MAKING QUALITY COUNT

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Abstract

As part of the literature review in my research into professional development of high school mathematics teachers I was looking at models from industry. Deming's work on quality management appealed and it has been useful to consider his guidelines with respect to the planning of staff development in schools. This paper introduces Deming's ideas and considers the implications, with particular emphasis on those implications that are different from normally accepted school practice. These include the need for a vision, considering the school more holistically, planning for a customer focus, blaming the system not the people, doing away with staff appraisal (and summative student assessments) and setting up quality circles.

Introduction

As part of the restructuring of school and educational administration, schools and administrators are looking to the corporate sector for models of management. If these are to be useful then we need to look at the best of them. Deming, the originator of Total Quality Management (TQM) has influenced the Japanese economy since 1950 and American business since 1980. He offers a management model based on a coherent philosophy. As a teacher with an interest in statistics, Deming's work in TQM attracted me and many of his ideas seemed to fit with what I was finding in my research on professional development, in particular that development should be ongoing and, because of the costs of development, based in schools and without outside expertise to facilitate activities. TQM is similar to action research programmes that already exist in some schools. With TQM the focus for change moves from top-down initiatives which often only consider one variable at a time to problem solving efforts that attempt to remove the root causes of problems.

Assumptions underlying the Deming philosophy

The Deming philosophy is based on the idea that most aspects of a system are interrelated (Rhodes, 1992). This means that a systems-wide approach is often needed and one does not fix a problem by merely imposing a solution from outside. Deming is often concerned about the variation in outcomes in industry and while this is not relevant in the same way in education because the needs of individual students and teachers are different (Hittman, 1993), the assumption is still that management's processes rather than workers that cause most of the variations in outcomes (Rhodes, 1992). Deming would take issue with community and political comments that blame teachers for so much, he suggests, *don't fix blame, fix the system.*

Another assumption is that people as psychological beings are intrinsically motivated. Hittman (1993) cites the work of McGregor (1960) on Theories X and Y regarding human motivation. Theory X assumes that employees are lazy, dislike and shun work, have to be driven, and need both the carrot and the stick. Theory Y assumes employees have a fundamental need to work and desire achievement and responsibility. Quality management assumes the Theory Y viewpoint.

Rhodes (1992) suggests that Deming's theory of knowledge assumes that humans as cognitive beings try to construct knowledge from experience within frames provided by their theories and beliefs. This fits well with our ideas of constructivism and learning.

One focus in TQM is to do with managers, workers and customers. In education managers and workers might be: central authorities and principals, school administration and staff, or staff and students. In this paper on professional development, I am interested in the second of these. In business TQM shifts the focus for decisions to the point of view of the customers. Generally in schools the immediate customers are the students, the intermediate customers include parents and future employers, but the ultimate customer is society (Deming, 1986). In professional development the immediate customer is the teacher with the students, parents, future employers and society becoming intermediate and ultimate customers. If we are to consider the customers' points of view; then we need to listen to the immediate customer and also consult with the others who are involved.

What do we mean by quality?

When we are talking about quality management we need to know what quality means. It is defined in relative terms rather than in terms of absolute standards; it is in the eyes of the beholder. Deming (1986) says that for a worker quality equates with pride of workmanship, for a supervisor quality involves continual improvement, and for the customer quality is concerned with needs—immediate, intermediate and ultimate. He suggest that for a teacher quality is having something to teach and giving inspiration and direction to students for further study. This implies that teachers must have a good knowledge of their subject.

Deming's principles and some implications for professional development

The consequences of his management philosophy are summarised in 14 principles (Deming, 1986). I have listed these with some implications for professional development from a number of sources including Blankstein (1992), Bonstingl (1992), Holt (1993a, 1993b), O'Looney (1990), Rhodes (1992) and Salmon (1993) in the table on the following two pages. It could be expanded further if one was looking at other aspects of educational management and in terms of possible expansions within a mathematics/statistics curriculum.

Table. Deming's principles and some implications for professional development.

