

## Review

# A review on constructs of the practices of quality management

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**Quality management is a management function that ensures the quality of the products, services and/or operation processes of an organization. It contributes to the competitiveness and maintains the sustainability of the organization. This paper reviews the constructs of practices of quality management adopted by researchers. Based on the literature review, the practices of quality management are summarized into eight constructs. They are approaches, methods, tools and techniques, management commitment, quality attitude and culture, customer focus, human resource management, supplier relationship, cost of quality, measurement, information and analysis, and continuous improvement and sustainability.**

**Key words:** Quality management, practices, constructs.

## INTRODUCTION

Quality management is a management function that ensures the quality of the products, services and/or operation processes of an organization. It contributes to the competitiveness and maintains the sustainability of the organization. There are many constructs for one to study the practices of quality management. This paper reviews the constructs of practices of quality management. The focus is to identify the constructs of practices adopted by researchers. The word "practice" has been defined as habitual action/established method/exercise to improve skill in the Oxford Dictionary (1986). There have been many studies conducted on the practices of quality management. As far as the practices of quality were

concerned, it seemed there was no consensus among researchers.

## Constructs of the practices of quality management

Wolf et al. (1990) were focusing on the quality program in place and their structure, cost of the quality program and whether quality costs were being monitored, quality education, and quality management procedures employed. Sohal et al. (1992) addressed general quality practices (formal quality program, areas covered by the program, quality manuals, and separate department for quality), human resources issues (management involvement, employees involvement, and education and training for quality), quality control practices (quality of design, quality of conformance), and quality program evaluation (performance, quality costs, and quality benefits). Redman et al. (1995) studied the quality management practices from the perspective of their approaches adopted, the quality management measurement, and evaluation for

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improvements. Lin and Clousing (1995) included aspects of leadership, mission, teamwork, motivation, measurement, attitudes, and cost considerations in their study of total quality management practices in health care industry.

Kam and Tang (1997) discussed the practices of quality assurance system for construction works. Carr et al. (1997) surveyed the quality management practices in manufacturing industry focusing on cost versus quality strategy, corporate wide quality policy, customer focus, supplier linkage, process improvement, quality training, open organization, employee empowerment, quality measurement, physical quality measures, financial quality measures, and traditional efficiency measures.

Fryer (1998) emphasized to deliver quality more systematically in his discussion in quality management. Corbett et al. (1998) used quality management approaches as variables to determine quality management practices in their survey. Alhozaimy et al. (1999) reported aspects of inspection, quality assurance program, administrative and follow-up activities, technical support and development, and public awareness programs in their case study of a quality scheme.

Bubshait et al. (1999) identified 15 quality sections as having a bearing on the quality of service provided by design organizations.

They are organizational quality policy, designer qualification, employee training and education, design planning, design inputs, design process, interface control, design review, design changes, subcontractor control, document control, design maintainability, computer usage, working relationship and performance quality audit.

Samson and Terziovski (1999) adopted leadership, people management, customer focus, strategic planning, information and analysis, process management, and performance as the elements of total quality management in their study on the relationship between total quality management practices and operational performance. Terziovski et al. (1999) purported that the attributes of total quality management practices are quality mission/statement, the quality management philosophy applied across all functional areas, training, awareness of the customer/supplier relationships, close relationship with supplier, and technical methodologies in place.

Dow et al. (1999) categorized quality practices into nine dimensions, that is, workforce commitment, shared vision, customer focus, use of teams, personal training, co-operative supplier relations, use of benchmarking, advanced manufacturing systems, and use of just-in-time principles. Ismail et al. (1999) was only focusing on tools and techniques applied in their study on the state of quality management.

Barad et al. (2000) adopted the following quality management practices in their study on contribution of quality management tools and practices to project management performance. They are brainstorming, cause

and effect analysis during planning, periodic review of reports and documents, control of trends and deviations, cause and effect analysis during control, simulation, benchmarking, requirements management, subcontractor management, quality control, quality management, training programs and customer satisfaction surveys.

Prabhu and Robson (2000) studied the impact of leadership on business excellence. In the study, leadership was categorized into explicit leadership and implicit leadership. The variables for explicit leadership were vision, benchmarking, human resources strategy, product technology, manufacturing strategy, quality vision, innovation/creativity, and sustainability. Implicit leadership variables included shared vision, job flexibility, problem solving, quality processes, employee involvement, customer orientation, training and education, and supplier relation.

