benchmarking as it has come to be defined, was an inevitable outcome of the growth of the quality movement, and TQM.

Before continuing further on benchmarking in Higher Education the author would like to give some theory on the practice of benchmarking itself, its definition, the Benchmarking procedure, the different types of Benchmarking, methodologies in benchmarking, Benchmarking how it can be carried out in the higher education sector specially using the Malcolm Balridge Framework for Quality Management for higher education.

Finally the author chose to discuss the concept of the Best Practice Benchmarking Club for higher education given her experience in working with the best Practice Benchmarking club for industries during her stay in Birmingham and Coventry UK in 1996. It follows that such practices was not existent only for the private sector but given its success was also being extended to the Higher Education sector around 1995, the period it more or less started.

What is Benchmarking?

• A ***"benchmark"*** is a reference or measurement standard used for comparison.

• ***"Benchmarking"*** is the continuous activity for identifying, understanding and adapting best practice and processes that will lead to superior performance.

Benchmarking measures an organization's products, services and processes, to establish targets, priorities and improvements, leading to competitive advantage and/or cost reductions. Comparative data has been used for years in some industries, including higher education.

Benchmarking as defined today was developed in the early 1980 at the Xerox Corporation in response to increased competition and a rapidly declining market.

The strategy of benchmarking is important both conceptually and practically, and is being used for improving administrative processes as well as instructional models at colleges and universities by examining processes and models at other schools and adapting their techniques and approaches. More concisely, benchmarking is an ongoing, systematic process for measuring and comparing the work processes of one organization to those of another, by bringing an external focus to internal activities, functions, or operations. The whole aim of benchmarking is to provide key personnel, in charge of processes, with an external standard for measuring the quality and cost of internal activities, and to help identify where opportunities for improvement may reside.

As with other quality concepts, benchmarking should be integrated into the fundamental operations throughout the organization and be an ongoing process that analyses the data collected longitudinally. Benchmarking attempts to answer the following questions:

- How well are we doing compared to others?
- How good do we want to be?

- Who is doing it the best?
- How do they do it?
- How can we adapt what they do to our institution?
- How can we be better? (Kempner 1993)

In the competitive and rapidly changing markets nowadays, organizations are learning never to be satisfied with the status quo but to be continuously on the move and to continually question their internal operations and relative position relative to prospective customers. The benefits of conducting a benchmarking exercise can include:

• Creating a better understanding of the current position
• Increasing awareness of changing customer needs
• Encouraging innovation
• Developing realistic, stretching goals
• Establishing realistic action plans

The Benchmarking Procedure

The benchmarking procedures can be condensed into four steps:

- Planning the study,
- Conducting the research
- Analyzing the data
- Adapting the findings to the home institution that is conducting the study.

The first step involves selecting and defining the administrative or teaching process (es) to be studied, identifying how the process will be measured, and deciding which other institutions to measure against.

Second, benchmarking process data is collected using primary and/or secondary research about the colleges, universities, or other organizations being studied.
The third step consists of analyzing data gathered to calculate the research findings and to develop recommendations and to identify areas that need improvement. Adaptation of these enablers for improvement is the fourth step in the first phase of a benchmarking cycle, and the primary goal of the project.

It follows that any organization seriously considering introducing benchmarking needs to consider carefully both the type of benchmarking that is appropriate and also the methodology that it wishes to adopt. A number of choices in both areas are available, and from these a framework - THE MBNQA for this project may be constructed to classify initiatives and to locate what forms of activity are currently being undertaken.

Types of Benchmarking

So far as types of benchmarking are concerned, Alstete (1996) identifies four categories based upon the voluntary and proactive participation of institutions might be considered for higher education, namely Internal benchmarking, External competitive benchmarking, External collaborative benchmarking and best-in-class benchmarking. In such cases it will put pressure on processes whereby it would be best to evaluate output results after a longer term implementation.
In addition to Aslete four types of benchmarking three more types of benchmarking have been identified in this study.
1. **Internal benchmarking**: A comparison of internal operations and processes. Comparisons are made of the performance of different departments, campuses or sites within the university in order to identify best practice in the institution,

without necessarily having an external standard against which to compare results. This type of benchmarking may be particularly appropriate to universities where a high degree of devolvement exists to the constituent part of the institution, where a multi-campus environment exists, or where extensive franchise arrangements exist whereby standard programmes are taught by a number of partner colleges in different locations.

2. **External competitive benchmarking**: Specific competitor-to-competitor comparisons for a product or function where a comparison of performance in key areas is based upon information from institutions, which are seen as competitors. It can me more difficult to achieve and is usually mediated by neutral facilitators in order to ensure that confidentiality of date is maintained.

3. **External collaborative Benchmarking** usually involves comparisons with a larger group of institutions that are not immediate competitors. Several such initiatives are reported below, and the methodology is usually relatively open and collaborative. Such schemes may be run by the institutions themselves on a collective basis, although in other cases a central agency or consultant may administer the scheme in order to ensure continuity and sufficient momentum.

4. **Functional Benchmarking-** comparisons of similar functions within the same broad industry, or to industry leaders

5. **External trans-industry (best-in-class) benchmarking**: seeks to look across multiple industries in search of new and innovative practices, no matter what their source. Amongst some practitioners this is perceived to be the most desirable form of benchmarking because it can lead to major

improvement in performance and has been described by **NACUBO (North American Colleges and Universities Business officers)** as the "ultimate goal of the benchmarking process". In practice, it may be extremely difficult to implement the results of such cross-industry comparisons, as the mission and goals of industries and education institutions are different and may also require a very high level of institutional commitment to cope with the inevitable ambiguities that will result. Research has been carried out in this area but it seems that outside the USA little use of this approach is reported with higher education, and it may be that some universities will prefer to participate an inter-university benchmarking before going for the external trans-industry approach.

6. **'Implicit benchmarking'** has already been referred to above, and is expected to be more common in future years as government and central funding agencies seek to apply benchmarking approaches to universities. This area in benchmarking is still being researched but it is clear that many of the current activities taking place in Europe are of this nature.
7. **Generic Benchmarking** - comparisons of business processes or functions that are very similar, irrelevant of the industry.

Methodologies in Benchmarking

Separate from these types of benchmarking are the ***methodologies*** that institutions can adopt, and five main approaches will be discussed.

1. Ideal type standards (or 'gold' standards) whereby an model is created based on idealized best practice and then used as the basis to assess

institutions on the extent to which the fit that model. The Malcolm Balridge Awards is a good example of this type of approach.

2. Activity based benchmarking is a methodology in which a selected number of activities, which are either typical or representative of the range of institutional provision are analysed and compared with similar activities in other selected institutions. The **CHEMS Commonwealth Benchmarking Club** described below is an international example of such an approach.