1 Create constancy of purpose for improvement of product and service
- establish a vision for the school
- specify standards of service for a year hence and for 5 years hence
- ensure that long-term efforts are towards this vision

2 Adopt the new (Deming) philosophy
- ensure that all decisions are consistent with this philosophy

3 Cease dependence on mass inspection
- achieve quality by building it in, inspection does not improve quality, it is too late
- remove appraisal systems as these nourish short-term performance, stress rivalry and demolish teamwork
- have students and teachers monitor their own work (self-assessment)

4 End the practice of awarding business on the basis of price tag alone
- the price of a development programme should not be the first thing considered
- both quality and cost in the long term need to be considered

5 Improve constantly and forever the system of production and service
- development should be continuous rather than stop-start as is common at present
- constantly improve the service (ie. the quality of teaching)

6 Institute training
- appreciate the variety of needs and of ways that people learn
- locate in-service training on-the-job
- increase and improve continuous staff development
- put resources into research and staff education

7 Adopt and institute leadership
- flatten administrative hierarchies in education
- management is leadership, not supervision
- leaders must know the work they supervise
- appoint development coordinators in schools
- develop the expertise of heads of departments so they can provide development leadership
- give teachers more decision-making autonomy

8 Drive out fear
- security means not being afraid to ask questions and express idea
- remove the fear of blame for inadequacies, focus on helping people, not managing defects
- minimize personal fears associated with development
- as leader, hold a long interview with every staff member, three or four hours, at least once a year, not for criticism, but for help and better understanding on the part of everybody
- people should not be blamed for system failures

9 Break down barriers between staff areas (departments)
- break down of curriculum barriers and foster cooperation between departments
- have staff (and students) working collegially, integrate staff development
- emphasise teamwork (but recognise the contributions of the loner)
- break down barriers between administration, guidance and curriculum
- encourage innovative solutions
- link parallel activities (eg communication or problem solving in a variety of subjects)

10 Eliminate slogans, exhortations, and targets for the staff
- slogans are directed at people but it is the system that needs to be changed

11 Eliminate numerical quotas for the work force and numerical goals in management
- take the customer's (student's) perspective and improve the service for them
- satisfy internal and external customers (students, teachers, parents, employees)

12 Remove barriers that rob people of pride of workmanship
- ensure sufficient and quality equipment and resources are available
- recognize and celebrate quality in performance by staff and students

13 Encourage education and self-improvement for everyone
- improve everyone's performance rather than look for deficits
- study directed towards immediate needs may not be the wisest
- people need, more than money, they need opportunities to add something to society

14 Take action to accomplish the transformation
- all staff need to be involved in development activities
- all aspects of the system need to be considered as they are interdependent

Climate for change

For professional development there is a need to establish a climate for change and Deming, according to Holt (1993b), says that *research shows that the climate of an organisation influences an individuals contribution far more than the individual himself.* He emphasised that what matters in schools is the collegiality that stems from an institution that shares common assumptions about its practice. Such a collaborative climate is demonstrated in Toyota's TQM-based management in a way that is seldom practiced in schools: every decision, every improvement effort is made collectively. Such decisions are made within teams and by groups of teams, ...(Schmoker and Wilson, 1993). Schmoker and Wilson go on to say that schools that have a *democratic atmosphere, supportive leadership, team and collaborative effort, a clear and unified purpose, and an insistence on regular analysis and evaluation of student performance data as a basis for continually on past practice to serve the school's customers* are already conforming with Deming's major principles.

Establishing a shared vision

Implementing TQM is slow and time consuming, it requires a culture change which includes trust (open communication and mutual respect), shared vision and leadership (Horine, Hailey and Rubach, 1993). While schools have spent time developing statements of purposes, this has not always been a shared exercise in terms of teachers, students, parents and future employees. Such an effort would help break down of barriers between departments, develop ownership of initiatives, and establish a real climate for change within the school community based on cooperation.

Leadership

According to Holt (1993a) Deming rejects management by objectives, he says that it is like running a business by looking in the rearview mirror. He suggests that leadership needs to be more people oriented and in 1986 he suggested that the aims of leadership are:

to improve people's performance,
to improve the quality, quantity and consistency of the product or service provided,
to bring pride of workmanship and greater satisfaction to people
to remove the causes of failure rather than to find and record failures,
to help people do a better job with less effort.

