Implementing Behavioural Measurement and Management
To Maximise People's Performance

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Introduction

An increasing focus on quality in the world of business is no longer an option but an absolute requirement in the face of growing competition (Wilkinson et al 1991). Founded over two decades ago by Deming and Juran, the Total Quality Management (TQM) movement has quickly become the most popular program for improving quality. Some say that TQM provides a unique historical approach to improving organisational effectiveness, because it has a solid conceptual foundation and takes into account how people and organisations work (Wruck and Jensen 1994). It could be argued, however, that TQM is just one in a long line of management programs (e.g. Management By Objectives, Job Enrichment, etc.) which will give way in another couple of years to a new management fashion. Even though TQM is being widely implemented it has come to mean different things to different people, which raises questions about its worth and its impact.

The philosophy and principles behind TQM were recently investigated by Hackman & Wageman (1995). Based on the philosophy that an organisations primary purpose is to stay in business, this examination revealed that TQM makes four interlocked assumptions about Quality, People, Organisations, and Senior Management, each of which are as follows:

- *About quality*: That the cost of poor quality is far greater than the cost of developing processes that produce high quality goods and services;
- *About people*: That employees naturally care about the quality of the product they produce and they will take initiatives to improve it, so long as they have the tools and training;
- *About organisations*: That they are systems of highly interdependent parts and they have central problems which cross traditional function lines, so cross-functional problems must be collectively solved:
- *About senior management:* That quality is inescapably the responsibility of top management.

Four main change principles which act as guidelines for improvement interventions were also identified that are concerned with:

- *A Focus on work processes:* Quality depends on the processes by which products are designed and produced;
- *An Analysis of variability*: Uncontrolled deviations (variance) in processes or outcomes are the primary cause of quality problems. Only when the root causes of these deviations are identified can steps be taken to improve work processes;
- *Management by fact*: Making use of systematically collected data at every point in the problem solving circle;
- *Learning and continuous improvement*: Treat quality improvement as a never-ending quest, on the basis that better control measures can always be developed.

Finally, they identified that five types of intervention are commonly used to realise the above principles, which are:

- Explicit identification and measurement of customer requirements.
- Creation of supplier partnerships
- Use of cross-functional teams to identify and solve quality problems
- Use of scientific measures to monitor performance
- Use of process management procedures to enhance team effectiveness

Despite these extensive guidelines, a recent survey discovered that rarely are they fully implemented in practice (Olian and Rynes 1991). It was found that the most commonly used techniques were the formation of short-term problem solving teams and training: In 92% of manufacturing companies, nearly all senior managers and middle managers had received approximately 16 hours training in TQM, while approximately 50% of non-management employees had received 8 hours training in quality practices. Typically, in order of frequency, the training focused upon interpersonal skills, quality improvement processes and problem solving, and team building. As this survey reveals, the emphasis now tends to be placed on improving group process and interpersonal skills, while also pursuing strategies for multi-skilling. Although this training is laudable, as it explicitly takes the 'human factor' into account, the use of scientific methods of measurement has tended to lapse somewhat, despite its paramount importance in the original TQM philosophy. Wilkinson (1990) suggests that this could be due to confusion as to what TQM actually is: From his experience and knowledge of firms in the UK, he argued that every example examined actually fell short of a total approach due to four main barriers:

- *Short termism*: long-term considerations, such as customer satisfaction, are unlikely to receive the attention they need if interventions are short term only.
- *Organisational segmentalism*: which refers to the tendency of organisational parts to specialise and cut themselves off from each other. This is an old problem, although TQM is supposed to solve it. However, TQM comes up against its most difficult implementation problems when it addresses inter-unit, departmental and plant quality issues. Consequently, this impacts upon leadership, as sectional interests dominate the boardroom. In turn, TQM implementations reflect these sectional interests, resulting in participation by only a few organisational departments.
- *Reluctant managers*: Proactive managers appear to be hard to find in any case and it seems that to be able to succeed TQM would have to rely on managers who are less committed to their work in general. The effect of reluctant managers would most likely impact on teamwork, as they would not be used to participating due to their mostly supervisory role.
- *Industrial relations*: In the UK there appears to be a strong divisive social culture. Class divisions have been emphasised by observers such as Weiner (1981), who have argued that, for historical reasons, leadership and managerial skills are still much associated with certain background qualities, which are based on social class.