3. Vertical Benchmarking: seeks to quantify the costs, workloads, productivity and performance of a defined functional area, e.g. the work of a student admissions department. This approach is rather straightforward. It is generally based upon existing organizational structures, data collection is often more straightforward that with some other methods. Such initiatives may be limited to investigation of a single area or may be multi-dimensional, although if extensive may approach to activity based benchmarking.

4. Horizontal benchmarking: On the other hand seeks to analyze the cost, workloads, productivity, and performance of a single process that cuts across one or more functional areas, for example all aspects of student admissions irrespective of their location within an institution. Such results provide a comprehensive review of institutional practice in any particular area, but data collection and interpretation may be highly problematic. Both horizontal and vertical benchmarks are useful

diagnostic tools in identifying and prioritizing opportunities to improve an administrative process or function.

How is Benchmarking being used in Higher Education?

The organizational culture and structure are important issues to be considered in determining the appropriateness of benchmarking and related quality approaches.
Benchmarking suits well the higher education sector since it relies on data and these data can be available in educational institutions.

If for example we are talking about process oriented benchmarking for an institution such as the UOM some questions have to be answered before we embark on the process, for example: how well is the university doing compared to others? How good are we, and in what areas do we want to be good? Across the university as a whole, which part of is doing best, and how do they do it? How can the university introduce its own practice in which it wants to excel? How can the university improve its performance while retaining its unique features? And more competitively- in the longer term how can an institution become better than the best in the context of its own mission and objectives.

However many academics will find such questions a challenge to their professionalism, and many over-worked non-academic staff may also resist the disruption to their work trends that inevitably follows from answering such questions.

Colleges and Universities find that benchmarking helps provides a structure for external evaluation, and creates new networks of communication between schools where valuable information and experiences can be shared.

Benchmarking is a positive process, and provides objective measurements for goal setting and improvement tracking, which can lead to innovations. In addition, quality strategies and reengineering efforts are both enhanced by benchmarking because it can identify areas that could benefit most from TQM and/or BPR, and make it possible to improve operations.

It follows that factors concerning successful implementation need to be sought and typically two main issues emerge: those that concern management and implementation of benchmarking initiatives; and those that concern the methodology and processes to be used. So far as the first is concerned, several issues arise which are typically made by an organization attempting benchmarking such as leadership, team selection and preparation, support mechanisms for teams and imprecise objectives, unrealistic time and cost expectations, inadequate understanding of both data and practices, follow – through.

Any organization seriously considering introducing benchmarking needs to consider carefully both the type of benchmarking that is appropriate and also the methodology that it wishes to adopt. A number of choices in both areas are available, and from these a framework may be constructed to classify initiatives and to locate what forms of activity are currently being undertaken.

How can an institution get started?

Before beginning a benchmarking study an institution should decide if benchmarking is the correct quality improvement tool for the situation. After processes are selected for analysis the appropriate personnel, who have a working knowledge of the area undergoing the benchmarking analysis should then be chosen to conduct the study. A college and university can take part in an externally sponsored benchmarking project with predefined objectives, or

conduct a project on its own with the help of consultants. It is recommended that, as a start, an institution new to benchmarking begins with a lower level departmental or administrative project that measures best practices internally, or with local competitors. An institution that is more advanced in quality improvement efforts can seek out world-class competitors and implement the findings more readily than a benchmarking novice. Information on prospective benchmarking partners can be obtained from libraries, professional associations, personal contacts, and data sharing consortia. Once the benchmarking data is collected and analyzed, it can be distributed in a benchmarking report internally within the institution and externally to benchmarking partners for implementation of improved processes. The overall goal is the adaptation of the process enablers at the home institution to achieve effective quality improvement.

Benchmarking is more than just gathering data. It involves adapting a new approach of continually questioning how processes are performed, seeking out best practices, and implementing new models of operation.

The Malcolm Balridge Framework for Quality Management for higher Education

> "The Malcom Balridge National Quality Award, presented since 1987 to those few selected organization that best demonstrate management techniques resulting in significant quality improvements, incorporates the benchmarking process as an important part of the award criteria. The APQC international Benchmarking Clearing house and the Strategic Planning Institute Council on Benchmarking, urges all organizations adhere to stated principles of legality, exchange, confidentiality, use, first-party contact, third-party contact, preparation, completion, understanding and action. So benchmarking has become big business in the US.

The above framework will allow participants to assess themselves against a defined set of criteria as stipulated by the Malcolm Balridge framework. Data obtained can be used in different ways, such as facilitating business process reengineering and TQM efforts. It provides participant with a detailed gap analysis, comparing their own performance of a process with the means of all study participants and cohort groups, but what the institution then does with this information is up to the its management team. Industries work on areas of improvement identified in the report to take the next step for action and innovation in their management review meetings. Action taken can be on a short term or a long-term basis depending on company's priorities. They also compare their strengths and weaknesses with their competitors and best-in class and work to see ways to improve on systems, processes with the aim to achieve better internal and external customer satisfaction as well as better business results.

Best Practice Benchmarking Clubs for Industry and Education

In 1996 the author attended a 4th annual networking day at the Best Practice Benchmarking Club in Birmingham. The whole idea of the networking day was to provide a forum for Directors managers, middle managers, suppliers, industrial consultants who are club members to meet each other and create their own networking opportunities, both on the day and in the future. The day was also intended to offer an opportunity to members to gain a greater understanding of the topics under discussion, their application and approaches to implementation. This understanding would come from discussion with workshop leaders and with other delegates. The model set by the workshop was the following

Presentation by Workshop Leader	30 mins
Syndicate/group work	45 mins
Feedback from syndicates	45 mins
Discussion, general networking	

The workshops session were designed to be interactive and to stimulate the exchange of information between Club members. Also introduced was an online session for members to have access to industrial benchmarking information of member companies online subject to subscription to have access to an online code. Hence benchmarking with the club was two approaches. The first was through discussion and interactive sessions with members of the club on different topics such as managing growth, managing change, strategic business processes, customer retention and loyalty programmes, team working, rewards and recognition, business improvement, continuous improvement programmes. The second involved syndicate and group work sessions where members in small groups developed a networking approach to the exchange of ideas. This enabled development of the topics discussed in the first approach.

An example of the interactive session on MANAGING GROWTH was for discussions to highlight and provide insights into how to

- Analyze the business to identify key strategic accounts
- Devise a defense strategy for the businesses
- Grow the existing business with the right accounts
- Enlist the help of key accounts in growing business
- Identify weaknesses in competitors in order to exploit them

Hence all sessions were designed for members to share ideas and information and statistics which would keep them up to date with information of the business community. Once elements of best practice have emerged or been identified, members can take that knowledge away and seek to implement any appropriate changes back to their own company.

