Service Quality Measurement with Minimum Attributes (SERVQUAL-MA) Technique Upgrade by Human Resource Development

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Abstract—**Human Resource Development (HRD) is an important area in which total progress and achievement of an organization lies. A HR or HRD manager should have sound knowledge in various fields and he has to adopt different techniques for practical development purposes. The measurement of service quality is a problematic due to inherent peculiarities and fluctuations regarding human service involved. Several researchers has tried to find out solution for service quality measurement using normal scaling technique like Likert scale, Ordinal scale etc., but they have not yet succeeded to measure service quality in a real time basis. In this paper, I have shown how adopting Human Resource Development upgrade service quality by considering the most important three attributes like responsiveness, empathy and innovative power of the involved human beings (workers) in a real time basis. Measurement and analysis of service quality by the three attributes for different organizations are adhered by advance level computer software like DBMS, RDBMS, Data Mining, Data Warehouse, Teradata etc.**

Index Terms—**Human Resource Development (HRD), Empathy, Innovative power, Responsiveness, Servqual, Servperf, Servqual-MA.**

I. INTRODUCTION

A Human Resource Development (HRD) Manager works with internal people like workers, subordinates, supervisors, line managers, executives and big bosses etc as well as external groups like customers, clients, suppliers, union representatives etc. In each time his ultimate view is to earn the corporate goals or gains. A good HR or HRD manager should be mediator, politician, diplomat, tactful and symbol of corporate success. Out of the main inputs, human beings or workers are the part and parcel of an institution or an organization. A HRD manager [27]-[32] should deal in a careful way to manage these utmost inputs. Therefore, a HRD manager should be well aware of psychology, sociology, physiology, present trend of society and demand, different welfare and entertainment measures, modern technology and utilization of research outcome.

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The service businesses sectors e.g. institution, banking, hotel, logistic, hospital, medical, retail, tourism, entertainment etc are encountering tremendous competition to meet profitable ways due to privatization and globalization. For that reason, the driving force towards success in service businesses is the delivery of high quality service (Rudie and Wansley 1985; Thompson, DeSouza and Gale 1985). Hence, service quality measurement and improvement is one of the most significant strategic tools for enhancing efficiency and business growth [2], [4], [15]. Researchers have explained the importance of quality to service firms [5]-[32] and have demonstrated its positive relationship with profits, increased market share, return on investment, customer satisfaction and future purchase intentions or market, rate of customer retention etc. Quality measurement and improvement of service industries has been perceived differently. It is based on different conceptualizations. Various scales have been investigated for service quality measurement [6], [11], [12], [18]-[22].

Since one of the scales is not so accurate enough for measuring and comparing service quality value. Empirical efforts are not well diagnosed for corrective actions in case of quality shortfalls. Moreover, practical implementation to the applicability of these scales is very much limited to the service industries in developing as well as developed countries. A comprehensive service quality is studied on the basis of the features unique to the services like heterogeneity, intangibility, perish-ability and inseparability of production and consumption [18], but quite a large number of features or attributes are considered. It is a very hard task to evaluate all these features (44, 22 in one set) considering their inter-, intra-relationships. Thus service quality of a service industry cannot be evaluated properly within a stipulated time frame.

Therefore, I invent earlier the procedure for measuring service quality of any service industry by minimizing all these features [32] into three main features which evaluate the service quality accurately involving human services in a real time basis. Now I am discussing how HRD is related with the service quality of an industry or organization. Implementations of HRD policy will upgrade the service quality of human involved servicing industry. Finally computer software like DBMS, RDBMS, Data Mining, Data Warehouse, Teradata etc are used for measuring and analyzing service qualities of different industries in a nut shell.

