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- Hunker, H.L. and A.J. Wright (1963), "Factors of Industrial Location in Ohio" Ohio State University, Nigeria.

CONTRIBUTIONS TO BOOKS

- Sharma T., Kwatra, G. (2008) Effectiveness of Social Advertising: A Study of Selected Campaigns, Corporate Social Responsibility, Edited by David Crowther & Nicholas Capaldi, Ashgate Research Companion to Corporate Social Responsibility, Chapter 15, pp 287-303.

JOURNAL AND OTHER ARTICLES

- Schemenner, R.W., Huber, J.C. and Cook, R.L. (1987), "Geographic Differences and the Location of New Manufacturing Facilities," Journal of Urban Economics, Vol. 21, No. 1, pp. 83-104.

CONFERENCE PAPERS

- Garg, Sambhav (2011): "Business Ethics" Paper presented at the Annual International Conference for the All India Management Association, New Delhi, India, 19–23

UNPUBLISHED DISSERTATIONS

- Kumar S. (2011): "Customer Value: A Comparative Study of Rural and Urban Customers," Thesis, Kurukshetra University, Kurukshetra.

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- Garg, Bhavet (2011): Towards a New Gas Policy, Political Weekly, Viewed on January 01, 2012 <http://epw.in/user/viewabstract.jsp>

AN ANNOTATED BIBLIOGRAPHY ON QUALITY MANAGEMENT: A COMPREHENSIVE LITERATURE REVISIT

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ABSTRACT

Quality Management has been taking many shades with an unprecedented rate since a century by covering all kinds of business communities in it. Despite of this, we have not arrived at a common and standard definition of quality. The lack of unanimity is due to the complex nature in the concept of quality. It is also apparent that there is no general agreement on what Quality philosophy firms should imitate by revisiting the literature review on Quality definitions. By and large, every quality guru in their definitions included the terms related to customer satisfaction in order to casually justify the completeness of the definition. But their works and contributions in various forms revealed that they had ostensible focus over customer satisfaction or open system approach. They never tried to determine customer expectations and transfer to product characteristics to performance characteristics. Instead, most of the models, principles formulated by the gurus are confined to conformance to specifications or in other words closed system approach. The works of Shewhart and Garvin lead to the identification of quality dimensions, but these may cause social loss or related losses to customers or producers immediately or in near future. Therefore, there is a need for including ethical elements in the definition of quality. Organizations in pursuit of making profit pull some expectations and push some expectations into the minds of the customer and satisfy them tactically, which is also against the ethical quality definition. The definition of quality acts as the preliminary vision statement for any researcher or practitioner. Therefore, the paper tries to explore qualitative definition by revisiting the expounds of quality personnel.

KEYWORDS

quality management, quality dimensions, total quality management.

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INTRODUCTION

We know that Quality Management has been taking many shades with an unprecedented rate since a century by covering all kinds of business communities in it. Despite of this, we have not arrived at a common and standard definition of quality (Reeves and Bender, 1994). The lack of unanimity is due to the complex nature in the concept of quality. It is also apparent that there is no general agreement on what Quality philosophy firms should imitate by revisiting the literature review on Quality definitions. Therefore, the perspectives of all the following Quality Gurus: Shewhart, Deming, Feigenbaum, Juran, Crosby, Taguchi, Ishikawa, Shingo, etc. are examined as they have embarked milestones in the rare road of Quality Management in twentieth century. Their definitions by and large fall into the two following categories.

1. Open System Approach: Quality is equated to customer expectations.
2. Closed System Approach: Quality is equated to conforming specifications.

The definition in category one, urges to produce a product to satisfy the customer and category two, urges to conform the dimensions set in the design.

OBJECTIVES

1. To identify the gap in the present literature and practical world of Quality Management
2. To present Comprehensive Views on Existing literature on Quality Management
3. To derive the sustainable definition of Quality in Quality management
4. To Identify the constructs of Total Quality Management

METHODOLOGY

For the purpose of achieving the stated objectives, papers published in various national and international journals, books, research reports, articles have collected and analysed.

