3. FINANCIAL ASPECT OF QUALITY IN EDUCATION

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Abstract

This paper focuses on the financial angle of quality by introducing concept of costs related with the quality in an educational organization. Various types of quality costs are identified and method of analyzing such costs and its benefits are discussed. A synergy between the quality management and costing systems is proposed by focusing on activity-based costing and it is suggested that this would result in optimizing the activity costs. This would also be a step towards achieving total quality management.

Introduction:

Institutions of higher learning have a responsibility in imparting knowledge, developing skills, improving intellectual capacities, inculcate values and develop positive attitude in its students. Ironically, most institutions only try and address the first issue i.e. imparting education.

To achieve this, educational organizations follow the guidelines prescribed by their respective universities. Some serious ones do opt for developing systems addressing the quality aspects based on different standards. With the business of education continuously becoming more and more competitive and with Indian graduates entering global arena, it is imperative that the quality issue is taken more seriously. Educational organizations already implementing the quality philosophy should now move away from the compliance culture and try to work towards attaining total quality. However, for effective and serious implementation of continuous improvement program, a more sincere and determined approach is needed. It is pertinent to note that while ISO 9001:2008 is not very clear on the financial resources, standard ISO 9004:2009, Managing for the sustained success of an organization – A quality management approach–does refer to the allocation of such resources and the effect––improving the effectiveness and efficiency of the management system–can have on the financial results.

It is interesting to observe that while establishing and operating the quality system in any industry, especially in the education sector, the financial issues are usually never taken into account. The education system remains "academic driven" and not really "finance driven", except the issue of collection of fees and ensuring yearly surplus. While it is undisputable that the educational institution should not be considered as a business, but it is imperative that it is operated like a business with all modern management tools and techniques, appropriately used.

This paper is an attempt to look at the financial angle of the quality and to document

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different costs incurred by an organization in this process.

Quality Costs:

Broadly speaking the quality costs are the costs associated with the prevention, discovery and treatment of defects in a product. Such costs may occur at the design stage, process stage or even after the product has reached the eventual customer. As a rough estimate, it is felt that such costs account for about 20 to 30 percent of total costs. Further these could be about 15 to 20 percent of the total revenue of the organization. [Saxena (7)].

The identification of these costs and their subsequent treatment is also a method of achieving quality improvement on a continuous basis in the organization.

The quality costs can be categorized as costs incurred in initiatives taken for improving quality and costs due to poor quality of product. These can also be referred as cost of control or conformance and cost of failure to control or non-conformance. The cost of conformance would include costs of all preventive measures taken to ensure quality and these are also referred as preventive costs. The focus of the preventive costs is to assure quality by avoiding or reducing the possibility of situations leading to losses/ delays. These would include costs of operating the quality system, training provided to the employees etc. The other group in this, is the costs of various testing done during the production of a product of service, including the test on incoming material. These are referred as appraisal costs.

The costs of poor quality, on the other hand refers to the costs incurred when a non-acceptable product has been produced or such type of service is offered to the customer. These costs aim at situation when a non-conforming product has been identified within the organization and measures are implemented to improve the quality of the product or service. Expenses for such measures are referred as internal failure costs. Expenses would include the cost of re-work, extra time/ money spent on corrections etc. The internal failure costs would include costs incurred when the services offered are not of acceptable standard. At times, in spite of all effects a non-conforming product may reach customers. Expenses incurred in this situation are referred as external failure costs. As per Kaner (6), quality costs are the costs associated with preventing, finding, and correcting defective work.

Aruchami (1) lists the costs of failure as loss of student enrolment, damage to the reputation of the institution, loss of opportunities, and beginning of the end of the institution's identity. Beheiry (2) had propagated that the activity based costing includes the cost of production activities, preventive activities and finally corrective activities. The cost of prevention and correction activities indicates the cost of quality with specific dimension as costs of conformance and non-conformance respectively.

Quality costs in higher education:

Having explained the quality costs and its contents, now we attempt to view this from the point of view of an educational organization. This can only be worthwhile if we are able to confirm that the educational organizations are service providers and are servicing certain customers. This may include industry, parents, society and any other stakeholders. This would obviously lead to the question of understanding and acknowledging the implied and express needs of all these stakeholders. Every educational institution that attempts to focus on quality costs and total quality must address this issue first, clearly and faithfully.

Quality costs are now identified for the educational organizations.

Costs associated with attempt to improve quality (Costs of conformance):

These are further grouped as following:

Appraisal Costs

These are costs involved in evaluating a product right through the process of production i.e. conversion from the raw material till the finished product that is ready to leave the organization. Various tests are needed at different stages where the objective is to ensure conformance with the established standards. For an educational institution such costs would include following:

1. Assessment of intake – Costs of different tests conducted on the candidates' prior granting them admission. Obviously, better the intake better would be the end product and this would result in establishment of detailed selection process and its compliance. The costs involved would include the man-hours spent in the process plus the related costs of supporting requirements e.g. logistics, documentation, communication charges etc. Use of modern technology in selection process and methodology resulting in identifying and eliminating candidates not up to the required standards would result in reduction in these costs.

