

Application of Total Quality Management (TQM) In Higher Education Institution (HEI) In Oman: Shinas College of Technology- A Case Study

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ABSTRACT

PURPOSE

The objective of the study is to investigate into the quality of the systems, processes, and practices at ShinasCollege of Technology (ShCT) and to propose a plan for future improvements in relates to quality perspectives and to provide recommendations in various areas of operations on the lines of OAAA institutional accreditation standards.

DESIGN/METHODOLOGY/APPROACH

Samples include 50 students, 33 academics, and 16 management employees were selected, and the data was collected through a well-defined questionnaire. Students from the Department of Engineering, Business and Information Technology, were selected on stratified random sampling basis whereas staffwas selected on asimplerandom sampling basis.

FINDINGS

The survey reveals that the systems prevailing in ShCT and the practices are aligned with OAAA requirements except for staff promotion and incentives. The ADRI analysis and the study of SAR, QAR and QIP indicates that ShCT practices about Management, Staff, and Students are continuously assessed and well-defined.

PRACTICAL IMPLICATIONS

The study considers quality assurance as for the top pyramid of higher education. The study throws light on the future improvements of the various areas of operations of the College about the requirements of criteria of the OAAA national standards.

SOCIAL IMPLICATIONS

The study considers TQM as the most important method for HEIs to achieve efficiency for providing better services and continuous improvements. The Quality is considered as the required power to implement the entire objective desired by the HEIs to attain the efficiency and get the HEIs accredited.

ORIGINALITY/VALUE

No study has attempted to find out the application of TQM in ShCT, Oman ever before considering the quality assurance in education and it is the first-hand study of its kind.

RESEARCH LIMITATIONS/IMPLICATIONS

The study was restricted to various areas of the operations of the college on three stakeholders namely management, staff and students only. The study could be extended to other areas as well as to other stakeholders so that a detailed insight could be obtained.

Keywords: Total Quality Management, Quality Assurance, Oman Academic Accreditation Authority, Quality Management in Higher Education Institutions of Oman, Shinas College of Technology.



INTRODUCTION

Qualitymanagement is amanagement philosophywhich can be used in any organization to obtain best results in the form of performances, productivity and profits and with the enhancement of the organizational image in the society (Salameh, Alzyadat, and Alsnour, 2011). Total Quality Management (TOM) is the quality improvement through customer satisfaction and is based on the efforts of everyone in the organization (American Society for Quality, 2013). The concept of TQM was introduced by Deming before the Second World War and was subsequently developed by the Japanese. The concept is not restricted to any industry and includes all the sectors in the higher education institution (Walton and Deming, 1988). The introduction of TQM concept in the educational institutions will revitalize the higher education system butin the long run(In 'airat and Al-Kassem, 2014). Recently, many universities started using TOM for the sake of innovation in management. The rise of demand for quality assurance (QA) processes has paved a way towards maintaining quality in the field of higher education – as a new knowledge society (Loukkola and Zhang, 2010).

Application of TQM as a good management technique, yielding better results in thehigher educationsystem (Akhtar, 2000). Hence, dealing with the customers at the universities provide several opportunities to evaluate the educational services and to propose feedback to show the necessary scope of quality and continuous improvement of education (Sallis, 2005). An effective management will always help to improve products and services continuously in a competitive marketplace. Higher education institutions are no exception to it; like any other business organization, they subscribe to quality, excellence and continuous improvement(Man and Kato, 2010). Higher education institutions find TQM as an important toolwhich familiarizes with the new educational system so as satisfy those involved (Bayraktar, Tatoglu and Zaim, 2008). TQM is undoubtedly a common tool which willmold the strategies of HEIs towards satisfying the stakeholders (Murad and Shastri, 2010). Quality Management is the top priority of every HEI irrespective the country or culture to which it belongs. Mass education and the growing responsibility of HEIs are the ones ensuring quality assurance (Becket and Brookes, 2006). Quality Assuranceensures the increase in standards of education through periodic performance measures in the form of standards. That is how, educational institutions grow to observe equality of standards (Loukkola and Zhang, 2010). Sahney, Banwet, and Karunes (2004) declared the educational system as a transformation process and For the inputs students, staff, and the process, etc. the processes learning, teaching, and administration give the outputs results, earnings, and satisfaction. Academicians and policy makers are concerned with the quality of teaching, quality of programs, and the quality of institutions for various reasons -competition, customer satisfaction, quality assurance, themotivation of the employee morale and building theimage of the institution (Sudha, 2013).