We would add that a further problem is TQM's focus on the *negative* aspects of performance, which inevitably results in demotivated people, rather than focusing on the positive aspects of performance which is known to lead to much greater motivation and performance improvements.

In light of the above it could be argued that TQM is failing to fulfil most of its objectives in many organisations. It is almost certainly failing to achieve one of its primary

objectives: namely that of culture changes towards quality (Plowman 1990). Seddon (1989) argued that the failure of many TQM initiatives to achieve culture change was due to an insufficient focus on the underlying values and behaviour of individuals; Atkinson (1990) argued that organisations attempt to change peoples attitudes without considering the effects of people's jobs or organisational features; while Wilkinson et al., (1991) argued that efforts to change people's behaviour do not take into account their attitudes or the influence of organisational systems. In essence, each of these TQM writers are emphasising the lack of a holistic approach to culture change, which is contrary to the original underlying principles and philosophy of TQM.

The above becomes clear when we examine models of organisational culture (Cooper, 1997), that reflect established models of human behaviour (Bandura, 1977; 1986). As illustrated in figure 1, culture change only occurs when people's internal psychological processes, their work-related behaviour, and the organisation's management and control systems are in alignment with each other. In other words, culture change is dependent upon addressing all three aspects *at the same time*.

Figure 1: Reciprocal model of organisational culture: *Adapted from Cooper, M.D. (1998) Improving Safety Culture: A Practical Guide. J. Wiley & Sons, Chichester, UK.*
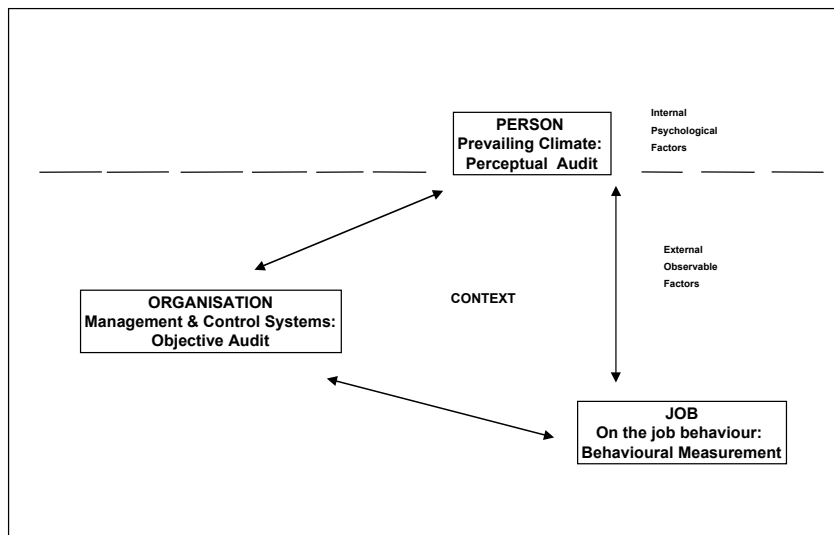
Organisations are often reluctant to implement TQM programs in a manner that addresses all three factors at the same time, as they believe the money involved will be exorbitant, and that management's time on implementation may be detrimental to production. On the other hand, managers recognise that TQM is not always synonymous with quality. Whereas quality is about unbending focus, passion, iron discipline and a way of life for all, TQM is often more about jargon, documentation, committees and quality departments. Some of the major reasons that TQM programs do not work, even in organisational environments that desperately cry out for quality improvements include its:

- focus on internal processes rather than external results
- focus on minimum standards
- cumbersome bureaucracy

At this point it could be argued, that it is time to look for an alternative approach to improving quality in organisations. Because TQM is rarely implemented as originally conceived, it begs the question as to whether there is a need for such a program or could simpler techniques be sufficient to achieve the same ends. It is certainly the case that quality improvement can be achieved without organisation wide implementation of TQM programs at minimum cost, bureaucracy and management time, simply by making use of Organizational Behaviour Management (OBM) systems. It is known that such systems lead to long-term culture change by explicitly aligning people's attitudes and perceptions, with their work-related behaviour and the organisations management and control systems.