ANALYTICS ON DEFINITIONS OF QUALITY GURUS

“The object of industry is to set up economic ways of satisfying human wants and in so doing to reduce everything possible to routines requiring a minimum amount of human effort. Through the use of the scientific method, extended to take account of modern statistical concepts, it has been found possible to set up limits within which the results of routine efforts must lie if they are to be economical. Deviations in the results of a routine process outside such limits indicate that the routine has broken down and will no longer be economical until the cause of trouble is removed.” (Shewhart, 1931)

The preceding statement of Walter A Shewhart, the father of Statistical Quality Control and always the grandfather of Total Quality Management theorized the importance of adapting Management Processes and Statistical Tools in order to streamline the production environment of the firm. Shewhart’s principle was to bring a process into a state of statistical control and allow the distinction between assignable and chance cause variations. By keeping the process in control, it is possible to predict future output and to economically manage processes. (Shewhart, 1939)

As Shewhart did not try to overtly define the term Quality, but we can make out it by deriving his statements and works in the field of quality management. His book ‘Economic Control of Quality of Manufactured Product’ and identified subjective and objective characteristics of quality opined that his view of Quality is by and large objective to open system approach and subjective to closed system approach of quality. Even other works like PDSA Cycle and other postulates in various occasions hold similar attitude. Shewhart’s essential points are (Shewhart, 1931, 1939)

- Aid a manager in making scientific, efficient, economical decisions by SPC.
- Create profitable situations for both businesses and consumers, promoting the utilization of his own creation

Focused on

- Statistical control of variability in production system.

- Responsibility of employees in production system (only confined to supervisors and above).
- Ostensibly over needs and expectations of customers.

The fallacy identified in the definition of Shewhart is that he had somewhere deliberately neglected to address the objective issues of quality that is perceived quality rather he focussed on controlling the variations of production process which may be due to situational demands of world war.

Edward Deming, the father of Total Quality Management and the prophet for success in Japanese revival of post-war defined Quality as 'A predictable degree of uniformity and dependability at low cost and suited for market' (Deming, 1986). His view of quality is apparently in line with the open system approach. Deming's essential arguments are

- Quality must be equated to customer satisfaction.
- Virtually quality cannot be defined by single characteristic or agent.
- As quality is equated to customer satisfaction that is needs and expectations, therefore, obviously there is a requirement of addressing different degrees of quality.

Focussed on

- Both behavioural and statistical method of controlling variability in quality of production system.
- Management and Employee responsibility.
- Superficially over needs and expectations of customers.

Edward Deming at the early times balanced the focus over system and human components of organization for quality and revealed the nature of quality that it is relative but failed to visualize and demonstrate that restiveness of quality.

Philip Crosby, in his contributions like Absolutes of quality management, fourteen steps for quality improvement, Quality vaccine, zero defects, etc. unlike other quality gurus his programs are primarily behavioural and less of statistical techniques to change corporate culture and attitudes in it. In the initial stage Crosby defined quality as "Conformance to requirements" as necessary step for management to follow and match the intended needs and expectations of the customer. He strengthened his definition by adding "Without deviation" to the former to theorize "Zero defects". Zero defects approach set an ideal target, which was not easy for organizations to immediately turn towards it. But it paved the way for adapting comprehensive method for defining, producing and delivering a product that tries to eliminate any possibilities of defects.

Crosby further theorized Quality as "Free" which advocated against the perspective that investment in quality is an expensive venture that would burden the organization. Crosby argues that investment in quality will enhance the quality of products, which will attract and satisfy the customers at marketplace, satisfied customers will repeat the purchasing and will communicate their prolific product experience with other potential customers, expansion of this phenomenon will increase market share and profit of organizations. Crosby's view of quality falls under open system approach. His other relevant arguments are

- Quality is not just conforming to specifications, it is a narrow approach but instead the broader is confirming to requirements, if we are to manage quality at high degree. (Crosby, 1979).
- We must understand and translate the requirements into measurable product or service characteristics, because the customer deserves to receive exactly what we have promoted to produce. (Crosby, 1979).
- Meet the specifications strictly (Zero defects). Zero defects are an attitude of defect prevention. It refers to do the job right first time.

