Establishing a Quality Culture in Higher Education: A South African Perspective

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***Abstract*--The merger of Higher Education Institutions (HEI's) has created monolithic organisations of inefficiency and ineffectiveness in administrative and academic processes. It was the result of mismatched and outdated processes inherited from merged institutions. The student or customer is deprived of a quality service by the unwieldy processes. The end users of the product from the HEI's are uncertain of the quality of the finished product that would be employable. Employers measure qualified students to certain quality standards. In the past-two decades industry realized to remain competitive, continuous improvement became imperative for success. HEI's is not excluded from competitive pressures. The debate currently raging is whether total quality management (TQM) principles could be applied in HEI's. The methodology of TQM has been utilized in industry over an extended period of time with impressive results. A major obstacle in applying TQM in HEI's is the argument that there are environmental differences between industry and HEI's. The aim of the article is to find common ground between industry and HEI's. The above could be achieved by tailoring the major features and potentialities of basic TQM principles and guidelines to fit HEI's.**

I. BACKGROUND

The contemporary challenges facing Higher Education (HE) comes from the demand of political leaders for access for a greater share of the country's population to meet the demand of the new economy [39]. South Africa is not excluded from a clamour for access to higher education for everyone. Competitive pressures increased in industry during the past three decades. Industry realized that continuous improvement of performance was required to remain competitive [31]. The philosophy of total quality management (TQM) was embraced as a methodology to achieve continuous improvement [43]. The roots of TQM was firmly established in industry but could be transferred to HEI's [39, 42]. There is consensus that TQM principles could contribute to continuous improvement in HEI's [7, 34]. Each HEI interpret the meaning of quality differently. The result is that the focus of improvement varies significantly between different HEI's. The common themes found in quality policies are customer focal point, process direction and continuous improvement. The listed focus areas directly impact on teaching and learning at HEI's [43]. The result is the creation of resemblances and differentiation in implementation in industry and HE of TQM. From the viewpoint of industry it was realized that large amounts of money and time is required during implementation of TQM. Implementing TQM in HE processes create different problems. A major problem area identified is the long lead-time for creating new processes in HE. There is a lead-time of at least three years in HE when new processes have been implemented before results become evident [43].

II. LITERATURE REVIEW

The result is that self-assessment is recognized as a strategy to achieve continuous improvement in HE. The strategy was copied from the philosophy of TQM as practiced in industry [8, 24 and 41]. The literature indicates that different levels exist in the use of operations management practices (TQM, lean production) in manufacturing and service sector. The implementation of industry quality procedures could be adopted by the service sector (HEI's) [44].

The literature underscores the fact that the assessment instruments and quality assurance matrices could be crucial during the implementation of TQM in HEI's [6, 39]. The benefits derived would impact on teaching and learning as well as the resultant qualifications attained by students. A two-staged approach to evaluation could be utilized by universities [6]. The two stages are internal self-evaluation and external peer review. The higher education quality committee (HEQC) require HEI's in South Africa to follow the above methodology. The HEQC publishes the criteria on the HEQC website www.che.ac.za. The published criteria are fundamentally derived from the TQM philosophy.

HEI's guard their academic independence jealously. Therefore University management faces a leadership challenge in managing quantity. The major issue that must be addressed is governance and the silo management between academic and administrative processes [39].

Students are expected to pay ever-increasing tuition fees while subsidy payments decrease at the same time. An important question arises namely "is a student of customer?'' Students are customers because they pay for a service namely education [13]. HEI's could expect radicalisation of the student body if students are classified as customers. Students would demand a quality service equated to the price they pay for their education [17].

III. TQM ACUITY IN A SERVICE ENVIRONMENT

There is a train of thought that HEI's are funded and managed differently than in the past [39]. Management improvements have its roots in TQM. As a result' HEI's become reactive to the needs of their customers. The

following service quality dimensions have been developed [33]:

- Tangibles. The physical appearance of the service facility, equipment, personnel and the communication materials.
- Service reliability. The ability of the service provider to perform the promised service reliably and accurately.
- Responsiveness. The willingness of the service provider to be helpful and prompt in providing the service.
- Assurance. The knowledge and courtesy of employees and their ability to inspire trust and confidence when dealing with customers.
- Empathy. From the service provider the customer deserves getting individualized attention.