II. IDEA OF HRD WITH SERVICE QUALITY

Human Relation theory gained popularity after famous studies of human behavior and their output in work situations conducted at the Western Electric Company from 1924-1933 A.D. Employees are not only economic or commercial beings, but social and psychological beings as well. The main emphasis should be on creating a humanistic or an informal organization is in place of a mechanistic or a formal organization. The organization must be democratized and people working therein must become part of "One big happy family". According to Keith Devis that Human Relation is motivating people in organization in order to develop teamwork, which effectively fulfills their needs and achieves organizational goals. A HRD manager or a leader should behave in a way that generates belongingness and respect. He must be able to adjust to various personalities and situations. He must offer a pleasant work climate where Bossism or Burecacy is totally absent and where workers or members are allowed to have a say in the decision making process. For this monthly or bi-weekly meeting like Joint Council meeting should be arranged in between the workers or nominated members and the HRD manager. Thus, human resource development manager put all efforts on maintenance of harmony within the factory and wants to put an end to conflicts at all costs. Personnel Management is also considered one of the parts of Human Resource Management [27]-[31]. Thus HRD signifies the development of service quality imparted by the human beings involved.

Quality is defined as "conformance to requirements" (Crosby 1984), "fitness for use" (Juran 1988) or "one that satisfies the customer" [13]. Japanese consider production philosophy in which quality identifies "zero defects" in the firm's offerings in a significant time. Although idea and measuring of service quality is embraced from the goods sector, but a solid foundation for research work in this area is laid down in the mid-eighties by Parasuraman, Zeithaml and Berry in 1985. They have suggested that the concept of quality prevalent in the goods sector is not extendable to the services sector. Being inherently and essentially intangible, heterogeneous, perishable, entailing simultaneity, inseparability of production and consumption, measurement of services require a different structure for analysis and improvement. While in the goods sector, tangible clues exist to satisfy consumers by product quality, but quality in the service sector is accompanied in terms of the parameters or attributes, that is, under the domain of "experience" and "credence" properties. These parameters are very much difficult to measure and to identify in a proper way [18], [26]. One major contribution of Parasuraman et al in 1988 has provided a perfect definition of service quality. They describe service quality as "a global judgment or attitude is relating to the superiority of the service" and explicate it as involving evaluations of the outcome i.e. what the customer actually receives from service and process of service act; and the manner in which service is delivered. The same way of expressing service quality is realized by Gronroos 1982; Smith and Houston 1982. Parasuraman et al measures service quality as a difference between consumer expectations of "what they want" and their perceptions of "what they get".

Based on this conceptualization, they propose a service quality measurement scale called "SERVQUAL". The SERVQUAL scale is able to indicate the service quality, but it is very much cumbersome and time consuming process for achieving accurate measurement by considering all attributes. These attributes are consisting of 44 numbers in two sets and 22 numbers in each one set.

Thus, a new method for fastest (immediate) measurement of the service quality [32] in an industry is invented by merging all parameters into three main parameters i.e. responsiveness, empathy and innovative power. Hence accurate value of the service quality is computed in a twinkle of time. This measurement and improvement of the service quality is totally dependent on the grade of human resources management implemented in the organization or industry. It is the earnest duty of the HRD manager to uplift the standard of working in all respects. As a result HRD brings forth revolutionary change in achieving better service quality.

III. SERVQUAL SCALE FOUNDATION THEORY

Parasuraman et al [18] explain in 1985 that the criteria used by consumers for measuring service quality fit to ten (10) potentially overlapping dimensions. These dimensions are tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding or knowing the customer and access. These ten dimensions and their descriptions served as the basic structure, from which items are derived for SERVQUAL scale. The foundation for the SERVQUAL scale is the integrated gap model proposed by Parasuraman, Zeithaml and Berry in 1985, 1988.

The gap model as shown in Fig. 1 maintains that satisfaction is related to the size and direction of disconfirmation of a person's experience vis-a-vis his/her initial expectations [10], [18], [19], [25], [32]. As a gap or difference between customer "Expectations" and "Perceptions", service quality is viewed as lying along a continuum ranging from "ideal quality" to "totally unacceptable quality". In this gap or difference, some points along the continuum are representing satisfactory quality.
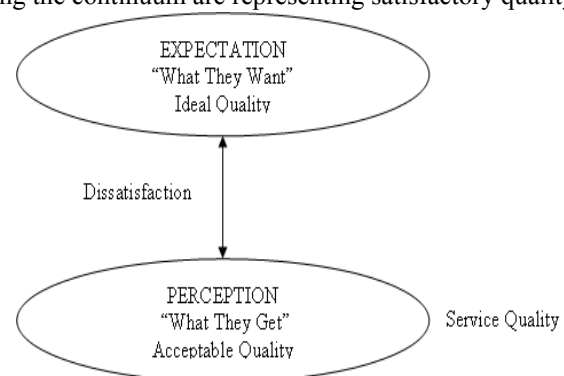

Fig. 1. Block Diagram of Service Quality Measured.