Educationis the foundationfor building Oman's future. The Sultanate has seriously consideredstreamlining the higher education policies for the establishment of an enlightened society(Oman Academic Accreditation Authority, 2004).Oman Academic Accreditation Authority (OAAA) which was established in Oman in the year 2010, to propagate quality culture and accreditation of institutions and the regulatory authority for higher education in Omanand to ensure the maintenance of international standards (Oman Academic Accreditation Authority, 2015). Thekey performance indicators (KPIs) for the various areas of operations including Management, Strategic Planning, Operational Planning, Financial Management, Policy Management, Professional Management, Promotion and Other incentives, Teaching Quality, Facilities Management, Student Learning Support, have been clearly defined by OAAA which are compared with that prevailing in Shinas College of Technology (ShCT). ShCTwas established in 2005 and is one amongst the seven colleges of technology fallingunder the purview of the Ministry of Manpower. ShCTis categorized as a public sector institution which caters to the higher educational needs of Omani youth, offeringvarious specialized programs in Business, Engineering and Information Technology at the diploma, advanceddiploma, and graduation level. ShCT is getting into the second stage of the accreditation process. It needs to sustain efforts to implement the quality system to facilitate the activities in the college to suit the intended purpose of the organization so as to ensure the growth and development. However, how farShCThas implemented the concepts of TQM and the practices in ShCT are in line with the requirements of the standards set by OAAA, gives rise to the need for the study (ShCT, 2016).

RESEARCH HYPOTHESES

It is claimed that ShCT is implementing TQM concepts to align with the national standards of OAAA accreditation requirements and the quality system for Management / Staff / Students. About college management system, strategic



planning, operational planning, financial management, policy management, professional development, promotions and other incentives, facilities management are aligned with national standards set by OAAA.

RESEARCH METHODOLOGY

The study takes into account the three main stakeholders -management, staff and students and the samples include 50 students, 33 academicians, and 16 management employees and the data was collected through a well-defined questionnaire. Students from the Department of Engineering, Business and Information Technology, were selected on stratified random sampling basis whereas staffs were selected on a simpler andom sampling basis. Management reports (SAR, OAR, OIPs) and the Organization survey reports were primarily referred during the study. Further, the management reports such as Self-Assessment Reports (SAR), Quality Audit Reports (QAR), Quality Improvement Plans (QIPs), College ADRI (approach, deployment, results, improvements) reportsof the various college operations involving the three stakeholders were also referred.

REVIEWOF LITERATURE

TQM is organizing the work towards achieving excellence and offers a set of guidelines and regulations for an ongoing improvement of the products and services offered to customers (Faroog and Akhtar, 2007). Carter, Smeltzer, and Narasimhan(2000) suggested thatthere is a need for the management staff should effectively participate in setting the goals especially in quality teaching for which they should have the skills and commitment so asto perform an excellent job and ensure excellent implementation of TQM. The aim of teaching is totransmit knowledge (Murad and Shastri, 2010). The HEIsemphasize on properimprovement in theteaching-learning process through thequality of teaching and obtaining increasing completion rate of the students (Sudha, 2013). TQM iscontinuous, never-ending process of improvements exploring the needs of the institution'scustomers' base of the institutions, re-assessing the effectiveness of programs and the quality initiatives (Temponi, 2005). Effective communication and quality teaching are evaluated most for the teaching staffmore than the personal qualities (Mikalauskas, Jasinskas, and Svagzdiene, 2012). Therefore, the Quality Assurance (QA) in higher education is essential to focus on the quality of teaching (ESG, 2015). HEIs should have quality and effective technology support for students' learning for the effective transfer of knowledge from the single source viz. Teachers (Eady and Lockyer, 2013). Technology ispart of the teaching and learning environment which is also part of the resources that teachers use to facilitate student learning (Flores-Molina, 2011). So, Operational Plans are prepared as a part of the strategic plan which includes targets, milestones, responsibility, and integration, etc. (Taylor and Adrian, 2002). TOM exploits all the resources through such strategic plans so that the ultimate objective of the educational institution viz. the effective utilization of staff potentialities to the maximum core is achieved. (Schargel, 1994). Quality assurance of education could be facilitated only through quality teaching wherein the pedagogical improvement and the potential knowledge need to be enhanced through staff development process (Zaki, 2006). Ladd and Fiske (2008) confirmed that such staff development process for quality assurance might result in adecrease in teaching force. Further, European University Association (2006) stated that the quality culture is an organizational culture that considers two important factors viz. quality-centric, quality-focused culture and quality-focused process, forever. Oakland (2003) claimed that a quality policy of an institution should be well-defined, focusing quality improvement involving periodic monitoring and involving everyone in the organization aiming towards achieving the fullest implementation for which the existence of quality culture climate is a must.