It is postulated that a further four principles could be added [17, 25]:

1. Enchant the customer. In HEI's the focus should be on the customer. The changes must be more than what was expected by the customer. The principle is a fundamental element of TQM.
2. People based management. Important to the philosophy is that HEI's understand what to do, how to do it and listening to feedback from the customers. The philosophy has at its core total customer satisfaction through continuous improvement.
3. Continuous improvement. No major breakthrough improvements would be achieved as with business process reengineering (BPR). The improvements that are achieved are incremental.
4. Management by fact. HEI's must know exactly the present state of the processes that are utilized. Management in HEI's must defer from using subjective measures when measuring performance of the processes. Proper matrices must be developed for every process. As a result decisions will be based on fact rather than fiction.

IV. QUALITY IN HIGHER EDUCATION

Two categories of quality are identifiable in the higher education sector [39]:

1. Service rendered into student such as the enrolment process and library services is an example. Administrative processes include factors such as publishing of examination marks, academic records and management of residences.
2. The process of teaching and learning. Included is the actual teaching of courses and research to ensure that the courses are relevant to students and industry that has to employ the graduates.

The implementation of quality in HEI's resulted in a change to the responsibility and strategic focus of HEI's [6]. The changes were facilitated through the application of TQM methodologies previous seeing as the prerogative of industry. According to the researchers, appraisal could be voluntary or compulsory. The appraisal could be internal through self-evaluation and external through peer reviewing. The external review is at the systemic level. The importance of the review process could not be over emphasized. Self-evaluation should be undertaken for academic processes and administrative processes. The following benefits can be defined from quality implementation [41]:

- The identification of improvement actions.
- Empowerment of employees through employee involvement and taking responsibility for their actions.
- Employees made aware and raising the understanding of quality related issues.
- A universal methodology for continuous improvement actions.
- Assist employees to refocus their attention on quality.

V. SIMILARITY AND DIVERGENCE BETWEEN INDUSTRY AND EDUCATION

The measurement of quality in industry is easy. Measurements could be undertaken throughout the process or at the end of the process as finished goods. In contrast, quality the measurement of education products is difficult. In industry the inspection of products is easier as they are homogeneous. In education the human product is non-standard and as a result difficult to inspect [39, 43]. The major point of some latitude between industry and education is process flexibility; customer buys, in proof meant and the dynamic environment in which both operate.

Extrapolating the work of the quantity gurus, students could be classified as the whole materials and teaching and learning as the class formation process which produces graduates. The graduates can then be seen as the final product of the education system. Industry has learned hard lessons if they produce and sell inferior products to customers. Education could learn from the lessons of industry. The fact remains that the differences between full concentration has not been heeded by HE [39]. As a result the range of customer wants in higher education and the processes require satisfying the wants could be classified as a major issue.

A. TQM implementation impediments in HE

Without the TQM philosophy of continuous improvement it will be especially difficult for HEI's to remain competitive. The major difficulty in applying TQM in an organization, goods or services, is a misunderstanding of what is required during implementation. One of the most important impediments is a lack of leadership managing the quality programs. Humans in the process must understand their functions and responsibilities in the process of executing TQM. Implementation policies are fixated with the processes instead of focusing on the system.

A further import omission during implementation is listening to the voice of the customer [33]. A major obstacle in education and industry is the fear of the unknown by employees. TQM move people from their comfort zones to the unknown, which causes high stress levels for employees [1, 13 and 33]. An example is that academic staff members do not want to change their lecturing style by incorporating new technology. Administrative staff slavishly follows processes without questioning the reasoning behind the manner in which work is carried out. An additional barrier in education is the outdated curriculum design [43].

An added barrier in education is the scarcity of sufficient funds and resources. The success of TQM implementation is dependent on a University accomplishing a paradigm change in managing of funds and resources. Methodical and planned training of employees could achieve the goal 6, 17 and 41].