2. In process testing – These costs refer to the costs associated with the process of testing and examining the students during the period of training. The objective of such examinations is to ascertain and confirm that the student has acquired the desired knowledge and skills and based on the pre-decided criteria, grades would be awarded to the students.

It has been established that the system of continuous assessment where the student is regularly assessed and evaluated right through the academic term is much more effective than only having an end of term final examination. This enhances the costs as the process requires management of assessment components, evaluation of the tests/ assignments and logistical supports etc. Innovations in developing tests/ examinations, which can be quickly assessed, can reduce these costs. The information technological tools can be very useful in this area.

Preventive Costs

These are costs incurred on activities carried out to provide quality of service. Such costs include expenditure incurred in the operation of quality management system, including quality planning, maintenance of the system, audits etc. The amount spent in providing training, both job specific and quality management training is also included in such preventive costs. This is one area where most educational institutions do not appreciate the benefit of the investments made. With the continuous advancements in technology, it is imperative that the teachers constantly upgrade their knowledge. This can be done by attending courses/ workshops/ conferences. They must be encouraged to write and publish papers. Even the issue of developments of teaching skills need to be attended on a regular basis. All expenses incurred would be termed as prevention costs and would include expenses for the training, traveling and other related charges.

Costs associated with the failure of product (Costs of non conformance):

In spite of a well designed, executed and monitored process, some students may not achieve the desired results and therefore would not meet the acceptable standards. The costs due to this, including costs incurred on the treatment of such product are referred as cost of non-conformance. These are grouped as following:

1. Internal failure costs – The costs incurred on all corrective and preventive measures on non-performing students before they leave the institution are included in this group. This may include the costs of re-examinations, counseling and extra coaching, correspondence with parents and other administrative costs etc. These costs would be high for those students who are under-performing repeatedly. A better initial selection process and early detection of such students and thereafter timely corrective measures would lead to reduction of such costs.

2. External failure costs – These include costs attributed to activities after a graduate of the institution is found to be not meeting the requirements of the stakeholders. This may lead to the non-placement of the graduate or dismissal from the job. This is one of the most difficult part of the whole quality costs management exercise as most of the time, it may not be really possible to translate this dissatisfaction in terms of money. These costs may include costs of re-establishing relations with such companies so that they continue to have confidence in the institution and employ its graduates. Costs of confidence building measures would be included here. However, as explained it is difficult to assess and quantify the costs of loss of image and loss of further placement opportunities with these dissatisfied companies. The loss of potential customers due to unsatisfactory performance of the graduates is yet another factor for consideration. A good quality conscious educational organization must therefore have a close interaction with its customers to get a continuous feel of its requirements and its perception of the services received.

Some other costs:

While technically the above two groups come under the purview of quality costs, two other areas are also important for consideration.

Cost of lost opportunities

A student may leave the program midway either due to academic failure or the student finds an alternative program more suitable for further pursuance. In such eventualities the institution is deprived of the fees, which would be collected as the number of students continuing the program, reduces. This reduction in revenue also should be a matter of concern of the management and efforts must be made to minimize such incidents. A better initial selection process may address this issue.

Costs of exceeding requirements

Every institution designs its curriculum based on guidelines provided by the concerned university. These could further be upgraded by its perception of the industry's requirements. In other words, the curriculum may be higher than the usual minimum acceptable requirements. The extra inputs provided may be driven by a desire to please customers; to provide competitive edge to the product for competition; or simply to add more value to its program and therefore to the output/ graduate. We know that while the quality satisfies the customer it is the value that actually pleases. This extra input to program aims at adding value. Of course there is a thin line differentiating quality and value. For an institution it is appropriate that costs for these additional inputs are identified and quantified and then used as a value indicator. [Saxena (8)].

Quality costs analysis:

After having identified heads of quality costs the next step in the quality cost management is the quantification of such costs. Ideally the management should appoint a person for this assignment. This person would need positive support from the accounts section of the institution which would make available the actual amount spent under each head.

This exercise should be carried out for the academic year and quality costs in different categories should be tabulated and percentage of total quality costs as well as total operating costs should be calculated. The total quality costs indicated as a percentage, of the total revenue (fees collected) can also be an important performance indicator. This analysis can thereafter be presented to the management for further discussions and decision-making with respect to corrective measures, if needed. Next year once again such study may be undertaken and slowly the trend of these costs would emerge.

In the initial phase of establishment of the quality costs management system, the appraisal and prevention costs would increase so that the failure costs are reduced. This would be due to the strict control on the processes

and adequate preventive measures. After few years the costs would stabilize and the process would become self-monitoring.

Some other costs may be difficult to quantify and may remain controversial. E.g. cost of high turnover of employees – faculty members leaving the institution after quality related frustration. Similarly cost of lost pride would also be in this category – this is due to reduced output/ reduced motivation by staff when they are not in support of the quality management system or they feel the quality of product is not up to the standard.

Normal financial accounting system does not recognize the cost heading as reflected in cost of quality. This ignorance results in overlooking these significant aspects that could be used for effective management control. The cost of quality technique is a tool for management in its pursuit of quality improvement and profit contributions. The strategy of quality costs is based on premises that each failure has a root cause; causes are preventable; and prevention is always cheaper [Campanella (3)].