FINDINGS

Table 1. T-Test overall Feedback results for the three groups- Management, Staff, and Students (One-Sample Statistics)

	N	Mean	Std. Deviation	Std. ErrorMean
Management Feedback Survey	43	3.9826	.34024	.05189
Staff Feedback Survey	49	3.6617	.28810	.04116
Student Feedback Survey	10	3.7440	.26780	.08469



From the table Nos. 1 and 2, it is observed that the p-value < .05 which indicates that

- Theoverall feedback of the quality system for management with respect tothe various operations of the College is aligned with standards of OAAA.
- The overall feedback of the quality system for staff with respect to the various operations of the College is aligned with ii. standards of OAAA.
- The overall feedback of the quality system for students on the various operations of the College is aligned with standards of OAAA.

Table 2. T-Test overall Feedback results for the three groups- Management, Staff, and Students (One-Sample Test)

	Test Value = 3							
				95% Confidence Interval of the Difference				
	t	df	Sig(2-tailed)	Mean difference	Lower	Upper		
Management Feedback Survey	18.937	42	.000	.98256	.8778	1.0873		
Staff Feedback Survey	16.078	48	.000	.66172	.5790	.7445		
Student Feedback Survey	8.785	9	.000	.74400	.5524	.9356		

Table 3. T-Test Individual Report for Student Feedback Survey(One-Sample Statistics)

	N	Mean	Std. Deviation	Std. ErrorMean
Facilities Management Student Learning Support	3	4.0467	.32332	.18667
	7	3.6143	.08541	.03228

Table 4. T-Test Individual Report for Student Feedback Survey(One Sample Test)

	Test Value = 3					
				95% Confidence Interval of the Difference		
	t	df	Sig.(2- tailed)	Mean difference	Lower	Upper
Facilities Management Student Learning Support	5.607 19.028	2 6	.030	1.04667 .61429	.2435 .5353	1.8498 .6933



From the above table Nos.3 and 4, it is observed that the p-value < .05 which indicates that

- The individual report for the student's feedback survey with respect to the Facilities management system of the College is aligned with standards of OAAA.
- The individual report for thestudent's feedback survey with respect to the Student Learning Support system of the ii. College is aligned with standards of OAAA.

Table 5. T-Test Individual Report for Student Feedback Survey(One-Sample Statistics)

	N	Mean	Std. Deviation	Std. ErrorMean
Management	5	3.9152	.22412	.10023
Strategic Planning	6	3.7071	.06546	.02672
Operational Planning	6	3.8283	.18449	.07532
Financial Management	7	3.5065	.07364	.02783
Policy Management	4	3.8788	.06061	.03030
Professional Management	4	3.4394	.13664	.06832
Promotions & other incentives	6	3.1111	.13370	.05458
Facilities Management	5	3.7333	.03320	.01485
Teaching Quality	6	3.9141	.15262	.06231

Table 6. T-Test Individual Report for Staff Feedback Survey(One Sample Test)

	Test Value = 3						
			95% Confidence Interval of the Difference				
	t	df	Sig.(2- tailed)	Mean Difference	Lower	Upper	
Management	9.131	4	.001	.91515	.6369	1.1934	
Strategic Planning	26.458	5	.000	.70707	.6384	.7758	
Operational Planning	10.997	5	.000	.82828	.6347	1.0219	
Financial Management	18.199	6	.000	.50649	.4384	.5746	
Policy Management	29.000	3	.000	.87879	.7824	.9752	
Professional Development	6.431	3	.008	.43939	.2220	.6568	
Promotions and other incentives	2.036	5	.097	.11111	0292	.2514	
Facilities Management	49.398	4	.000	.73333	.6921	.7746	
Teaching Quality	14.671	5	.000	.91414	.7540	1.0743	