In Fig. 1, achieved service quality is lesser than that of the expected level. Parasuraman et al in 1988 describe when the perceived or experienced service is less than the expected service, it ascertains service quality lesser than requisite or satisfied value. When the perceived service is more than the

expected service, obviously the service quality is more than satisfactory value. They explain while a negative discrepancy between perceptions and expectations — a "performance-gap" which brings forth dissatisfaction, where as a positive discrepancy exhibit consumer satisfaction having better service quality [19]-[32]. They describe a set of 22 attributes or variables spreading in five different dimensions for service quality computation. Since they enumerate service quality as a measuring difference (a gap) between customer's expectations and perceptions of performance (availability of services) on these variables. Their service quality measurement scale is composed of a total of 44 items (22 for expectations and 22 for perceptions). Customers' responses to their expectations and perceptions are obtained on a 7-point Likert scale and are compared to arrive at (P-E) gap scores. The higher (more positive) i.e. perception minus expectation more, the higher is perceived, in which the level of service quality becomes higher or increasing. Mathematically it is expressed as:

$$SQ_i = \sum_{j=1,(i)}^{k} (P_{ij} - E_{ij})$$

Where SQ_i = Perceived service quality of individual 'i',

k = Number of service attributes or items or parameters,

P = Service quality perception of individual 'i' with respect to attribute 'j',

E = Service quality expectation for attribute 'j' by the individual 'i'.

Parasuraman et al [19] scale is practically applied to a number of empirical studies in various service settings done by Lewis 1987, 1991; Brown and Swartz 1989; Carman 1990; Pitt, Gosthuizen and Morris 1992; Young, Cunningham and Lee 1994; Kassim and Bojei 2002; Witkowski and Wolfinbarger 2002. The SERVQUAL scale has been fronted so many difficulties on various conceptual and operational grounds, although it is applied as an essential tool for service quality measurement in a service industry. Some major problems regarding the service quality scale are use of (P-E) gap scores, length of the questionnaire, predictive power of the instrument and validity of the five-dimension structure [4], [11]. Several points have been raised in respect to the use of (P-E) gap scores e.g. disconfirmation model. Most of the results derived for service quality by Parasuraman et al scale is differing from actual value [19]. Some researchers measure service quality through a single-item scale [3], [4], [14]. Although the use of gap scores is intuitively appealing and conceptually sensible, the ability of these scores to provide additional information is under doubt [4], [16]. Pointing to conceptual, theoretical, and measurement problems associated with the disconfirmation model, Teas in 1993 observed that a (P-E) gap of magnitude "-1" can be produced in six ways: P=1, E=2; P=2, E=3; P=3, E=4; P=4, E=5; P=5,E=6 and P=6, E=7 etc and these tied gaps cannot be construed as implying equal perceived service quality shortfalls. In a similar vein, the empirical study by Peter et al [7] found difference scores being set with psychometric problems and they cautioned against the use of (P-E) scores.

Expectation (E) is the subject to have multiple interpretations. So, it has been operationalized by different researchers in different ways (e.g., Brown and Swartz 1989; Gronroos 1990; Babakus and Inhofe 1991; Teas 1993, 1994; Dabholkar et al 2000). Initially, Parasuraman et al [18], [19] are taken expectation close on the lines of Miller (1977) as "desires or wants of consumers", i.e., what they feel a service provider should offer, rather than would offer. Later on Parasuraman et al [20] label this "should be" expectation as "normative expectation", and point out it as similar to "ideal expectation" [20]-[21]. For realizing the problem with this interpretation, they themselves propose a revised expectation (E*) measure, i.e. what the customer would expect from "excellent" service [21]-[22] and the new scale is formed as SERVPERF. In both ways of service quality measurements i.e. SERVQUAL and SERVPERF methods, all the attributes e.g. tangibility, empathy etc are equally weighted or important and no extra or additional advantage is ascertained by any attribute.