Similarly for education the commonwealth University Management Benchmarking Club was formed in 1995 by the commonwealth Higher Education Management service (CHEMS), working in collaboration with benchmarking advisers from Price Waterhouse. It commenced its work in 1996. Its purpose and aims were, and remain, as set out in its Members handbook,

The purpose of the club is to: To measure and promote excellence in university management

THE CLUB AIMS TO HELP MEMBERS

- To identify and promote best practice.
- To share ideas and increase awareness of alternative approaches
- To gain benefit from an international base of experience and innovation.
- To learn from others what works and what does not.
- To research, and continually improve, ways of comparing with each other.

The concept of a Benchmarking Club for Education

The concept of a benchmarking 'club' both for industry and education requires a common set of understandings and expectations, because it suggests a shared set of interests and a co-operative form of working. Some of these expectations are described below, but the essential feature of the initiative for education example

is that each member university is in the club because it wishes to improve its own managerial performance. Several topics will be considered such as Strategic planning, Human resources, Research management, Financial management, Teaching and learning, Library and information facilities, student administration Resources allocation among the main ones. Provided the club retains a measure of confidentiality (among members), each member is expected to be totally open and honest about their own performance. Without such honesty, the exercise would lose much of its point. It is by displaying areas of weakness, alongside areas of strength, that all members can derive the mutual benefit.

In the process each university is to submit a description of its management processes, in respect of the topic under review, so that their performance can be analyzed and assessed by assessors. This is then followed by the key part of the process, namely a workshop at which all members can discuss the variety of approaches adopted, the comments of the assessors, and any significant issues associated with that topic. Once elements of best practice have emerged or been identified, members can take that knowledge away and seek to implement any appropriate changes back at their own university.

The essential starting point is the agreement of a set of criteria, or benchmarks, against which all submissions can be assessed. The criteria are predominantly quantitative, or if qualitative, rely on well-understood and established benchmarks of performance, such as some definition of 'best-in-class'. To give an example the Malcolm Balridge Framework has been adopted for this project. It consist of seven criteria with a given weightage against which companies have to self assess themselves and provide marks for each set of criteria. Marks provided can be used to benchmark against the best in class. Likewise European companies design their framework for assessment based on the European Foundation for Quality Management model.

Methodology used by the Club

The first stage of the benchmarking process was the identification of the topics to be addressed. In the first year these were suggested by CHEMS on the basis of information obtained from both members and potential members, but in subsequent years topics have been and will continue to be, determined by the members themselves.

In the first year topics were:

- Strategic planning
- Human Resources
- Non-academic needs of students
- External impact
- Research Management

In the second year, the Club elected to explore only four topics. They were:

- Financial management
- Teaching and learning
- Resource allocation
- Management Information systems (MIS)

For the forthcoming third year the topics will be:

- Estates and facilities
- Library and information services

- Student administration
- Internalization

It is expected that in the fourth year (1999), some of the first year's topics will be revisited, and a rolling program will become established.

For each topic, a framework of open questions was devised (by invited assessors in the first year, and by club members themselves, assisted by assessors in the second year). The chosen format is to have each topic divided into five sub-topics, covering aspects such as policy and strategy, implementation (e.g. management structure), monitoring and review, communication etc.

Each university is then required to supply a brief self assessment report, backed up where appropriate by supporting material from the university's existing documentation, responding to the questions, and highlighting anything perceived to be a strength or weakness on their part and assigning themselves marks for each set of criteria or questions.

During the assessment stage, and the marking stage, there are two key guiding principles:

1. Judgments made by the assessors are based on the fact as declared by the University, i.e. the submissions were taken at face value.

2. Any factors known personally to an assessor, but not included in the submission, would be disregarded for assessment purposes. This was to present fairness and balance.

At this point of the process, there was a significant variation in methodology between the first two years. In the first year, the assessors awarded percentage marks in respect of the strengths of responses to the framework questions. These were assessed by considering the 'approach', the 'application and the 'outcomes' actually achieved, defined as:

- **Approach** is the policy or technique adopted, and whether it is right for the task (fit for purpose).

- **Application** is the extent to which it is applied across the university.

- **Outcome** is, obviously how successful it is at achieving the objectives, but it also includes the extent to which it is monitored to ascertain when it might be necessary to adapt the approach to meet changing circumstance (i.e. continues to be fit for purpose).

In the first year, reports detailing their acknowledged strengths, and areas for improvement were provided to each club members, in addition to a 'composite model of good practice' which was made available to all members. This composite report listed all the key strengths and provided the basis for detailed discussion of the major issues associated with each topic at the workshop of members in October 1996.

The workshop was structured to provide a session on each of the topics. Each session commenced with a brief presentation from one of the club members, detailing how their own university managed the particular topic. Key issues were highlighted by the assessor team, and the members then discussed these and any other relevant issues, before arriving at some degree of consensus as to what may be regarded as good practice.

For the Club's second year, following debate of 1996 workshop, it became clear that the awarding of 'marks' was not of primary importance to members, given the key objective of improving performance. The methodology was accordingly modified, so that, instead of generating percentage marks, the assessors banded the performance of members, against each sub-topic.

A draft report was produced for the second year workshop (held in August 1997), which consisted of a composite statement of elements of good practice gleaned from all the responses. The final report that subsequently went to members contained a summary of the discussion at the workshop highlighting the main issues raised, together with series of statements setting out the key features of what the members and assessors agreed to be good practice.

After listening to the workshop discussions and receiving the final summary statements of good practice, each university in the second year programme was invited to declare a 'self-assessment' mark (using a simple 1-5 scale) against each 'good practice' element. This has been included in the final report and allows each member to make contact and collaborate with a colleague from a university professing particular strength in a topic, if they are seeking to make improvements in their own approach.

Emerging issues

There are four main issues emerging from the experiences of universities so far.

First, there is no unanimity about the scale of effort required. Many universities have dropped out of NACUBO because they found the clerical analysis and costing too demanding. CHEMS was influenced by this feedback and designed its club to use material that already existed and to ask for a relatively small volume of information. Yet, there is another lobby which say, this is not enough,

we want to see the details of everybody's best practices, this is the whole point of joining.

Second, the question of scoring and assessing is fraught with sensitivities in a university context. It starts when members ask who else is a member and say that they only want to be compared with peers. This misses the point in that if one is looking at activities and processes, the big universities may have a lot to learn from the small or the world class from the tiny local institutions. Prestige and status are not synonymous with managerial excellence, as we all know. Nonetheless, in the real world peer groups are important.
Third the practical outcomes for the Club are to try to ensure that the criteria and processes for scoring give no weight to jargon, and also that assessor's focus on the way each institution chooses to carry out what it has agreed as its strategy, rather than what might be thought good practice managerially.