B. TQM configuration in HE

The major precept of TQM is the reduction or elimination of waste from a system or process. The precept is applicable to the manufacturing and service environment equally. Poorly designed processes would inherently have waste included in each of the processes. The following seven types of waste in service processors have been identified [33, 40]:

1. Delay. The delay experienced by the customer while waiting for service delivery, time spent waiting in queues and service not materialising. It might seem to the service provider that the time of the customer is free. The perception is a fallacy. If the customer leaves there would be an unfilled gap. Examples can be found at higher education institutions during registration, after examinations when students attempted to access final examination marks and when students attempt to play the accounts.
2. Duplication. It occur when staff members have to re-enter data, duplicate details on various forms and copy information across as well as answering queries from several sources within the organisation. The situation occurs at merged institutions where individual partners aspire to retain their system because of its untested uniqueness. Systems must be rigorously interrogated and adapted to the new environment.
3. Unnecessary movement. When customers have to queue several times for the same service, lack of one-stop service and poor ergonomics in the layout of the service area.
4. Poor communications. The waste encountered by the customer seeking clarification of their next step, uncertainty in the mind of customer where to go next and wasting time finding the location, which might result in misuse or duplication.
5. Including inventory. Describe the unavailability of forms, inability to source the correct information and the unavailability of substitute services.
6. Opportunity lost. Describe the inability of the organization to retain or win new customers, failure to establish rapport with the student body, ignoring customers as well as surliness and rudeness of staff members. The organization has lost an opportunity to satisfy the needs of the customer.
7. Errors. Unnecessary it is in the service transaction will, product defects in the product service bundle or lost information.

The philosophy of TQM insists on an all-inclusive commitment to quality from every person employed by the HEI [3, 5, 36 and 40]. Without the commitment to the philosophy the probability that implementation will fail as a result is high. Certain staff member would have an increased responsibility for the success of TQM in the organisation. The staff members could not abdicate or neglect the responsibility. The following staff members have an increased responsibility as discussed:

1. Senior management. The fundamental responsibility for quality programmes is vested in senior management. The policies to attain superior quality levels must be developed at a strategic level for the organization. Senior management are responsible for guidance, management and motivation of stuff members to attain the highest possible quality levels. Senior management should set the example illustrating that the organisation is a serious regarding quality performance by involving themselves in quality initiatives.
2. Staff members involved in designing of processes. Quality is not to add on to a process. During the design phase of a process the designers of must ensure that the attainable quality specifications are developed and included in the process. Designers should design quality into the process and not only for the features of the service. Quality would fail if the process were incapable of attaining the required quantity standards.
3. The quality assurance process. Staff members functioning in the process is responsible to gather quality information. Quality assurance staff has to interpret the data gathered correctly ensuring correct information is provided to the staff members populating each process. The data would be utilized to determine continuous improvement opportunities.

VI. DIMENSIONS OF SERVICE QUALITY

The following criteria or scope could be adapted to measure quality HEI's:

1. Convenience. Describe the ease of use and user-friendliness of the service.
2. Reliability. Describe the capability of the process to perform a service without fail, unfailingly and accurately.
3. Responsiveness. Describe the enthusiasm of the service providers to assist customers in extraordinary situations and to deal with problems.
4. Time. Describe the speed at which this service is rendered.

5. Assurance. Describe the familiarity demonstrated by staff members dealing with customers and the ability to communicate confidence.
6. Courtesy. Describe the manner customers are regarded by staff members during face-to-face interactions.
7. Tangibles. Describe the physical appearance of facilities, equipment, staff and communications materials.

A. Characteristics of a well designed service system or process

The wastes that have been identified could be avoided during the design of the process adhering to the following [5, 36 and 40]:

1. This system and processes must consistently meet the mission of the institution.
2. Systems and processes must be user-friendliness.
3. The system and processes must be able to accommodate variability and must therefore be designed robustly.
4. This system and processes must be easy to maintain at a high level of efficiency and effectiveness.
5. The system and processes must be managed in a cost effective manner.
6. This system and processes must add value to the customer both internally and externally.
7. A linkage has to be developed between processes with high levels of customer contact and processes with little customer contact.
8. Systems and processes should have a common goal. The goal should be the total satisfaction of customers.
9. Checks and balances should be designed into the system and processes that would result in reliable and superior quality processes.