Organizational Behaviour Management

A proven alternative to TQM, OBM is based on a large stream of empirical research going back to the turn of the 20th century, that accords with the philosophy of continuous improvement advocated by TQM. Its objectives are very similar to TQM, but its practical implementation is much more focused. In essence, OBM is a distillation of best management practices derived from the three main principles found in managerial motivation theories: Goal setting, feedback and positive reinforcement.

Goals that are specific, challenging but realistic, measurable, agreed with those who try to achieve them, and are time-bound, inspire people by directing their attention and actions, mobilising their efforts and increasing their persistence (Locke & Latham, 1990). Feedback has a positive effect on performance as it provides information about the extent of errors being made, which enables the appropriate remedial actions to be taken. In tandem, therefore, goals and feedback exert a powerful influence on people's performance, than either one alone, as feedback allows people to track their performance in relation to the goal, so that if necessary, adjustments in effort can be made (See Cooper 1993 for a review). An additional factor that enhances the value of feedback is 'social recognition' or acknowledgement for doing things *right,* so as to encourage further improvements. Seldom utilised in practice, people tend to respond more to praise and social approval than any other factor. Crucially, the effects of giving praise for doing something right, is to explicitly link the desired behaviours to the praise received. Although the successful implementation of OBM is dependent upon an all-inclusive 'bottom-up' approach, rather than a 'top-down' approach, visible management commitment, facilitation and support is vital. In this way, not only does OBM deliver significant, quantifiable performance improvements in many areas of organisational functioning (e.g. quality, safety, etc.) but it also delivers real empowerment, involvement and team-working, while also improving communications and co-operation between management and the workforce.

A matter of great concern to both academics and managers is the extent to which such systems actually improve performance. Five separate quantitative meta-analyses of OBM type systems have been carried out (e.g. Guzzo *et al.,* 1985; Tubbs, 1986) to determine their effectiveness. The intervention programs with the most powerful effects on worker productivity tend to be those which involve goal setting, feedback and training. Details of some of this research is given below to provide an indication of the scope to which OBM can be utilised to address various types of task performance

Latham and Baldes (1975) conducted a field study with loggers. Data on the net weight of 36 logging trucks in 6 logging operations were collected for 12 months. Analysis found that the loads were frequently falling short of their legal maximum weight by some 30%. It was decided to try and get every driver to increase the weight of the loads to 94% net weight, so as to improve performance by reducing the number of trips and the associated fuel costs. During

every trip, each driver was given feedback about the loads net weight from the weighbridge. Some three months later all the drivers were achieving an average load of 90% net weight, supporting the fact that setting a specific, challenging goal leads to substantial increases in performance. In part, such goals lead to an increase in performance because they makes clear to people exactly what they have to do, something TQM initiatives tend to fail to do, because they tend to be concerned with broad, rather than specific, performance improvements.

A field study conducted by Ivancevich and McMahon (1982) utilised a performance management system with 258 engineers working in project teams. The study targeted control costs, quality control deviations, the use of unexcused overtime to complete projects, and an engineering competency index that encompassed the engineers communication skills, their engineering knowledge, and team effort. It was found that, in combination goals and feedback improved performance on all the variables to varying degrees.