From the above table Nos.5and 6, it is observed that the p-value < .05 for all the items shown above except the promotions and other incentives which indicate that

- The individual report for the staff feedback survey with respect to all the system of operations viz. Management, Strategic Planning, Operational Planning, Financial Management, Policy Management, Professional Development, Facilities Management and Teaching Quality of the College are aligned with standards of OAAA.
- ii. But the individual report for the staff feedback survey with respectpromotions and other incentives is NOTaligned with standards of OAAA as its p-value is > .05.

From the table Nos.7 and 8, it is observed that the p-value < .05 for all the items which indicate that the individual report for the Management feedback survey with respect to all the system of operations viz. Management, Strategic Planning, Operational Planning, Financial Management, Policy Management, Professional Development, Promotion and Other incentives, Facilities Management and Teaching Quality of the College are all aligned with the standards of OAAA.

N Mean Std. Deviation Std. ErrorMean 5 Management 4.2250 .16298 .07289 6 4.1771 .14479 .05911 Strategic Planning 6 4.3854 Operational Planning .07307 .02983 7 Financial Management 3.9375 .16536 .06250 4 4.2344 .03932 Policy Management .07864 Professional Management 4 3.6719 .09375 .04688 Promotions & other incentives 6 3.3958 .10206 .04167 5 3.8375 .10458 .04677 Facilities Management

Table 7. T-Test Individual Report for Management Feedback Survey(One-Sample Statistics)

ADRI Analysis of ShCTPractices and SAR, QAR and QIPs

Management

The overall responsibilities of the college are delegated to the College Dean and Assistant Deans. The heads of departments/centers are responsible for their departments. The operational plans (OP) of the Departments and Centers are approved by the College Council.

ShCT is making its great efforts to have committee structure in such a way that these committees can be easily monitored by each of thedepartments/centersin a smoothway and the report from these committees are collected annually. Each department and center are provided with financial and non-financial supports by the college management. The college conducts staff satisfaction for overall management effectiveness. To ensure that objective is met, all the departments/centersreview the key performance indicators, and the report is forwarded to Quality Assurance Unit (QAU) along with the annual report.

Strategic Planning

Allthe operations of ShCT are guided by the Strategic Plan (2013-18). All the goals are aligned with the Mission and the Vision of the College. The strategic plan(SP) contains eight goals divided into sub-goals to monitor the essential activities. The college based on their requirement reviews the strategic plan annually by focusing on the achievements with respective KPIs. Presently, the strategic plan 2015-2016 has been implemented and reviewed. The financial management process has beendrawn for all thedepartments/centers in the form of Budget. The QAU gathers all the feedbackwith regard to the strategic plan and operational plans from all the departments/centers. The college measures the staff satisfaction with the planning and implementations so as to conduct the review process.



Table 8. T-Test Individual Report for Management Feedback Survey(One Sample Test)

	Test Value = 3					
			95% Confidence Interval of the Difference			
	t	df	Sig.(2- tailed)	Mean difference	Lower	Upper
Management	16.807	4	.000	1.22500	1.0226	1.4274
Strategic Planning	19.914	5	.000	1.17708	1.0251	1.3290
Operational Planning	46.446	5	.000	1.38542	1.3087	1.4621
Financial Management	15.000	6	.000	0.93750	0.7846	1.0904
Policy Management	31.391	3	.000	1.23438	1.1092	1.3595
Professional Development	14.333	3	.001	0.67188	0.5227	0.8211
Promotions & other incentives	9.500	5	.000	0.39583	0.2887	0.5029
Facilities Management	17.907	4	.000	0.83750	0.7076	0.9674

Operational Plan

All the departments/centershave executed their operational plansderived from the strategic plan including the goals, subgoals, KPIs and strategies. The operational planning process and approach are available in the Quality Assurance Manual (QAM). The committees participate preparing the operational plan, and every head of departments/centersmonitor the progress of the operation plan with the help of their Quality Assurance Coordinator (QAC). Each department/centerprepare a report of achievements in relates to KPIs. Annual report gives the details of the operation plan implemented.