The doubt raised is that whether the products which conform to the requirements are of equal quality? And assertion is about lack of clear synthesis on requirements to be met. Therefore, Crosby's definitions too, partially failed to anatomise quality shades in detail.

Armand V Feigenbaum, the pioneer of quality movement in Europe and Latin America of 50's and the pragmatic innovator of Total Quality Control have defined quality in different views. As per his recent view Quality is 'what the user or customer says' (1983). His definition falls directly into the wagon of open system approach. Feigenbaum's essential points are

- Quality must be equated to customer satisfaction.
- Quality has many faces; it must be comprehensively defined.
- Quality is relative.

Focussed on

- Behavioural method of controlling total variations of quality in production system.
- Management responsibility over initiating the control of variations in firm.
- Perceived quality at customers.

Feigenbaum, in his first half of the journey in quality movement he emphasized to strengthen the system and human components of firm only. But the latter journey, not only shared his focus equitably on understanding customer needs and expectations but he kept these at the centre of the firm. But somewhere his notions of translating customer expectations into product characteristics seem to be weaker. Feigenbaum's definition of quality though fall under open system approach, it failed to reveal its restiveness.

Kaoru Ishikawa a professor and innovator of quality management from Japan defined quality as it is the proof of satisfying the ever changing expectations of the customer and he advocates the idea that customer satisfaction is the end game for all the efforts to deliver a quality product or service (Ishikawa, 1985). His definition can be apparently considered under open system approach of quality. His essential points are

- Quality should fall line with the dynamics of quality.
- Quality must be comprehensively defined by integrating all parts of a firm.
- Price is also an integral part of quality.

Focussed on

- Controlling company wide variations using technical methods.
- Management and Employee responsibility.
- Rhetorically over the perception of customer needs and expectations.

Ishikawa championed in adapting the principles of quality control and assurance in strengthening the system of the organization. However, he has paucity in designing the manufacturing procedures conducive to customer satisfaction.

Joseph Juran the father of quality and mentor to Japanese industrial practitioners defined quality as 'Fitness for use' in a very simple and easily understandable way. It emphasizes relationship between customer satisfaction and conformance of product characteristics to product specifications. The terms 'use' and 'fitness' represent product characteristics to specifications and absence of non-conformity (Juran, Gryna, 1988). Juran's definition apparently falls under open system approach. His essential points are

- Quality is equated to product features that satisfy the usage needs of the customer.
- Quality is also embedded in 'free from deficiencies'.
- Emphasis over internal and external customers in delivering quality.

Focussed on

- Controlling total variations of all the processes of firm.
- Management responsibility more than employee responsibility.
- Candid over customer expectations.

Juran attempts to define by product-focused and customer-focused approach simultaneously, urging that a practical definition of quality may not possible. On the other hand, one gets the impression that Juran would like to define quality in terms of customer satisfaction. To do so, however, he must deal with the relationship

between customer satisfaction, for which he suggests no comprehensive measurement strategies and the conformance of service attributes/product specifications, which can be accomplished fairly well in the workplace. Because he is not satisfied with efforts to integrate customer satisfaction with product characteristics, he first attempts to define quality in two different and possibly inconsistent ways. When that appears not to work, he defines quality ambiguously as fitness for use.

Genichi Taguchi, a well-known pioneer of modern quality control and low-cost quality engineering, defined quality as 'Ideal value of key product characteristics which avoids financial loss of product to society' (Taguchi and Wu, 1979). It estimates the loss to society from failure of the product in terms of loss to society, loss to customers and loss to producers. His definition of quality falls under open system approach as it emphasizes product characteristic to performance characteristics of the product to customers. His essential points are

- Quality is equated to total loss to society created by the product.
- Product and process design can have an important impact on product's quality and cost.

Focussed on

- Design of experiments to reduce variations.
- Target value to estimate quality loss.
- Robust designs of the system and considering customer expectations at the design stage.