B. Challenges countenance during service process design

The design of a process is an arduous task and designers would have to confront many challenges. The following are the common challenges [17, 41 and 43]:

- There is great variability in customer's expectations. As a result the process should be designed in a robust manner to accommodate the variability.
- Due to the nature of services it is difficult to express adequately. The reason is that oral explanation by its nature is inexact.
- Personal contact between a customer and process staff is high. As a result, inferior quality could result if staff members do not understand their responsibilities in the proceeds.
- Designers must recognize the importance of the service - customer interface. The variables that influence the interface is numerous.

C. Steering philosophy for successful service design

Designing processes in the service industry could be a difficult task. That is doubly so in designing processes in HEI's. The following guiding principles for designing service processes have been identified [1, 29, 30, 39 and 40]:

1. A detailed definition of the processes is required.
2. Design must be undertaken from the standpoint of the customer.
3. The impression that is projected to the customer or potential customer is important and should be considered.
4. Familiarity of the designers with the process might influence their objectivity during the design phase. Designers must take the customer's point of view into account.
5. Management involvement is important during the design phase. That would guarantee acceptance by management at implementation.
6. Quality specifications must be developed during the design phase for intangibles as well as tangibles.
7. Empower staff members through training and the recruitment of suitably qualified people to populate the process.
8. Standard operating procedures (SOP's) have to be developed to address predictable and unpredictable events.
9. A system should be developed to monitor, maintain and improve the processes.

VII. TQM MODELS

Numerous models are available that could be utilized as a structure for TQM in HEI's. Research indicates that TQM addresses the service environment within the HEI's by monitoring each process within the HEI's [17, 41 and 43]. Processes that are not transparent in the manner that they operate is incapable of monitoring. A transparent process could be recognized by:

- The focus must be on the customer.
- The transformation of students.
- Synergistic collaboration between academic, administrative staff and students.
- Senior management demonstrate commitment to TQM philosophy principles.

The adaptation of TQM as a philosophy practiced in the industry to higher education is demonstrated by the literature discussed. Notwithstanding the different approaches being industry and higher education, common ground does exist. A model for TQM in education has been adapted from research by **[6]** and is depicted in the following table:

TABLE 1 TQM MODEL FOR HIGHER EDUCATION ADAPTED FROM [6], PAGE 309)

A	Needs and goals	A1: A2: A3:	Wants and desires of the customers. Universal aims, procedures and professional bodies participation. Explicit learning aims.
B	Organisational system	B1: B2: B3:	Administration and management. Control and accountability. Feedback.
C	Resources	C1: C2:	Human resources Infrastructure
D	Educational process	D1: D2: D3:	Design and planning. Learning activities. Learning services.
E	Results, analysis and improvement	E1: E2:	Results. Analysis and improvement

In the opinion of the authors the needs and goals of the HEI should be the most important factor during the determination of the vision and mission of the HEI. Misinterpreting the needs and goals of customer would have catastrophic consequences for the newly designed processes. Improvements that might have been accomplished would be null and void if that processes does not satisfied customers wants and needs. The goals of the improvement process would be opposite to what the customer requires.

The organizational system should include every process that facilitates the effectiveness of the institution in its entirety. Each process must be investigated and to prove continuously.

Resources might contain most of the wastefulness. The wastes inherent in the process are the major reason for the poor performance of the process.

Poor planning or lack of planning in the educational process would result in an ineffective and inefficient process. The result could be inferior quality qualifications and teaching and learning experiences. The wants and needs of the customers internal and external would remain unfulfilled.

Poorly performing results, analysis and improvement process would include failures from the first four processes. The result would be that the institution has many out-of-control processes. The effectiveness of the process is strongly interrelated to the performance of the education process.

Ensuring a functional TQM strategy in a higher education institution requires adherence to the following six core values [1, 6, 24, 29, 39 and 40]:

1. Leadership. The term leadership refer to senior level leadership of the HEI's. The level of management consists of the Chancellor, Vice Chancellors, Deans, and Directors of administrative departments, Council members and Senate members. Senior management must have a focus and clear goals on the customer, commitment to quality that would enhance performance excellence. Improvements in leadership could be achieved through a participation management style. A feedback process must be in place to draw attention to inferior quality and senior management should act when becoming aware of inferior quality.
2. Educational management. Responsibility at this level of management includes the investigation of key elements of every process. The design of processes must be critically examined to determine their fit for purpose [18, 26 and 40]. The process should address student performance and corrective action.
3. Human resource management. The investigation of the process should focus on whether staff development and training meet the objectives of that particular HEI. A climate of performance excellence should be fostered.
4. Information management. The process must investigate effective use of data. A key area is whether the available information supports the strategic goals of the institution. Analysis of the information must be undertaken and a speedy response strategy should be developed from the analysis undertook.
5. Managing customer focus and satisfaction. The process will determine to what extent institution that use input from students and other external stakeholders. The process works as a result developed matrices measuring performance.
6. Developing and managing of partnerships. The 21st century higher education institution could not progress without forming strategic partnerships or alliances. In this