Financial Management

The strategic plan contains a sub-goal related to the Financial Management to ensure proper implementation of the financial process by conducting a financial management system. The Assistant Dean Administration and Finance Affairs (ADAF) is responsible for the financial management system and is assisted by the head of the finance department. The ADAF and head of finance prepare the annual budget after considering all the requirements from departments/centers, students' and future needs. The budget is approved by the College Dean in consultation with the College Councilconsidering the priorities. Final approval is done by the Ministry of Manpower. The College has auditors who have been recruited directly by the ministry and are responsible for the same.

Policy Management

ShCT has a policy management system (PMS) to manage, review, monitor and approve the policies. PMS helps to support the college activities in achieving the Mission and the Vision. The strategic plan includes the sub-goal of PMS which guides the entire college activities. Also, ShCT has a policy management team (PMT) chaired by the ADAF who guidesthe team and responsible for the policy review. The PMT gathers the informationneeded to develop the policies by different ways and organizes meetings to discuss the issues. PMT send the proposed policies to the concerneddepartment/center and staff to get the feedback. After obtaining the feedback, the PMT submits the final policies to the College Council for approval. The College has also implemented an online PMS system to send all the approved policies to the stakeholders and collects the feedback online. The stakeholders can easily access the website to see their respective policies.



Professional Development

The strategic plan contains the related goals and sub-goals for the professional development. The staff professional development committee (SPDC) and the department/centerare responsible for deciding and developing the training needs of all the staff.

In coordination with the departments/centers, the college has conducted several training programs as a part of in-house programs, and the ministry of manpower has a system of training Omani staff. ShCT plans to improve the current system of professional development which is based on the stakeholder's feedback furtherin coordination with the Ministry of Manpower.

Promotions and other Incentives

The College recognizes the hard working staff by rewarding them. The College strategic plan contains goals and sub-goals for promotions and other incentives. In this regard, the college has reviewed the policy of promotions and other incentives and establishedcriteria to decide whether staff is eligible for the reward. The purpose of the criteria is to guide the department/center in deciding the staff nominated for such award. The award to be given to the nominated staff is approved by the college council.

Teaching Quality

Several methods are used by the staff in teaching such as tutorials, group participation, projects, lectures, case studies, Simulation, practical, interviews and presentations. ShCT ensures the staff to be qualified in their areas of specialization and the college conducts professional development program to the recruited staff. ShCT uses different tools to measure and evaluate the effective deliveryof the courses such as a) Head of Department / Head of Center and Head of section evaluation; b) Peer evaluation and c) Students' Evaluation of Teaching(SET).

Facilities Management

The college strategic plan contains two sub-goals for the facilities management and process to ensure the effectiveness and sufficiency of the services offered. The administration has implemented an online system for the services provided. The staff can use the web portal to get their needed services, and the web services include the replacement, maintenance and providing new facilities. The online services enable the administration to monitor all the process in a smooth way. This makes easy for the administration department to supervise the services like carpentry, cleaning, plumbing and electrical works. The Educational Technology Center (ETC) in the college is responsible for the computers and lab maintenance. Besides, finance department ensures availability of finance for maintainingsuch facilities. College has implemented stakeholders satisfactions survey (students and staff) to measure the quality of such services provided.

Student Learning Support

The departments/centers plan the programs in line with the curriculum. The college gathers information such as the minutes of meeting etc. and the committee formed to identify aproper mechanism to decide on the needs of the student learning support by delivering the services and planning the resources. The College is doing its best to build a proper mechanism to determine if the student learning support services are sufficient or inadequate. To measure the effectiveness of the student's learning activities, thedepartment/center uses the survey results to improve.

CONCLUSION

The study results based on the survey reveals that

- The systems, process, practices in relates to the management are aligned with the requirements of the OAAA.
- The systems, process, and practices aboutstaff are aligned with requirements of the OAAA in all areas except ii. promotions and other incentives.
- The systems, process, and practices about students are aligned with requirements of the OAAA.