Taguchi's definition encapsulates conformance to specifications and tries to exceed conformance to requirements but it exhibits superficial emphasis in uncovering the strides of product-focussed approach and customer focussed approach.

David Garvin a well known professor from Harvard Business School has introduced five different views of quality to understand the very nature of quality. To do this, the multifaceted interests of product and process stakeholders are used (Garvin, 1984). They are

- Transcendental view- Cannot be defined but felt.
- Product-base view- Defined over product ingredients or attributes.
- User-based view- Defined over user satisfaction.
- Manufacturing-based view- Defined over fulfilling the design specifications.
- Value-based view- defined over usage and selling price.

Montgomery (2000) had given statistical definition of quality, 'Quality is inversely proportional to quality. It opines that quality products can be manufactured by reducing the variations at higher degree.

ANALYTIC NOTE

By and large, every quality guru in their definitions included the terms related to customer satisfaction in order to casually justify the completeness of the definition. But their works and contributions in various forms revealed that they had ostensible focus over customer satisfaction or open system approach. They never tried to determine customer expectations and transfer to product characteristics to performance characteristics. Instead, most of the models, principles formulated by the gurus are confined to conformance to specifications or in other words closed system approach. The following table provides the details of works and contributions of quality guru in relation to their target or impact made by them in the firms that is strengthening system of manufacturing or system of understanding and transferring customer expectations.

TABLE 1: SHOWING THE WORKS OF VARIOUS QUALITY GURUS AND THEIR TARGETS

Quality Guru	Works in the Field of Quality Management	Target or Emphasis on
Shewhart	SPC Control Charts, PDSA cycle, etc.	Product, Production and Management
Deming	14 points, Triangle, 7 Deadly Diseases, etc.	
Crosby	6 C's, 4 Absolutes, Zero Defects, Vaccine, etc	
Feigenbaum	TQC, Three Steps to Quality, etc.	
Ishikawa	Cause and Effect Diagram, Quality Circle, etc	
Juran	Cost of Quality, Trilogy, etc.	
Taguchi	Design of Experiments, Loss function, etc.	

TO ARRIVE AT COMPREHENSIVE DEFINITION OF QUALITY

The works of Shewhart and Garvin lead to the identification of quality dimensions, but these may cause social loss or related losses to customers or producers immediately or in near future. Therefore, there is a need for including ethical elements in the definition of quality.

Organizations in pursuit of making profit, pull some expectations and push some expectations into the minds of the customer and satisfy them tactically, which is also against the ethical quality definition.

The ethical definition of quality may be given as 'Conforming to Win-Win requirements for customers, firms, society and environment at large'. This can be achieved by the following steps.

- Understanding needs and expectations of customers,
- Segregate them into compatible and incompatible expectations.
- Design product and performance characteristics.
- Conform to specifications of design.

CONCLUSION

The definition of quality acts as the preliminary vision statement for any researcher or practitioner. Therefore, qualitative definition of quality must pave quality support in developing qualitative organization for its quality survival in this qualitative corporate competition.

REFERENCES

1. Crosby, P. B. (1979). "Quality is free" New York: McGraw-Hill
2. Dale H Besterfield, Carol Besterfield and Glen Besterfield, "Total Quality Management", Pearson Publications, 3rd edition
3. Howard S Gitlow, Alan J Oppenheim, Rosa Oppenheim, David M Levine, "Quality Management", 3rd edition New, McGraw-Hill publication
4. George., G., S(1992) Three experts on quality management: Philip b. Crosby w. Edwards Deming Joseph m. Juran Tqlo publication no. 92-02.
5. Joseph M Juran and A Blanton Godfrey, "Juran's Quality Handbook", Mc Graw Hill Publication
6. Juran, J.M., & Gryna, F. M. (Eds.). (1988). "The quality control handbook" (4th ed.). New York: McGraw-Hill.
7. N Logothetis, "Managing for Total Quality from Deming to Taguchi and SPC", Prentice hall of India Pvt. Ltd.

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