element would be included the first five elements. There must be partnerships if the institution wants to survive.

VIII. QUALITY COSTS

Whether or not it is explicitly planned for, quality or the lack of it also takes resources [5, 6, 11, 18, 22, 24, 26, 27, 29 and 40]. Quality costs in sections of South African manufacturing industry are despairingly high, particularly in small companies. These include costs of rejects and scrap, rectification costs, warranty costs and related customer support, and also inspection and prevention costs. These latter costs can be major even today, but product liability legislation adds a whole new dimension to external costs of quality. South African manufacturers are sceptical about placing a value on quality cost, as it would highlight poor management of the organisation.

Not only are quality costs high in South African industry and service environment, they are frequently not quantified. It is true in manufacturing, but even more so in the service industries where they might not be quantified. The costs, however, are frequently the only accessible costs for improvements in profitability and pricing under competitive pressures. There is thus a need to both define and reduce quality costs within the South African industry. When most people are asked about the cost of quality they usually think about the cost of inspection and scrap, but there is far more to the cost of quality than this. Below is a list of quality costs, which is by no means complete. Many of these costs are hidden but can be determined. The cost of quality can be much higher than one can imagine. Many organisations summarise the costs associated with quality the following categories: Internal failure, external failures, appraisal, prevention and hidden.

A. Internal Failure Costs

Internal failure costs are the cost of deficiencies discovered before delivery that are associated with the failure to meet explicit requirements or implicit needs of customers. Also included are avoidable process losses and inefficiencies that occur even when requirements and needs are met. These costs would disappear if no deficiencies existed. Internal failure costs consist of:

B. The cost of not meeting customer requirements and needs

For example scrap; rework; lost or missing information; failure analysis; scrap and rework supplier; one hundred percent sorting inspection; re-inspection, retest; changing processes; redesign of hardware; redesign of software; scrapping of obsolete product; scrap in support operations; rework in internal support operations and downgrading.

C. Cost of inefficient processes

Some examples are variability of product characteristics; unplanned downtime of equipment; inventory shrinkage; variation of process characteristics from best practice and non value-added activities. Internal failure costs are the cost of deficiencies discovered before delivery that are associated with the failure to meet explicit requirements or implicit needs of customers. As a quality system is implemented and becomes effective, internal failure costs would decline.

D. External failure costs

External failure costs are associated with deficiencies that are found after the customer receives the product. If no non-conforming products were produced, this cost would vanish. Such cost includes the following:

E. Prevention costs

Prevention costs are incurred to keep failure and appraisal costs to a minimum. The following are examples of prevention costs: Quality planning; new products review; process planning; process control; quality audits; supplier quality evaluation and training. Preventive costs increase with the introduction of a quality management system but are justifiable by reductions in total quality costs.

F. Appraisal costs

Appraisal costs are incurred to determine the degree of conformance to quality requirements. It is associated with measuring, evaluating, or auditing products and services. The following are examples of appraisal costs: Incoming inspection and test; In-process inspection and test; final inspection and test; document review; balancing; product quality audits; maintaining accuracy of test equipment; inspection and test materials and services and evaluation of stocks. Appraisal costs occur during and after production but before the product is released to the customer. Hence, they are associated with managing the outcome while prevention costs are associated with measuring the intent or goal.

G. Hidden quality costs

The cost quality may be understated because of costs that are difficult to estimate. Hidden costs occur both in manufacturing and service industries and include the following; Potential lost sales; costs of redesign of products due to poor quality; costs of changing processes due to inability to meet quality requirements for products, costs for changes to software; costs of downtime of equipment and so forth. From the above it can be seen that quality can cost an organisation a lot of money and effort. For this reason it is absolutely essential that every organisation does everything possible to "do it right the first time."