Wikoff et al (1982) utilised feedback and feedback-plus-praise, in a study within a medium sized furniture-manufacturing plant, which had 7 departments and 104 employees. Daily average worker efficiency was collected over 8 weeks in each department prior to intervention. A verbal report of each operatives daily efficiencies was provided, and reinforced via a visual graph posted on a wall in the work area (so, feedback only given), for a period of 8-35 weeks. Subsequently, for a period of 6- 24 months, the feedback continued, except that supervisors were coached to contact and praise employees whose efficiencies exceeded predetermined levels or improved in that direction. Results showed that of 7 relatively independent tests of feedback only, 5 of these resulted in marked and reliable work increases. Manipulation checks yielded that feedback was "registered" by all and that praise was given. Benefit analysis showed a program-related increase in productivity equivalent to 800-1050 man-hours.

Makin and Hoyle, (1993) utilised the principles of feedback and praise to improve the performance of a number of professional electrical engineers. Analysis of the behaviour of engineers showed that although they had the ability and resources needed to effectively perform their jobs, their efforts were not producing the desired performance. Behavioural analyses indicated that much of their efforts were being directed towards necessary, but not essential, aspects of their jobs. A reinforcement scheme was developed for each engineer, involving regular feedback and praise from the manager. Results over a one-year period showed that the section moved from the bottom to the top of comparable sections within the organisation. Individual improvements in output ranged from 31% to 270%. Output improvement for the entire section rose by 73%.

Longenecker *et al.,* (1994) explored the impact of goal setting, feedback and problem solving activities on product defect rates in a US automotive parts manufacturing plant. The company employed 900 full time workers and had annual sales of $75 million, but was under severe pressure to increase quality and reduce costs. Two manufacturing cells were selected which were closely matched in terms of work processes. One cell served as a treatment group and the other as a control group. The treatment group employed a team defect-reduction approach, set monthly goals and received daily performance feedback. The control group was physically isolated from the treatment group and performed their work under the traditional organisation's operating structure. Results were very positive, in that over a fifteen-month period, the treatment group showed a decrease in their defect rate from 7.8% to 3.7%, representing a 53 percent improvement. In comparison, the control group showed an increase in their defect rate from 6.6% to 6.9%. This study demonstrates that localised initiatives can

successfully bring about improvements, without widespread organisational knowledge or support.

Cooper et al., (1994) utilised a bottom-up, goal-setting and feedback system to improve various safety behaviours in a UK manufacturing plant with 540 people from 14 departments. Performance feedback was presented on graphical charts placed on walls in each department. The results showed an overall 20 percent improvement in safety behaviour over a four-month period, a decrease of 82 percent in lost time accidents and a 55% reduction in minor accidents, which saved the company anywhere between £180-360,000. The company maintained the initiative for some four years, (until it was taken over by another company) and reduced the number of incidents to just 26 per 16 weeks, from a starting point of 118.

A fault with TQM discussed above was that of reluctant managers, hence low management commitment to the change process. Komaki & Collins (1980) demonstrated the negative impact this can also exert on OBM systems. They utilised goals, feedback and reward (time-off) systems to improve the Preventative Maintenance performance of 60 US marines in a transport section of a heavy artillery battery. Three performance indicators were used: Time utilisation; supervisory presence and action taken. Initially, all the goals were met, and performance improvements were found. Subsequently, because of a high priority being placed on other activities, performance levels returned to that before implementation. Studies focused specifically on management commitment have revealed that when top management commitment was high, productivity was 5 times greater, whereas little improvement is found for moderate or low management commitment (Rodgers et al, 1993).

A global analyses of OBM systems, suggest that:
- Managers do not need an organisation wide TQM process to achieve performance improvements. Business units or departments should be able to develop their own localised initiatives.
- Employee involvement is the key to quality or productivity improvements. Management does not always know best, as they are often too far removed from operations to make meaningful assessments.
- Most types of work-related behaviour can be measured and improved.
- Quality/production problems should be systematically examined using Applied Behavioural Analyses, as this specifically takes into account people's motivations for particular behaviours.
- Performance measures that focus on specific behaviours should be developed by, or in conjunction with, those affected.
- Underlying behaviours, not performance outcomes, should be regularly monitored.
- People/work groups should be allowed to set their own performance improvement targets.
- Continuous relevant feedback should be provided on a regular basis.
- People who do things correctly should be acknowledged.
- Visible ongoing management support for the improvement initiative is vital.