Finally, where the basis of benchmarking is quantitative comparisons, it is necessary to have contextual indicators in order to interpret some statistics.
This can explain why some of the figures are at one extreme of a range.

CHAPTER TWO: PLANNING THE STUDY

Rational for selecting the Project and how it relates to its Strategic Objectives

The author has worked for twelve years from 1992 onwards to the year 2004 on assessing industries for the Mauritian Quality award under the chairmanship of the Mauritian Export Processing Zone Association (MEPZA). (Later delegated to the Mauritian Quality Institute.) The MQI is one of the main organizations with a mission to promote discovery, learning and application of the philosophy theory and practice of total quality management through activities of mutual cooperation between quality organizations in the national and international arena.

The vision of the MQI now is:

(a) To envisage a Total Quality Mauritius through the adoption of quality principles, practices and processes.
(b) The continuous improvement to all organizations thereby bringing higher living standards, jobs and better lives for all Mauritians.

After several years of collaborating with MEPZA and MQI the team of assessors observed that with the exception of a few colleges educational institutions in general were not interested in the Malcolm Balridge Framework for Total Quality management. Participants were always from the service industries, manufacturing industries and SMEs. The reason behind was quite obvious. Industries work under the pressure of their competitors and with their mission and objectives to work to the satisfaction of customers and they have to deliver quality of products and services within a limited time frame. In addition

industries have to constantly compare their products and services with other local and international competitors and make sure that they are up to date with new ideas.

But what about the Education sector?

The purpose of this study was to find out if the education sector in Mauritius adopt similar methods of comparison and benchmarking as industries in Mauritius do.

Hence this study is intended to be carried out in two parts.

In the first part of the study, a list of companies was drawn out to be contacted from the MQI list of members. A total number of one hundred companies both large and small were identified. Quality managers responded positively. Members from the Mauritius Quality institute as well as the research assistant contracted for a six months period for this project was trained on the MBNQA framework to be able to carry out the assessments. Thirteen companies were assessed against the MBNQA framework for Industries. Work was carried out with the collaboration of MQI assessors and results obtained were indicative that companies in Mauritius are adopting a framework of assessment for identifying strengths and areas for improvement. Feedback reports were provided to the companies at the end of the assessment.

In the second part of the study a few secondary institutions were contacted given and it was observed that the education sector in Mauritius is not so familiar with the MBNQA Excellence framework. Hence the idea of working with secondary educational institutions was dropped and the researchers tried to contact a few educational institutions recognized under the higher educational umbrella, namely the University of Technology, The Mahatma Gandhi Institute and the Mauritius Institute of

education. Given the poor response rate, the author finally opted to limit the study to benchmarking at the University of Mauritius itself and to find out how benchmarking is being carried out in universities worldwide and locally. In addition it was decided to study how the university is benchmarking itself against its peers and with industry?

CHAPTER 3: RESULTS AND DISCUSSION

Can the MBNQA criteria for Education meet the needs for the University or vice-versa?

This research study, through the review of existing literature developed a set of criteria that can be used to evaluate and measure the effectiveness of the use of TQM and Benchmarking in higher educational institutions. These criteria can be used in the future to help higher educational institutions in the implementation of TQM programs.

These criteria are based on the Malcolm Balridge criteria for Higher Education. To identify those factors that may be used to evaluate TQM in a higher education institution. The author examined related literature on implementation of TQM. The characteristics of those institutions that are known to have implemented TQM were successfully noted.

Based on a review of the literature, a questionnaire has been designed to measure the effectiveness of TQM programs in colleges and universities. The questionnaire included seven criteria of the MBNQA for industries.

The first criterion is designed to identify the **leadership role and responsibilities of administrators**.

The second criterion focuses on how **information is collected and analyzed**.

This section will be used to find whether data and information are being used to drive quality and excellence.

The third criterion deals with strategic planning.

This criterion intends to examine the institution planning process and to identify how key ingredients are integrated into total institution planning.

The fourth criterion, human resources management, demonstrated the administrative capability of involving people in the improvement and implementation process.

The fifth criterion, management of processes aims to examine the systematic policies that institutions use to pursue quality.

The sixth criterion, quality and operational results, will identify the levels and improvement trends in quality, institution operational performance and supplier quality. The seventh criterion is designed to the evaluation of levels of customer satisfaction.

Leadership plays an important role in TQM. Regardless of whether TQM is implemented in manufacturing, service or higher education, leadership has been recognized as the most important in implementing TQM. When describing a company or university's TQM program all too often top management is acknowledged to be the sole success factor. This major point is overlooked so often that it is the author's belief it is the single most important criterion of this study.

Top management commitment and involvement is a dedication of corporate or the institution's resources, including the executive's own time to the improvement process. Committing subordinates time and corporate funds to this initiative is not enough. In industry both management and the work force must assess the importance of priorities in terms of where the CEO spends the majority of is or her time.

Implementation of TQM is directly associated with leadership and leadership style. A general observation made while investigation carried out with the educational institution in Mauritius, "today's educational institutions need leaders of a new type". They need leaders that are vision givers, listeners, and

team workers and are committed to quality and customer needs. They need leaders that are eager but patient for long-term success, that are enablers and that believe in people driven improvement. To achieve this at the university there must be a two way assessment of what management requires from faculties and academics and vice versa, this should not be only a top down approach. The core functions of the university should be identified with respect of customer needs and a priority list established. The mission and vision of the University as well as any institutional education should be regularly reviewed with respect to our priorities on a short term and long term basis and mission and vision for each individual faculties and department aligned with that of the university. (MBNQA Education criteria for performance excellence 2007)

Strategic Planning. Strategic planning plays a part in every organization assessed and it can be no different for the University of Mauritius.

This criterion examines the institution' planning process and identifies how key ingredients are integrated into overall institutional planning. This criterion identifies how TQM practitioners use their "vision statement" to develop attainable "goals" and to develop work plans for specific areas within the institution. This approach to strategic planning is already being implemented at the University. **Each member of the academic staff should develop their own teaching and research plan on a short term and long-term basis.** It would be very difficult for a head of department to work out the research plan of an academic if different members of staff are researching and teaching in different disciplines. But The plan must meet with HOD approval. This practice is current in Leading Universities in the US and UK. **It is to be noted that with time and experience academics develop their own working relationship with industries, which would hence, enhances their research capacity and which enable them to identify their progressive needs for research and teaching hence innovating in their fields.** Academic staff should therefore be

encouraged to teach in their area of research this would enable them to disseminate information on industrial expertise gained from research and contact and to transfer knowledge and information to students and improve their teaching and research competence as well as climb up the ladder of improvement and innovation.