IX. TQM METHODOLOGIES APPLICABLE TO HE

A. DMAIC cycle

Utilising the six-sigma methodology for improvement purposes there are a number of techniques available to achieve the breakthrough strategy. The first technique is defined, measure, analyse, improve and control (DMAIC) cycle. It is also known as the six-sigma improvement model.

The most important fact that must be borne in mind is the importance of customer needs in the methodology. The satisfaction of the customer needs is of paramount importance for process to be deemed successful. The DMAIC cycle is also known as "Dumb Managers Always Ignore Customers" if the importance of customer needs are ignored [14 and 27].

The five phases of the DMAIC methodology is as follow [8, 14, 15, 27 and 40]:

1. ***Define.*** The crucial results must be identified. It would assist in the identification of performance gaps in the current processes or systems for improvement purposes. Customer requirements would be the most important results. Defining the problems fulfil two very important purposes. Firstly the definition would guarantee that the scale of the problem is fully understood. Secondly it would identify accurately the needs necessary for the improvements to the process or system.
2. ***Measure.*** The work presently carried out in the process or system must be measured. During this phase inputs, outputs and process performance must be measured. It is an attribute of the six-sigma methodology that facts would be the driving force of any improvement. Therefore the data that would be utilised for improvement must be corroborated. It would guarantee that an exact determination of the process or system function could be made.
3. ***Analyse.*** The data that has been collected must be carefully analysed. Supposition must be developed that would assist the HEI's in identifying the core sources of what is wrong with the process or system.
4. ***Improve.*** Any improvements would be accomplished through the redesign or modification of processes and systems. Without first identifying the core sources no improvement to processes or systems could be undertaken. The critical analysis of every improvement idea must be undertaken. The project team must ensure that the original core sources have been addressed by the proposed improvement plans.
5. ***Control.*** Constant measurements of improvements must be done. It would guarantee that the improvements perform as intended. The improvements that work must be implemented, formalised, and regular measurements must be undertaken. Thereafter, the DMAIC cycle would continue to improve the process or system further.

Every phase of the methodology has its own tools for improvement. The tools or techniques on their own would not be sufficient during the implementation phase. The tools must be integrated with the six-sigma methodology. The full array of tools would not necessarily be utilised with every improvement project. A clear and concise problem statement is important for a successful project. It is important that the cycle is never ending. Continuous improvement can never stop. If it does, the processes or systems would revert to the ineffective and inefficient systems before the implementation of improvements.

B. Flow chart

The flow chart is also known as flow diagrams, process maps, relationship maps and blueprints. Before six-sigma or any other improvement methodology could be defined without a doubt, the process that produces the products delivered to customers must be thoroughly understood [11, 15, 21 and 40]. For the intent and purpose of the flow chart, the process outputs for internal and external customers must be understood. The flow chart would represent the chosen process to be investigated visually. The process would be represented graphically.

Problems that are represented visually are usually more easily understood. Flow charts could be utilised at the strategic, process and nested levels in the HEI. At the strategic level the flow chart would not display detailed information regarding the processes of the HEI. At the strategic level the flow chart would be a summary of the processes found in the HEI. At this level the flow chart would illustrate the interdependencies and relationships of the processes. At the process level a detailed flow chart will be compiled for every process in the HEI.

X. TQM IMPLEMENTATION IN HE

Successful implementation of TQM is reliant on the approval by senior management. Approving the plan, senior management demonstrate to the HEI their commitment to the improvement of quantity and continuous improvement. [1, 3, 6, 7, 9, 10, 12 and 16] Staff members must be informed about the responsibilities and roles in the TQM plan. Staff members that are unconvinced would not participate and could cause the TQM plan to not succeed. Teamwork during implementation is important [35]. Individually staff members would be ineffective changing processes. A team approach would ensure that every staff member work towards a common goal. Teams must be created at the beginning and each should be given clear responsibilities. There are seven steps required for a successful implementation:

1. Senior management commitment. As stated earlier, without their commitment successful TQM implementation is impossible [22]. Management could be involved in the various manners. Approval of the plan is one. Another is attending staff training sessions. By their participation in teams and the improvements undertaken by the team is another demonstration of commitment. The result of management participation is staff appreciation of the usefulness of their efforts.
2. Clear channels of communication. A project of any magnitude is doomed to failure if the channels of communication are befuddled. The reasons for undertaking the exercise of process improvement must be clear to every participant. The common objective of the communication must be the identification of areas for improvement [18 and 38]. A common method of communication is through the Intranet of the institution,

academic board meeting and departmental level meetings. The process of communication could get underway by the Chancellor communicating through a letter to staff members explaining the need for improvement. The letter could be published on the Intranet and forward to Dean's for distribution to academic departments. The action would reinforce the importance of the undertaking.