Benefits of quantifying quality costs:

The identification and analysis of all costs attributed to the quality can be used as a management tool for not only efficient management of the institution but also for eventual optimization in costs of operation. Some such benefits are appended below:

It facilitates better decision-making as specific area of concern is identified. The cost driver for that key area can then be identified and quantified. A detailed study, including a root cause analysis can lead to the specific cause having financial impact on the institution. Corrective and preventive measures can thereafter be put in place.

The analysis of quality costs can also help in better budgeting as these specific costs which were earlier included in different heads can now be separately budgeted. This would allow close monitoring. This analysis would therefore put the educational institution in the right direction with a focus on quality improvement management.

Campanella (3) has referred the technique of cost of quality as a tool for management in its pursuit of quality improvement and profit contributions. The failure costs can be represented by the traditional iceberg where usually only the top is seen and attended to. For eventual improvement all the costs that lie below the top must be also considered.

Earlier studies had indicated that if appraisal and prevention costs were increased by establishing significant efforts, the failure costs would reduce. Eventually optimum total quality costs would be reached and any further efforts in increasing prevention and appraisal costs would not help. However, the new developments in all aspects of operation have resulted in an ability to achieve perfection and therefore as per Juran (5) it is possible to reach the 100% quality of conformance with reduced total quality costs.

An initiative to upgrade the existing quality management system to a higher level leading eventually to TQM cannot be complete till understanding financial issues related to quality. The in depth study of its quality costs and inclusion in the system would bring in the totality. The aim of the organization should then be to reduce failure costs by investing/ increasing expenses on appraisal and prevention costs.

Though the difficulty is that the cost accounting system does not recognize this concept and therefore these are never discussed or raised to the attention of top management who any way mostly is not aware of these.

Yao (9) has suggested that full-time faculty members in the university work between forty-five and fifty-five hours a week. This includes the teaching load but also include preparation load (estimated to be 2-4 hours for each class room hour). Most of their time is spent on appraisal and preventive activities.

Conclusion:

It is felt that the quality costs management program should be initiated in all quality focused organizations, including educational institutions. Some of the controversial costs can be kept aside for the time being and appropriate monitoring system should be put in place. The quality management system of the institutions should be upgraded to aim for total quality which would focus on the processes instead on the outcome. The revised ISO9001:2008 standard provide an approach in this direction with emphasis on processes. The process of plan, do, check and act provide a mechanism of continual improvement.

The combination of TQM and a well structured and closely monitored quality cost management program will help the educational institutions achieve the ultimate objective of providing well educated and responsible graduates to the society.

An exercise of establishing a quality management system eventually leading to total quality management cannot be complete till the understanding of cost of quality is achieved and incorporated in the system. The aim of the organization should be to reduce failure costs by investing/ increasing expenses on appraisal and prevention costs. The difficulty is that the cost accounting system does not recognize this concept and therefore these are never discussed or raised to the attention of top management who any way mostly is not aware of these.

Traditionally the accounting and record keeping of costs in an educational institution is based on expenses on different heads e.g. salaries, consumables, books etc. If we try to find out the cost of admission activity it will not be possible. Thus the concept of cost of quality is neither understood nor followed in educational institutions. It may be better if activity based costing is maintained as it is the activity that drives the cost. Gryna (4) suggests that activity based costing as an accounting method would aim to enhance cost effectiveness through focus on key cost elements. Optimum level of quality costs would be when failure costs are almost zero with stabilized appraisal and prevention costs.

References:

1. Aruchami, M. "Quality imperatives in higher education", *University News*, New Delhi, Vol.42, No. 5, Feb 02-08, 2004, p 1-5.
2. Beheiry F Mohamed. "The cost of quality", *CMA Magazine,* Canada, Vol. 65, Issue 5, June 1991, p 24-25.
3. Campanella, Jack. *"Principles of Quality Costs",* New Delhi, Prentice – Hall of India P. Ltd., 1998, pp 9, 10 and 161.
4. Gryna, Frank M, Chua, Richard C H, DeFeo, Joseph, "Juran's Quality Planning and Analysis", New Delhi, McGrow – Hill International Edition,2007, pp 37.
5. Juran, Joseph M & Godfrey, A Blanton. "Juran's Quality Handbook", New Delhi, McGrow – Hill International Edition, 2000, pp 8.15.
6. Kaner, Cem. "Quality costs analysis: Benefits and risks", *Software QA,* USA, Vol. 3, No. 1, 1996, p 23.
7. Saxena, Brijendra K. "TQM in Matitime Education & Training and Quality Costs" , Paper presented in MARTECH04 Conference, Singapore, October 2004.
8. Saxena, Brijendra K. "Application of TQM in Maritime Education!" Ph.D. Dissertation, Symbiosis International University, 2009.
9. Yao, James, "Quantifying cost and quality - The National Commission on the cost of higher education*". Academic, Association of American University Presses*, July Aug 1998, p 37-41.

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