Information and Analysis. Literature shows the importance of the use of information and analysis by institutions that have implemented TQM. Ian Hau in the article "Teaching Quality Improvement by 'Quality Improvement in Teaching" refers to listening to students as customers. Finally many others cite customer needs, the identification of the institution's primary stakeholder and developing a specific competitive quality-based mission or vision to be of particular importance. These conclusions are possible only through collecting information and appropriate analysis of this information.

Human Resource Management. The analysis of the human resource management criterion will measure the effectiveness of the institution's human resources development, management and practices that support its quality program. This criterion will address all types of employees to identify

1. The means available for all employees to contribute effectively to meeting the institution's quality performance objectives
2. How the institution determines what quality related education and training is needed by the employee and the skills required
3. How the institution's employee performance recognition, reward, and feedback process support the attainment of the institution's quality and performance objectives.
4. How the institution maintains a work environment conductive to well being and growth of the employee.

Management of the Processes. In every industry and university there is a network of processes that must be managed. These range from the single-purpose to cross functional. The aim of this criterion is to identify those processes; enabling people to work within a process to understand its purposes in relation to customer needs.

Are we doing the right thing? How well are we doing it?

The individual can then set in motion process improvement through problem solving teams. The measures developed through this criterion will examine the systematic processes that the institution uses to pursue high quality and performance. Also examined are the key elements of process management, including design, management of process quality for all work units, systematic quality improvement and assessment.

Although quality improvement is most frequently initiated in non-academic organization, at the University of Mauritius there is a regular analysis of academic units and teaching effectiveness. Results obtained are also available on the UOM website. Processes ranges from admission to funding development. The UOM also assesses its critical processes within and between departments, including processes used in recruitment, retention, placement, work load determination, class size and scheduling.

Quality and Operational Results. The quality and operational results criterion is often referred to as the "Plan-Do-Check-Act". This step requires the development of certain ways of collecting information and later using this information to improve processes. This criterion examines the institutions quality levels and improvement trends in quality, institution operational performance and supplier quality. This work is carried out by the office of the Director for Quality Assurance and results are posted on the UOM website.

Poorly examined are current quality and performance levels relative to those of competitor's and with industry. The measures that are examined via this criterion will provide key metrics for evaluating and improving quality system processes and practices. This criterion assesses how the institution is doing in areas that are ultimately important to the customer.

Customer Focus and Satisfaction. Customer focus and satisfaction can be defined as the degree of happiness the customer experiences with a company or an institution's product or services and that results from the interaction and interrelationships of all people within that company or institution.

This criterion measures:

1. How the institution provides effective management of its relationships with its customers and uses information gained from customers to improve customer's relationship management strategies and practices.
2. How the institution specifically describe commitment to customers regarding its products and services.
3. How the institution describes its method for identifying customer satisfaction and how these methods are evaluated
4. The trends in the institution's customer satisfaction and key indicators of any dissatisfaction
5. The comparison of the institution's customer satisfaction results with those of its competitors.
6. How the institution determines future requirements and expectation of its customers.

Our educational process has changed very little with time. At the same time we find industrial and training institutions have adapted to the demands by the

society (customers). Even with computers and modern methods of teaching, the structure of education has not changed significantly. It is still a top-down, non-customer responsive process. With the focus on producing quality products and customer service in our industrial institutions. Academics interviewed at the University for example believe that ideas, suggestions and proposals must come must come from academics and HODs with due consideration given to their requests.

Total Quality Management if implemented correctly can help institutions of higher education achieve the same goals that industrial and manufacturing institutions have accomplished. The criteria developed in this study can be instrumental in helping institution of higher education measure their level of effectiveness. Today's global economy is characterized by an information-rich world, dependent on technology and filled with high-skill, high-wage jobs. In this world, workers who are highly educated will be the most productive. It is the responsibility of our UOM and other educational institutions to answer the call of duty and respond to the needs of their customers. It is time to develop products that can create satisfaction. The cost of quality at our educational institutions may be costly, but must be accomplished to meet the nation's survival. The author would also like to put emphasis here on the fact that there must be more linkages between higher education and Industry. These linkages should be manifested in research collaboration, provision of consultancy services, market orientations in the commercialization of research, and the industry involvement with the university in all types of teaching and training.

It was difficult to find real figures of the university's Research funding by industry. But the university should be encouraged to have access to research funding for example we have the case of RT Knits which have a growing involvement with the Textile department of the Faculty of Engineering in terms of sponsoring labs, training of staff and consultancy activities as well as

recruiting graduating students. Similar programs exist for the Computer Department but if results are more transparent then other departments can benchmark themselves internally. As well, other departments of the faculty must follow suit. Access to research funding from industries is the prime motivation factor for educational institutions. Mutual trust and a professional, business-like approach by academic partners are the keys to success.

Does the University compare itself with local industries? How can the university benefit from such an exercise?

Evidence from literature (HEFCE 1998) for foreign universities show that for TQM to be successful in higher education in general, there must be strong collaboration between industry and education. For example UK universities have invested considerable time and resources in promoting the use of TQM in higher education, several attempts have been made to investigate its collegiate impact but with little concrete evidence. Owlia and Aspinwal l(1996), writing in Total Quality Management, observed that the focus of TQM always has been on the non-academic sides of institutions of higher education. (It has changed, you need more up to date references)

How could TQM be more successfully implemented in Higher Education)?
The most important challenges facing institutions of higher education today relate to larger questions of curriculum and what should be taught, the use of faculty time, the propriety of technological innovations in instruction, the impact and validity of distance learning, whether students actually learn in any situation, the division of resources and attention between undergraduate and graduate education, the extent to which institutions should become involved in economic development ventures, tuition and fee levels, campus diversity.

Thus, the most important reason why TQM and Benchmarking has fallen short in academe in Mauritius is that it simply has not spoken to the most important issues facing colleges and university. Many, if not most, of the most pressing issues involve questions of value- what should UOM for example do and to what purposes do educational institutions extend them? TQM could assist colleges and universities in determining its success in answering these questions, for example, how well it serves distance-learning student which is successfully implanted at the UOM or how efficient is its inter-library program, here lots of work need to be done to innovate our library facilities and environment. Everybody would however agree that efficient operation of an institution's infrastructural facilities is important, and would confirm that administrative tasks in areas such as registration is an important function and should be performed efficiently if TQM is to be properly implemented in academia.