3. Self-assessment planning. Self-assessment is the cornerstone of the plan [2, 4, 19 and 20]. There are numerous approaches that could be utilized. The most common is the workshop approach. Brainstorming is utilized to find possible improvement ideas. During the stage the resources required to achieve the improvements should be identified. Every member of the team must be allowed to speak during the brainstorming sessions. No contribution should be seen as the irrelevant. In industry, the exercises known as a Kaizen event.
4. Team composition and training. The size of the improvement project would determine the number of teams to be formed. The number of team members would be determined by the size of the department undertaking the kaizen event [35]. A cross sectional of staff members from the department and service departments must be part of the team. There should be no distinction between management and staff. They are team members of equal standing. A person not part of management or the department should be the facilitator of the team. The majority of the members would have no knowledge or understanding of TQM principles. Training of team members must be seen as a priority. That is another way in which management could demonstrate their commitment to quality improvement. Motivation of staff members is important in the attainment of understanding of the TQM philosophy.
5. Understanding self-assessment of the selective process. Meetings are the most efficient method to identify the requirements in attaining improvements [37 and 38]. The duration and frequency of the meetings would be determined by the extent of the improvement to be achieved. There is no hard and fast rule governing the issue. The experience of each department during the improvement process would determine the frequency and length of meetings. The meeting would have to agree on the strengths and weaknesses of the process being analysed. Thereafter the meeting would have to agree on the best way to improve the process. The improvements should be ranked in sequence of their importance to the success of the endeavour. Ranking could be from highest importance to the least importance. The high important processes would be improved first. Therefore the improvement with the least impact would be the lowest ranked.
6. Instituting and execution of action plans. The action plans would establish the viability of the improvement project and requires the approval of senior management [23, 28 and 32]. The identified plan forms part of the strategic plan of the department and the HEI. Senior management and head of departments (HOD's) should convene meetings where the sequence of improvements must be discussed. Management at both levels should commit themselves to the achievement of the improvement goals.
7. Feedback and monitoring. The improvement process has to be monitored constantly [10, 18, 21]. There are various methods that could be utilized to monitor improvements. The most often utilized are bar charts, which display improvements planned, and the actual improvements that were attained. At a glance each team members could determine the performance achieved by the team. Regular feedback must be given to senior management of the progress of the improvement project. Lucid treasons must be forthcoming for the improvements that were not achieved. Management has to decide on corrective actions required to ensure improvements are achieved in the shortest possible time. During the phase the commitment of participants would crystallize.

XI. CONCLUSION

The higher education sector is decades behind industry to embrace the advantages that could be achieved through the implementation of TQM principles. The resistance within HEI's are fierce against implementation of TQM principles in HE. Laser optical is the fact that many TQM implementations in education filed. Researchers advance many reasons for the failures that occurred. The major reason is the most understanding of the TQM philosophy in higher education. Start members with little or no TQM experience have the responsibility to implement TQM in HEI's. Another major stumbling block to TQM implementation is the time and effort required for successful implementation. When they are no immediate results senior management and middle management as well as the members become disenchanted with the philosophy of TQM. As a result escape routes are look for an TQM is classified as an unworkable solution in higher education. The feedback loop in the implementation processes is of the utmost importance. If the feedback loop is ignored the probability that the TQM implementation will be successful is very low. Implementing TQM in HEI's would allow institutions to:

- Take cognisance of the constant changing of customer needs and wants and be proactive in satisfying their needs.
- Effectively utilize the resources by regulating their use on actions that accurately satisfies customer needs.
- Use the process appraisal response loop for making improvements in a methodical and continuous manner.
- Engage both students as well as the staff members in their quality mission.

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