Implementing an OBM System
More than anything else, implementing OBM systems entails the systematic analyses of problems, developing behavioural measures, establishing baselines, setting targets and providing ongoing feedback. Each step in the process is discussed below.

Identify the problem: The first step involves deciding upon what it is that is to be improved. This is typically determined by the identification of a specific organisational problem that is constantly arising, although not necessarily so. By analysing company records it is possible to identify a number of areas whereby the company as a whole would benefit from performance improvement. For example, what is the ratio of enquiries to products and converted sales? What is the ratio of fuel used to miles travelled for the company fleet of trucks and cars? What is the ratio of materials wastage to the end product? What is the product defect rate? Is there a problem with the employee's safety or occupational health? etc.

Develop a performance indicator: Once an area for improvement has been identified, it is necessary to identify the particular behaviours or situations that are critical to performance. For example, if vehicle fuel consumption appears to be excessive, it may be due to the drivers style (i.e. heavy use of the accelerator, not using the gears correctly, heavy braking) or may be due to insufficient or inappropriate vehicle maintenance. Further, it may be a combination of the two. A systematic technique known as Applied Behavioural Analyses (ABA) is used to determine the reasons for poor performance by specifically examining the behaviours involved, the antecedents that lead to the behaviours, and the consequences of performing the behaviours. The antecedents for the behaviours involved are then examined to assess the extent to which organisational features (e.g. management system failures) are involved in triggering the undesirable behaviour. The behaviours identified would then form an objective basis for a performance indicator, which is used to measure subsequent performance. It is important, however, to get workforce 'ownership' of the measure, by allowing them to discuss and decide upon the behaviours to be monitored.

Measure performance: Once established and written in behaviourally specific terms, the performance indicator is used by a volunteer workgroup based observer over a short period of time to establish a baseline, by which the workgroups can set targets and compare their ongoing performance. These observations are conducted daily, for about 10-15 minutes.

Set performance improvement targets: On the basis of the baseline results, the workgroup decide upon, and set their own performance improvement targets, at specific half-hour sessions.

Conduct regular observations: 10-15 minute observations should be conducted every day, the timing of which should be randomised and unpredictable.

Provide continuous relevant feedback: Feedback can, and should be given in three ways. First, at the point of observation (i.e. give praise, or discuss poor performance); Second, via graphical feedback charts that are updated weekly; and, Third, via weekly half-hour briefings, where a detailed breakdown of the weekly observations are discussed with each and every workgroup.

Focus on the positives and use praise for things done correctly: Whenever performance improvements are found, the person(s) or workgroups should be acknowledged. It is important, however, that acknowledgement is given for the actual desired behaviour not the outcomes of the behaviour, as this leads to the explicit linking of acknowledgement to the desired behaviours.

Provide visible ongoing management support: This can be done in a number of ways. For example, line managers could join the workgroup based observer during an observation; Middle and senior management could make a point of visiting the various departments involved when the performance scores are posted on the graphical feedback charts; The

management team could, and should, provide any resources that are necessary; give praise to those performing the desired behaviours, etc.

Conclusion

Encapsulating many of the original TQM principles and guidelines, OBM explicitly uses scientific methods of measurement, something often lacking in latter day TQM practices. Moreover, OBM avoids problems associated with organisational segmentism and industrial relations, while assimilating the problems associated with short termism and reluctant managers. For these reasons, OBM systems lead to a number of significant improvements, that are known to include;

- Specific performance improvements;
- An improved understanding of the link between work-related behaviours and poor performance;
- Improvements in the associated management and control systems;
- Improved attitudes and perceptions about the topic in question;
- Improvements in communications between management and the workforce;
- Improvements in team functioning and problem-solving;
- Ongoing culture change.

In combination, all of these outcomes will exert a significant influence on bottom-line profits.