- **Academic culture is not receptive to TQM**

Perhaps the most important element in academic culture that does not allow the introduction of conventional TQM and benchmarking procedures is the doctrine of academic freedom as it plays out in individual professional classrooms and their professional lives. Faculty members traditionally have had the right to profess their disciplines as they see fit and to seek truth wherever that search leads them. The content of their courses, the nature of their research, and their professional values over the years have been subsumed under the umbrella of academic freedom. Consequently, faculty feel free to reject evaluative processes such as TQM and benchmarking that might result in satisfaction or productivity measures that could be used to influence how they do their teaching and research. Hence, in contrast with the situation in education as compared to that business firm, where a manager might order those who report to him to cooperate with TQM efforts, and penalize or even dismiss those who do not do

so, such action is virtually impossible in higher education or education in general. **It is also true that faculty members tend to work alone more often that together**. **Team teaching is rare and professorial research in many disciplines tends to be a solitary activity**. Indeed, teamwork and group approaches in general are less common in higher education than in much other business. Yet teamwork is one of the keystones of TQM. It is true that academic institutions rely upon committees and this suggests teamwork, which is usually heavily process-oriented. **The system more or less reinforces academic freedom and individual work.**

- **About Customers for the Higher Education Sector**

One cannot talk about quality or measure it unless one has a defined notion of what one is doing and who is being served. It is generally agreed that, in order to implement useful TQM, **one must know who one's customers are**. That is, whom is the organization attempting to serve? **In the case for businesses the answer is reasonably clear** – it is primarily the individuals who purchase products or services. Where as customers for higher education are much more diverse and not so easily defined. They variously include students, faculty, parents alumni, sports, business firms, those who utilize faculty research, individuals and organization who rent facilities, governments to name a few. Since it is difficult to specify who the customers of higher education are, it is similarly difficult to demarcate how one should measure their satisfaction, even if one were to agree that it is satisfaction rather than other variables that one should use to measure the results of TQM. This one of the important reasons why TQM efforts often do not live up to expectations in academia.

- ***About Product for Higher education***

Much of the same considerations hold with respect to determining the products of higher education. Companies produce textiles and other identifiable items such as parts and service. What is it that academic institutions produce?
Education? Students? Credit hours? Degrees? Certificates?
The performance of students in an examination?
The ability of graduates to earn income, or is it the actual earned income of those graduates?
The satisfaction and active citizenship of these graduates?
The ability to understand a complex and rapidly changing world?
Research?
It is clear that colleges and universities produce many different products as compared to industries. The very complexity of this issue makes the implementation of TQM on campus an extremely difficult undertaking. If higher education cannot agree on what it is producing, how can UOM apply quality-enhancing methodologies to its processes?

Questions surrounding the identity of customers and products lead naturally to the main question.
What is the university attempting to accomplish with whatever products it produces and then dispense or sell to whatever customers they have?
That is, what is the purpose of higher education?
What is the objective function and what are the constraints?

The purpose of businesses in general is usually to attempt to maximize on profits or return to stockholders, or the rate of return on invested capital, or some similar variable. No such consensus exists in the education sector. There are big arguments on the issue. These disputations reflect the diverse and decentralized

nature of academy and magnify the difficulty of defining a TQM and benchmarking study that actually deal with one of the central issues of modern higher education.

It is believed that one can eliminate such ambiguity and disagreement by focusing on individual colleges and universities that have adopted specified missions. **E.g. some universities in the UK and US focus on business-related education or consultancy centers and Excellence Centers. These institutions have much better defined missions and cultures than UoM (see recommendation).** Their objectives functions must be clearly defined. **What are they attempting to maximize and minimiz**e? What are the constraints? If one cannot answer these global questions, then it is difficult to apply TQM and benchmarking to the things that really matter at the UOM. One can attempt to determine whether students in a mathematics class are more or less satisfied with a specific instructional technique, or one can attempt to improve the satisfaction of faculty with the cleanliness of their offices. There are however marginal considerations in the context of a modern college or university.

It is not the fault with TQM that it is so difficult for institutions of higher education to specify their objective functions and constraints. Nonetheless, that difficulty necessarily diminishes the impact of TQM on colleges.
The more complex the enterprise, the less useful is TQM. (I am not sure about the validity of this, where is the proof)
That, more than any other is the reason which TQM's impact on higher education has been so small.

BENCHMARKING BEST PRACTICES IDENTIFIED DURING THE STUDY.

If benchmarking is to work it must be seen as part of the mainstream and core business of UOM, with all staff having a commitment to it. As is apparent from the case study described in this report, benchmarking appears to work best when it is conducted by an internal group to assist it in resolving a management or to position itself in its field of expertise as it is successfully done in industries locally. The benchmarking exercise is used as a tool rather than an end in itself and has more likelihood of producing useful results. Furthermore, working on an area basis, will be more feasible to ensure that the comparators are accurate and represent examples of best practice in that particular area of activity. Some areas identified during this study for the University of Mauritius are:

Benchmarking Academic Practice: Teaching, Learning and Assessment

UOM must give high priority to developing and implementing learning and teaching strategies, which focus on the promotion of students' learning i.e. excellence in teaching given that funding for research, is actually a major issue. This function already exists at the university where a "professional office for Learning and Teaching in Higher education" under the aegis of PRO VC for Teaching and Learning and an office for "research and consultancy and innovation" under the aegis of PRO VC for Research and consultancy whose function would include the commissioning of research and development in learning and teaching practices and the stimulation of innovation. The aim of the Teaching and Learning office would be to promote knowledge and discussion of existing good practices in the discipline, to enable tutors and departments, individually and collaboratively to employ some of the tools of educational research, to investigate the merits of their current practice and to guide and fund the development of good practices and initiatives by groups of

tutors, whole departments or consortia who have a proven record or strong prospect of improving the quality of student learning. In the belief that all departments can offer some evidence of good practice, the office in collaboration with the quality assurance office concentrates on all aspect of course design, teaching, assessment, evaluation, student support, etc.

In line with the above it is important for benchmarking institutions to gather and share information ideas and problems by formal assessments using appropriate criteria of the Malcolm Balridge Award for Education. Hence the reason why a benchmarking best practice club for universities has been created in the UK. In line with these programme seminars, workshops and presentations should be held on specific topics to disseminate results.

External examiners usually from UK, India and other institutions in Europe review our programmes, projects marks, examination marks and curricula to ensure that we are currently up to date and working to an international standard. The VCs office is taking the lead in actively exploring ways of using benchmarking methodologies as an aid to self-improvement and self-regulation of academic practice.

However a question arose while conducting this research given the number of courses and pressure for academics to deliver 275 lecture hours per year and with pressure on the university to increase the number of courses to suit the needs of industry and our country. With experience academics came to the conclusion that we can excel in teaching and we have limitations in research where as research is an important component for academics to excel in teaching to meet the continuously innovative needs of industry. Each academic will have his or her own individual needs for research and teaching. UOM should prioritize research areas and research funding to enable university and industry

to collaborate better as well as to align its mission and objectives with that of the needs of its customers, industry and nation.