Project management institute (PMI) (2000) included the processes of quality planning, quality assurance, and quality control in quality management. Various tools and techniques that are commonly used for the processes were identified. Harris et al. (2001) explained that the modern concept of quality management is evolved through three major stages, that is, quality control and inspection, quality assurance, and total quality management.

Mathews et al. (2001) examined the range of tools and techniques that were applied in support of quality program in their study on the quality management practices.

Lai et al. (2002) evaluated quality management implementation based on 10 dimensions developed on the basis of the Malcolm Baldrige National Quality Award (MBNQA) of the USA, that is, people and customer management, supplier partnerships, communication of improvement information, customer satisfaction orientation, external interface management, strategic quality management, teamwork structures for improvement, operational quality planning, quality improvement measurement systems and corporate quality culture.

Sharma and Gadenne (2002) indicated that the quality management factors for the service industry include value chain integration, employee training and quality measurement, employee efficiency, supplier quality cooperation, executive involvement, customer-employee cooperation, efficiency-transparency, emphasis on overall quality, and defects reduction. Quazi et al. (2002) identified eight constructs for quality management in their survey, that is leadership, information and analysis, strategic quality planning, human resource development, quality assurance, supplier relationship, customer orientation, and quality results.

The analytical framework of Bossink (2002) consisted of six quality management practices, that is design, planning, systems, goal, positioning, and interaction practices. Battikha (2003) described the quality management tasks and roles assumed in a scheme relating construction

quality control, quality assurance, and the interface between them.

Lagrosen and Lagrosen. (2003) examined the areas of customer orientation, leadership commitment, participation of all, continuous improvements, management by facts, and process orientation which are considered as the common basis of quality management. Wennerstrom (2004) studied the status of quality management in the Canadian construction company based on the status of ISO 9001 application. Summary of the above review is shown in Table 1.

## CONCLUSIONS

Based of the literature review, the practices of quality management are summarized into 10 constructs.

### Approaches, methods, tools and techniques

Quality management approaches and methods are formal quality management systems used for the purpose of quality enhancement. International organization for standardization (ISO) 9000 certification is one of the popular systems applied by the practitioners and it attracts much attention from researchers. Total quality management is another quality management system widely discussed. Tools and techniques are some specific procedures applied in the quality management systems, such as inspection, control charts, statistical sampling, etc.

### Management commitment

Management commitment is the dedication by the management towards certain matter. Many researchers relate the success of quality management implementation with the management commitment, top management commitment in particular, towards the implementation.

### Quality attitude and culture

Quality attitude and culture are the perceptions, beliefs, behaviors and actions of all members of an organization towards quality. It is considered as an important factors for the success of a quality management system.

### Customer focus

Customer focus is the level an organization view the important of its customers. The organization should be more committed to quality management if it is of much customer focus. Customer focus can have been the drive for an organization for product/services quality.

## Human resource management

Human resource management concerns the management of manpower of an organization. Some organizations state that their human resources or manpower is their most important asset. Such statement implies the important of human resources to an organization. In other words, human resources should have contributed to product/services quality of an organization. As such, the management of human resources reserves attention in the discussion of quality management.

## Supplier relationship

Supplier relationship is about the management of working relationship with suppliers. Suppliers are important business partners of an organization. They supply materials or components for the organization to process and produce their product or provide their services. The quality of the materials or components supplied by suppliers has an impact on the quality of final product or services. With that in mind, the management of supplier relationship should not be neglected in the quality management of an organization.

## Cost of quality

Good quality of product or services always comes with a cost. An organization would also need to pay for a cost by suffering business losses resulted from the poor quality in its product or services. Hence, there is a relationship between cost and quality. Quality management of an organization should always consider such relationship so as to optimize the business performance of the organization.

## Measurement

Practices of any quality management system would not be complete without an effective measurement device. Such measurement device would obtain data or results for evaluation on quality of product or services. The importance of this process is to ensure continuing quality improvement.

## Information and analysis

Information is always required for a right decision to be made or an appropriate action to be taken. Sometimes, before information is obtained, analysis of data is required. The process of getting data, analysis, obtaining information, and use of the information is part of quality management as it will contribute to obtaining quality product or services.