Based on the ADRI Analysis of ShCTPractices and the study of SAR, QAR, and QIPs, the practices of the College aboutmanagement, staff, and students are clearly defined, continuously assessed and evaluated. The improvements are linked to the results. The college rating is in line with the research finding, and the practices are aligned with OAAA requirements.



Based on the comparison of ShCT practices, the comparative study indicates that some of the practices related to management, staff, and students need further improvements. However, the overall the practices met the requirements of OAAA.

Table 9. The College practices compared withOAAA requirements

#	Area of Operations	OAAA requirements	College Practices
1	Management	Clearly defined management system with support HEI objective: Students and Staff in decision-making bodies	The college has management structure defined, staff represented on committees and student council represents student's awareness.
2	Strategic Planning (SP)	The strategic plan developed in consultations with stakeholders, SP indicators, and KPI evaluation.	The collegehad SP developed in 2012; all stakeholders involved, KPI are in place to monitor the programs.
3	Operational Planning (OP)	OP is aligned with the SP; OPenables HEI to manage the achievement and challenges objectives.	College has OPs aligned with SP and managed by the department/center.
4	Financial Management	Financial Resources are adequate, managed and audited.	The college has an annual budget controlled & audited by Ministry.
#	Area of Operation	OAAA requirements	College Practices
5	Policy Management (PM)	PMs in place, Policies & Procedures Guide HEI operations.	PMsis available in College, Policy & procedures are available for all College operations and accessible.
6	Professional Development (PD)	HEI has a systematic approach to PD of staff.	The PD is not addressed(for expatriate staff) through the Ministry of Manpower, but only an internal system is available.
7	Promotions and other Incentives	A staff promotion & reward system which is transparent and appropriate.	The college lacks a clear system.
8	Teaching Quality (TQ)	TQ is supported with Teaching methods, Qualified staff, and ongoing evaluations.	TQ is continuously improving with qualified staff and ongoing evaluations.
9	Facilities Management	Facilities are well managed appropriately and effectively delivered.	Facilities are continuously assessed and improving.
10	Student Learning Support	The range of extracurricular learning support services effective and appropriate.	Department/Center have clubs which conduct different programs for students to help them in learning

RECOMMENDATIONS

Based on the survey and the study of SAR,QAR,QIP and comparing the practices of ShCT with the OAAA requirements, the following recommendations as opportunities for further improvements have been identified:

Management - The College needs to formulate a committee system to play a major role in all the college functions. The college needs to approve and revise its staff appraisal system for the staff at all levels. When senior management changes, the





college has to reduce the disruption by coordination and consultation with theministry of manpower, which in turn willenable the college to have a systematic approach.

Strategic Planning - TheCollege needs to conduct external benchmarkingto measure the progress of achievement in the college objectives and strategies.

Operational Planning – TheCollege needs to conduct benchmarking for the operational plans, and all the departments/centersmust improve on its implementation to meet the target set for the KPI.

FinancialManagement – TheCollege needs to provide more attention to link the proposed budget with the Vision, Mission, Strategic Plan, Operational Plan, infrastructure and equipment development such as labs and workshop.

Policymanagement –The Collegehas to involve the staff in the policy development and engage them in the implantation which will lead to positive results.

Professional Development – The Collegeshould offer more opportunities for professional development to both the academic and administrative staff to attain the target. Besides that, the college should plan for professional development based on the feedback from the stakeholders in consultation with the Ministry of Manpower.

Promotions and other incentives - The College needs to introduce a system to recognize the efforts and performances of both the academic and administrative staff. Further, the college should review its policies and procedures to introduce the governance of staff promotions and other incentives. The College has to identify the promotion criteria for academic staff based onteaching, performance improvement, research and scholarly activities.

Teaching Quality - The collegeshould have a plan to enhance its student-centered learning practices appropriate to its specialization in line with the Mission, Vision and also by considering the feedbacks and benchmarks.

FacilitiesManagement -Foreffective facilities management, the college should develop a strategic approach to screen and upgrade whenever there is a need. The College needs to plan for entertainment facilities for both staff and students. The College also has to improve facilities such ase-learning resources, workshop, labs, and classrooms.

Studentlearningsupport - TheCollegeshould offer more support for learning different disciplines as well as providing sufficient learning and training opportunities for the students.

Having said the above recommendations, ShCT can then easily become aligned with the OAAA requirements.

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