Benchmarking of Quality Management

The Quality Assurance office has a role to play in working on a departmental quality management framework by means of a collaborative review and evaluation process "focused on development and improvement. The elements of quality management scrutinized by this office are curriculum design, approval and review, delivery and management of programmes, guidance and support for students, student assessment and the setting of standards, student admissions, recruitment, appraisal and staff development.

Recommendation: It is recommended that each department should develop an implementation plan, and for the QA office to monitor progress and offer guidance in developing the department's quality management system to meet on the agreed framework.

Benchmarking in Libraries

The UOM library needs to be updated and innovated with new technology. The library needs a more competitive environment. The critical success factors defined for our library would be that there is need for current, accessible information matching user needs, cost-effective services matching contract requirements, well-trained, and motivated staff, effective communication with users, positive response to change, provision of the right environment for learning.

Recommendation: Areas to be selected for benchmarking would be: availability of up-to-date books, journals and other stock units, staff development, user experience, education and feedback, innovation, learning environment.

Other possible benchmarking areas to seek best practices at the university could be

- Accounts payable
- Human Resources
- Admissions Information Technology
- Alumni Relations
- Payroll
- Purchasing
- Registration and Records
- Student Health Services
- General Accounting

Benchmarking in Industry – Academic Links

Within Europe at least, the UK higher education system, has been at the leading edge of several developments in terms of the relationship with industry. However there is a lot to be done in this area at the University of Mauritius. It is to be noted that the university has also been founded on the principle of industry and academia working together not only of scientific and technical advancement in an academic sense, but also for the benefit of the local industry and economy. For example the origin and core task of the Faculty of Engineering is to provide a technically educated workforce. It has been observed that given the number of

courses that need to be mounted and given our staff ratio, and given the needs that the faculty need to meet for the country, it is very difficult for the faculty of engineering to concentrate on both teaching and research. The same observation was made for other faculties**.** Senior management needs to reassess their requirements. Institutions need both good quality teachers and researchers. Academics should be able to opt for whichever is their preference without any career penalties, by perhaps providing some time allowance for both at different times of an academic year or alternate years.

Recommendation: That those faculties or department that cannot concentrate on both teaching and research to put emphasis on excellence on teaching or excellence in research. The university must focus on specialized institutions or centers to improve on the University – Industry links. To give an example in the field of Quality management itself, a number of major universities throughout the world have established their own Quality Management Centers to meet the demands of industry for advice and guidance. In Mauritius there is the Mauritius Standards Bureau, the Mauritian Quality Institute and several firms to give accreditation to standards such as ISO 9000, 14000 and OHSAS 18000 and Total Quality Management programmes. However large as well as small organization encounter lots of difficulties. There is need at the university to offer quality oriented research programs and advice to address the needs of these industries, with particular reference to the impact of organization and management of Quality Improvement Initiatives.

It was also observed that for the Faculty of Engineering local linkages with industry would be principally with small firms where as linkages with large firms would be more or on a regional or international basis. The UOM must make increased efforts to meet the industry's needs through the following

- Project placements for students
- Industrial sponsorship arrangements for their masters and PhD students
- MSc courses should be specifically designed to meet the needs of companies or a group of companies or for special sectors of the economy like the MSc in Quality Management as recommended by the external examiner should be revised to and MSc in Total Quality Management with emphasis on Social care and Health Care. Such a revision would require teamwork with other faculties.
- Industrial placement for undergraduates should be encouraged.

The university must also be encouraged to deliver flexible courses to industry and to encourage close relationships with customers and identify niche strategies for courses. It must also be encouraged to deliver research and training services to industry through sponsored projects.

Through strong university and industry relationships the university should be encouraged to update its technology with industries and match up the servicing of its courses to suit the requirements of our industry. Changes in university's support systems for teaching and learning should also be assessed on a regular basis.

CHAPTER 4: CONCLUSION

The author has approached the subject in two ways. One is to have a look at how TQM would work in the Higher education sector considering its processes, products and customers. Then using the MBNQA framework for education to identify if there is a benchmarking programme ongoing at the university which would identify the best practices that would enable the university to work better with its customers, competitors and stakeholders. It is believed that for institutions to become strong exponents of TQM and for them to communicate ideas of quality in the educational system TQM must be taught and researched in higher education. The knowledge gained in the field shared and extended with businesses for the two to work and share experiences together. Hence such a model can further be extended to other areas of community.

There seems to be a problem of funding actually with the university and in addition the UOM actually is facing great difficulty in meeting target performance indicators in research. It is recommended that either some department puts emphasis on trying to achieve excellence in teaching and or for departments where research and consultancy is in high demand both areas should be encouraged to work together. It was also observed that each department should identify their own KPIs in line with their strategic plan and objectives but funding should also be allocated for each department for KPIs to be continuously monitored. Hence in the context of this project the author will recommend a center for Quality related activities which would enhance TQM and Benchmarking initiatives for the betterment the University and Industry – Links and to enhance quality and benchmarking programmes both in industry and at the University.

Industries and Universities have different priorities, customers, products and processes it will be very difficult to benchmark universities with industries but better collaboration could be envisaged. Customers and stakeholders are different. The UOM can benchmark itself against other international universities. To identify partners with similar university culture.

UOM must also identify and focus on priorities for research. Many believe that one can eliminate such ambiguity and disagreement by focusing on individual colleges and universities that have adopted specified missions**.** E.g. some universities in the UK and US focus on business-related education or consultancy Centers or Excellence Centers. **These institutions have much better defined missions and cultures** and hence enable better collaboration with industry in research and consultancy, commercialization of research results and activities for better linkages in the context of teaching and training. In UK Universities receive half of their income from large firms, while HE colleges receive 92% from SMEs. The Paper of section five proposes the development of a center for quality related activities which could be extended to other fields where there is a need to contract research and training with industries.

CHAPTER 5 -RECOMMENDATION FOR SPECIALIZED INSTITUTIONS AN EXAMPLE OF A CENTER FOR QUALITY ASSURANCE ACTIVITIES

Dr F. Khodabocus, Dr J.Davis

Introduction

This paper proposes the development of a center for Quality Related Activities at the University of Mauritius.