References:

Atkinson, P.E. (1990) *Creating Culture Change: The key to successful Total Quality Management.* IFS Publications, Kempston.

Bandura, A. (1977) *Social Learning Theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1986) *Social foundations of thought and action.* Englewood Cliffs, NJ: Prentice Hall.

Cooper, M.D. (1993) Goal setting for safety. *Safety and Health Practitioner,* Nov. 1993.

Cooper, M.D. (1997) *Improving safety culture: A practical guide.* J. Wiley & Sons, Chichester, UK.

Cooper, M.D., Phillips, R.A., Sutherland, V.J. and Makin, P.J. (1994) Reducing accidents with goal-setting and feedback: A field study. *Journal of Occupational and Organisational   Psychology,* Vol. 67, pp. 219-240.

Guzzo, R.A., Jette, R.D. and Katzell, R.A. (1985) The effects of psychologically based intervention programs on worker productivity: A meta-analysis. *Personnel Psychology,* Vol. 38, pp.275-292.

Hackman, J.R. and Wageman, R. (1995) Total Quality Management: Empirical, Conceptual and Practical Issues. *Administrative Science Quarterly,* Vol. 40 (2), pp. 309-342.

Ivancevich, J.M. and MacMahon, J.T. (1982) The effects of goal setting, external feedback and self generated feedback on outcome variables: A field study. *Academy of Management Journal,* Vol.25 (2), pp. 359-372.

Komaki, J. and Collins, R.L. (1980) Motivation of preventative maintenance performance. In O' Brien, R.M., Dickenson, A.M. and Rosnow, M.P. (Eds.) (1982), *Industrial Behaviour Modification.* Pergamon, New York.

Latham, G.P. and Baldes, J.J. (1975) The 'practical significance' of Locke's theory of goal setting. *Journal of Applied Psychology*, Vol. 60, pp. 122-124.

Locke, E.A. and Latham, G.P. (1990) *A theory of goal setting and task performance.* Prentice Hall, Englewood Cliffs, New Jersey.

Longenecker, C.O., Scazzero, J.A. and Stansfield, T.T. (1994) Quality improvement through team goal setting, feedback and problem solving. *International Journal of Quality and Reliability Management*, Vol. 11 (4), pp. 45-52.

Makin, P.J. and Hoyle, D.J. (1993) The Premack Principle: Professional Engineers. *The Leadership and Organisational Development Journal*, Vol. 14 (1), pp. 16-21.

Olian, J.D. and Rynes, S.L. (1991) Making Total Quality work: Aligning organisational processes, performance measures and stakeholders. *Human Resource Management*, Vol. 30, pp. 303-333.

Rodgers, R., Hunter, J.E. and Rodgers, D.L. (1993) Influence of top management commitment on management program success. *Journal of Applied Psychology,* Vol. 78 (1), pp. 151- 155.

Seddon, J. (1989) A "passion" for quality. *The TQM Magazine,* May, pp. 153-157.

Tubbs, M.E. (1986) Goal setting: A meta-analytic examination of the empirical evidence. *Journal of Applied Psychology,* Vol. 71, pp. 474-483.

Weiner, M. (1981) *English Culture and the Decline of the Industrial Spirit.* Cambridge: Cambridge University Press.

Wickoff, M., Anderson, D.C. and Crowell, C.R. (1982) Behaviour Management in a factory setting: Increasing work efficiency. *Journal of Organisation Behaviour Management,* Vol. 4 (1-2), pp. 97-127.

Wilkinson, A. (1990) Fitness for use? Barriers to full TQM in the UK. *Paper presented at the British Academy of Management Annual Conference.*

Wilkinson, A., Snape, E. and Allen, P. (1991) TQM and the Management of Labour. *Employee Relations,* Vol. 13 (1), pp. 24-31.

Wruck, K.H. and Jensen, M.C. (1994) Science, specific knowledge and Total Quality Management. *Journal of Accounting and Economics,* Vol. 18, pp. 247-287.