**Table 1.** Summary of literature review for practices of quality management.

Year	Author	Industry	Research methodology	Research area	Construct of practice of quality management
1990	Wolf et al.	General project	Interviews, q. survey	Quality management practice	Program, cost, education, procedures
1992	Sohal et al.	General	Q. survey, case studies	Quality management practice	General quality practices (formal quality program, areas covered by the program, manuals, separate department for quality), human resources issues, quality control practices, quality program evaluation.
1995	Redman et al.	General	Questionnaire survey	Quality management	Approaches, techniques, measurement, evaluation.
1995	Lin and Clousing	Health care	Questionnaire survey	TQM practices	Leadership, mission, teamwork, motivation, measurement, attitudes, cost consideration.
1997	Kam and Tang	Construction	Case studies	Quality assurance	Quality assurance system
1997	Carr et al.	Manufacturing	Questionnaire survey	Quality management practices	Cost versus quality strategy, policy, customer focus, supplier linkage, process improvement, training, open organization, employee empowerment, measurement
1998	Fryer	Construction	-	Quality management	Delivering quality more systematically
1998	Corbett et al.	General	Questionnaire survey	Quality management practices	Approaches
1999	Alhozaimy et al.	Ready-mixed	Case studies	Quality scheme	Inspection, QA program, administrative activities, technical support, public awareness program
1999	Bubshait et al.	Construction	Questionnaire survey	Quality practices	Policy, designer qualification, training and education, design planning, design inputs, design process, interface control, design review, design changes, subcontractor control, document control, design maintainability, computer usage, working relationship, audit

Table 1. Contd.

1999	Samson and Terziovski	Manufacturing	Questionnaire survey	Total quality management practices	Leadership, people management, customer focus, strategic planning, Information and analysis, process management, performance
1999	Terziovski et al.	Manufacturing	Questionnaire survey	Quality management practices	Mission/statement, across functional areas, training, awareness, relationship with supplier, technical methodologies
1999	Dow et al.	Manufacturing	Questionnaire survey	Quality management practices	Workforce commitment, shared vision, customer focus, use of teams, training, supplier relations, benchmarking, advanced systems, just-in-time principles
1999	Ismail et al.	Manufacturing	Questionnaire survey	Quality management	Tools and techniques
2000	Barad et al.	High-tech, Software	Questionnaire survey	QM tools and practices	Brainstorming, cause and effect analysis, review, control of trends, cause and effect analysis, simulation, benchmarking, requirements management, subcontractor management, quality control, quality management, training, satisfaction surveys
2000	Prabhu and Robson	Manufacturing	Questionnaire survey	Practices of leadership	Vision, benchmarking, human resources strategy, product technology, manufacturing strategy, quality vision, innovation/creativity, sustainability, job flexibility, problem solving, quality processes, employee involvement, customer orientation, training and education, supplier relation.
2000	P. M. Institute	General project	-	Quality management	Quality planning, quality assurance, quality control(inputs, tools and techniques, outputs)
2001	Harris et al.	Construction	-	Quality management	Quality control and inspection, quality assurance, total quality management
2001	Mathews et al.	Manufacturing Service	Questionnaire survey	Quality management practices	Tools and techniques

Table 1. Contd.

2002	Lai et al.	General	Questionnaire survey	QM implementation	People and customer management, supplier partnership, communication of improvement information, customer satisfaction, external interface, strategic quality management, teamwork structure, quality planning, measurement systems, quality culture
2002	Sharma and Gadenne	General	Questionnaire survey	Quality management practices	Value chain integration, training, measurement, employee efficiency, supplier quality cooperation, executive involvement, customer-employee cooperation, efficiency-transparency, emphasis on overall quality, defects reduction
2002	Quazi et al.	General	Questionnaire survey	Quality management practices	Leadership, information and analysis, strategic quality planning, human resource development, quality assurance, supplier relationship, customer orientation, quality results
2002	Bossink	Construction	Case studies	Quality management practices	Design, planning, systems, goal, positioning, interaction
2003	Battikha	Construction	Case studies	Quality management practices	Quality control, quality assurance (tasks, roles)
2003	Lagrosen and Lagrosen	General	Questionnaire survey	Quality management	Customer orientation, leadership commitment, participation, continuous improvements, management by facts, process orientation
2004	Wennerstrom	Construction	Case studies	Status of quality management	Quality standards

**Continuous improvement and sustainability**

Quality management should be a dynamic

process, aiming at sustainability of achievements and further improvement in the future. Without these, an organization will be lacking behind by its

competitors. Organizations with determination for improvement are normally having research and development (R&D) activities for the purpose

and also be innovative in their operations.

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