Quality systems Implementation has been an important requirement for industries seeking Quality Assurance of product and services from their suppliers worldwide. In Mauritius, companies are constantly seeking innovative management and techniques that will enable them to gain a competitive edge and to ensure success. An assessment was carried out with the collaboration of the Mauritian Quality Institute. Eighteen firms were assessed against the Malcolm Balridge Framework for Quality Management. It was observed that there is a constant need for advice and guidance in industries. Companies are constantly seeking for suitably trained and qualified managers and engineers with important function background training in the field of quality. Large and small firms were assessed during this study. It was found that they are still encountering difficulties at all levels of management. Hence it would be strongly recommended that industrial funded research programmes for specific field of activities as well as quality oriented research programme, with special emphasis on quality improvement initiatives should be encouraged to address industries' requirement. The University of Mauritius has for its mission and purpose both teaching and research and it can play a central role in the function given the fact that it is the main University of the island. Many enterprises having completed accreditation to a system are constantly seeking to include Total Quality

Initiatives in their systems and processes to embark on the path to excellence. For example most companies in Mauritius have joined the Mauritius Export Processing Zone Association to self assess their organizations against the Malcolm Balridge TQM framework. Conventional approaches do not appear to fulfill the needs for industry; the performance and effectiveness measures as well as costing techniques they impose are not applicable in modern systems. More research should be carried out and the university should build closer links with industries to identify problems and assist in developing solutions with advice and training. Research is necessary to establish real decision criteria, which addresses the problems of both large and small firms.

The Current Position

A number of major universities throughout the world have established their own Quality Management Centers to meet the demands of industries worldwide. The function of these centers is to provide local industries with advice and assistance and develop research programs targeted at specific quality problems. This activity is usually in the form of a range of technical and professional services directly related to each company's system. The philosophy behind these schemes is to provide industry with a pool of suitable qualified specialists who can advise and assist companies with Quality Related problems.

A key feature of these schemes is the development of an effective research base, which undertakes research projects related to Total Quality Management activities. It is of the author's opinion that such a center could be established at the University of Mauritius to serve the needs of local industry and provide a center for interaction between the University and industry in this important area. A recent recommendation has been to modify the current M.Sc in Quality Management into an M.Sc in Total Quality Management to adapt to current changes in industry. There is a requirement on these courses for project and case

study work, which ideally would be based in industry. A wide range of opportunities exists for developments in this field. Problems exist in the Supplier/Customer interface, which need to be clearly identified and resolved. The development of Supply Chain Management activities could provide a fertile area for research projects. The effectiveness of performance measures needs to be clarified and the costing of Quality improvement programs and initiatives should be rigorously investigated. There is a demand for research advice and training service throughout Mauritius. Small consultancy units are moving to fill some aspects of this need. They do not however have the capability of providing a comprehensive service covering research; the University could offer development education and training such as.

Potential developments.

Using a nucleus of staff and resources currently available within the University, a Quality Management service, such as that outlined above could be developed.

A program covering all aspects of Total Quality Improvement could be presented to both the varying sectors of our economy from the Textile, Hotel industry other manufacturing and service industry as well as the education, public and health care sectors.

This would cover: -

1. Quality Management training and awareness courses in Total Quality Improvement Management either as external or in-plant courses.
2. Practical assistance in the development, implementation and maintenance of Quality Systems such as ISO 9000, ISO 14000 and OHSAS 18000.

3. Development of a research program related to Total Quality Improvement management and organization for both manufacturing and service industries.
4. Research programmes can be extended to other areas such as the education sector, health care and the public sector.
5. Management awareness training programs would cover topics such as

- Quality Systems Development.
- The use of statistical tools and techniques.
- Quality systems management, organization and maintenance with examples of using the MBNQA or EFQM TQM models as frameworks for quality management and improvement.
- Management of Human resources.
- Supplier Quality Assurance and Supply Chain Management.
- Continuous improvement and Company Wide quality improvement.
- Developing self-assessment strategies based on the Malcolm Balridge award.
- Identifying Key performance indices. Best Practice Benchmarking in all sectors including industries, education and other sectors such as the educational, health care and public sectors.

Unlike conventional short courses and seminars these programs would be designed to ensure that delegates develop an understanding of the topics to the extent that they could implement them in their own companies. A team of Quality professionals should be readily available to provide practical advice and assistance to back up this approach. Development and implementation of Quality systems would require providing companies with the services of Quality specialists and facilitators. The facilitators' role would be a Quality Management function on a time-share basis.

The service offered by the university should be on a partnership relationship where the company would have access to the expertise available from the Quality service facility and any other technical support required through its University appointed facilitator. Research activities would be related to the development, implementation and function of Total Quality Improvement strategies in various sectors of the economy.

Through the partnership relationship there would be an opportunity to initiate research and development projects directly related to the needs of industry. Encouragement should be towards industry-funded projects. Unlike many other situations there would be an opportunity to implement and develop these projects in the real world environment.

Areas identified for research and consultancy might include

Total Quality Management and marketing
Cost effectiveness of TQM
Customer care and Customer Service
Measuring the effectiveness of TQI strategies in core business processes
Integration of Quality Health and Safety Environmental systems and the development of corporate Business Management System
Team working
Rewards and Recognition
Approaches to TQM and Management Leadership
Employee involvement and training in TQM
Effectiveness of Quality Planning
Managing change, commitment and involvement

Supplier development and involvement of TQI strategies
Developing and implementing MBNQA models for specific companies
Best Practice Benchmarking and continuous improvement programmes
Statistical Process Control and Six Sigma methodologies

There is a clear need for research in these topics related to both manufacturing especially in the textile sector and service industries as well as for the education sector and other sectors of the economy where quality of service has to be improved. The potential for developing these research activities is obvious. Since projects such as these are most effectively carried out through real industry base work the partnership ideas mentioned earlier could be extended in this direction. This would provide a useful source of project for students such as the MSc and undergraduate courses. The development of such programs would be an invaluable means of extending academic knowledge and experience in the field of Total Quality Management and implementing Total Quality Improvement Strategies. It is widely accepted that the case study approach is the most efficient method of successfully resolving Quality Problems.

Proposal for a specialized institution in quality at the University

It is proposed that a Center for Quality Related activities should be established at the university. Quality practitioners should be encouraged to work together as a team co-coordinated by a leader who would be responsible for planning and developing the activities. The partnership with industry ideas could be developed to provide a source of projects and practical experience for both staff and student involved in the work of the Center. One member of staff would need to be able to set aside time specifically to initiate the development of the center and establish industrial contacts. For small initial investment a center

could be established and operational within one year. It could provide research, development and teaching company projects within 12-18 months of its inception. This activity would enhance the overall image of the University.

Conclusion

There is a need at the University of Mauritius, which could provide a service of consultancy training and research in the field of Total Quality systems development directly related to the requirements of local industry. Sectors identified during this survey would be education, health care as well as the public sector. Some consultancy firms are at present attempting to fulfill this need; they do not however have the breadth and resources available at the University. The activities of the Center would provide a pool of experienced quality professionals who would be in a strong position to make a significant contribution to Mauritius. University customers are constantly seeking highly trained Quality practitioners. Successful Quality initiatives require a visible management commitment, a structured approach and an environment, which encourages improvement. This proposal provides the basis for the development of a structured approach.

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