Many teachers would agree with these aims and while school administrators may not seem to fit them, heads of mathematics departments could take this as criteria for their leadership.

Management modes

To describe relationships between theory and practice McKeon (1952) identified four modes, two of which correspond to this debate. Orthodox rational management fits the logistic mode in which theory and practice are kept separate. Theory is the province of experts and is to be joined with practice by some science of human action. Deming's management fits the deliberative or problematic mode which brings theory and practice together through a process of inquiry, so that solving practical problems becomes a task for all. In the present system with national mandates for curriculum and assessment, the logistic mode dominates (Holt, 1993a) and this has been common for some years in New Zealand while curriculum has being developed with a research-development-dissemination model. While curriculum in New Zealand has come to mean all that is planned in the school, it is concerned as much with how to act as much as ways of knowing and requires practical reasoning and morality which belongs to the deliberative mode rather than a procedural one. *The deliberative mode needs more than a dash of autonomy and a nod towards professionalism. It presupposes schools in which a professional culture has been established, schools in which teachers are desirous and capable of linking curriculum theory with classroom practice and so of building a more collaborative system that can profoundly change the way both staff and students in schools grow and learn* (Holt, 1993a).

Change groups

Schools have traditionally used staff meetings, department meetings, and outside organized courses as their sources of professional development. Such groupings may not be the most appropriate and school groupings could be more like quality control circles, small teams of people, not formal staff organisations, but informal groups of workers. These groups would decide their own priorities and the times for their meetings. They would be concerned with bringing about improvements and they would offer critical reflection in a formal but nonthreatening setting so as to establish what it is good to do (Holt, 1993a). Such meetings should be encouraged at all levels—administrators, teachers, students, parents and employers. The size of each group might be quite small, Leek, Sutton and Zahavich (1990) recommended teams with five or less, but at the same time, within the school one needs a critical mass of people to help the transformation process (Deming, 1986). These quality circles also need support and this may require a quality coordinator, a staff steering committee and training workshops for staff and students. Typically such a steering committee would target at least one problem area each month and direct its energies to removing the root causes (Schargel, 1993).

Assessment

While Bonstingl (1992) asks for a re-examination of the use of grades and student assessment, we need to generalise this for professional development purposes. Formal grading of teachers is no longer part of the New Zealand education scene but principals and heads of departments often support appraisal systems and have their own informal gradings for teachers. If one takes the attitude—don't fix blame, fix the system, then such personal assessment/appraisal will not be needed although data will still need to be collected and analysed with respect to the system failure.

Other factors

Other factors that arise in a consideration of development are: new ideas, ownership, support, providers, location, time and resources. TQM offers no simple solutions for these. New ideas will still arise from a multitude of sources although they may be searched for more systematically when one is trying to solve a problem. Ownership is more likely to develop through the establishment of the shared vision and the increased decision-making autonomy. The use of small groups who are not blaming each other may reduce the need for support and be seen as a support mechanism. The need for external providers and for activities to be located away from the school is neither financially defensible nor desirable in terms of the in-school focus that TQM emphasises. A number of schools in the USA are adopting Deming's or similar principles, their purpose is to improve their systems, but Schmoker and Wilson (1993) warn that the adoption of such principles is not a quick-fix solution and one should not expect results in less than five years. Finally TQM requires a commitment of resources to be made for professional development, but this is from existing resources. With the involvement of all staff and community, individuals will find themselves giving time and resources but as they experience benefits they would be expected not to begrudge these.

Conclusions

Virtually all that I have read on TQM fits with current good practice in terms of educational administration and professional development. TQM seems relevant over individual schools and over larger groupings and Kimple, Murray and Blair (1991) described quality management across a school district of 13 schools. I believe that work needs to be done in New Zealand or Australian schools to see if the claims made for it in the United States are equally valid here.

Further areas for investigation

TQM offers insights not only into professional development, but into school management, community consultation, classroom teaching and assessment. It is likely that if these were all considered by schools at the same time it may provide a good way forward in the present political climate.

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