IV. SERVICE QUALITY MEASURE BY APPROPRIATE WEIGHTED ATTRIBUTES

In the service quality scales different quality attributes are used. These are considerably differing in value for various types of services and service customers. Tangibility might be a prime factor of quality for bank customers but may not affect much to the customers of a cellular service provider. Since service quality attributes are not equally important or weightage for different service industries. Thus the importance or weights are imposed to the attributes in the service quality measurement scales [11], [20]-[22]. While the unweighted measures of the SERVQUAL and the SERVPERF scales have been described above, the weighted versions of the SERVQUAL as proposed by Cronin and Taylor [11] are as follows:

$$SQ_i = \sum_{j=1}^{k} I_{ij} (P_{ij} - E_{ij})$$

Where I_{ij} = Weighting factor i.e. importance of attribute 'j' to an individual 'i', measure service quality of an individual 'i'.

V. SERVICE QUALITY MEASURE WITH MINIMUM ATTRIBUTES: SERVQUAL-MA & EFFECT OF HRD

I already proposed to minimize the huge number of attributes (total 44 numbers in two sets, 22 numbers in each set) as suggested by Parasuraman et al [15]-[25] to three main attributes [32]. It is chosen in terms of their validity, ability to explain variance in the overall service quality, power to distinguish among service objects, parsimony in data collection etc. Thus it can provide insights for managerial interventions in case of quality shortfalls. These three important attributes are responsiveness, empathy and innovative power of the human beings involved for providing services to the customers. All other attributes like security or secrecy, assurance, tangibility etc are assumed to remain constant i.e. within some standard norm (value) for a service industry or organization. When a client or customer approaches for a service to an organization or institution, the

first expectation is to get the particular service (work done) correctly within a minimum time e.g. in bank, money transaction; in cellular communication, call connection etc done within a stipulated or expected time. Thus responsiveness is the amount of time for transaction or getting the service without error, it should be within a stipulated or minimum time. The second expectation is that human or worker involving in this process will behave courteously and feel for customer need by positive thinking and perfect feedback i.e. ultimately he or she (organizer) will exhibit empathy towards customer or consumer. The third or may be the last expectation is that human being involved for providing service will search a new direction or way to do the work more efficiently with less time consuming in a smoother way. Thus worker's innovative power is another criterion to determine the service quality in accuracy. Accordingly a new technique or process is suggested by the worker (human) involved in the service for affording better and result oriented service. Now based on these three attributes, I apply different weightage as per Cronin and Taylor's equation [11], [32]. These weightages for the three attributes such as responsiveness, empathy and innovative power may vary from one service sector i.e. one organization to another service sector i.e. another organization, but for simplicity I assure constant weightages to the three attributes for all type of organizations. Generally I have assigned weightage for responsiveness is 0.65, for empathy is 0.20 and for innovative power is 0.15. Thus I formulate a simple general equation for calculating service quality for a service industry. The calculation of service quality for an industry by this procedure is nomenclature as "SERVQUAL-MA" i.e. service quality measured with minimum attributes, it is denoted by SQ_{MA}.

$$SQ_{MA} = \sum_{j=1,\ i=1}^{J=3,\ i=n} I_{ij}\,(P_{ij}-E_{ij})$$

Where $I_{i1} = I_{ir} = 0.65$, Weighting factor of attribute 'Responsivness' to an individual 'i', where i = 1 to n value,

$I_{i2} = I_{ie} = 0.20$, Weighting factor of attribute 'Empathy' to an individual 'i',

$I_{i3} = I_{iv} = 0.15$, Weighting factor of attribute 'Innovative Power' to an individual 'i'.

Hence, the above equation reduces to,

$$SQ_{MA} = \sum_{i=1}^{n}[I_{ir}\,(P_{ir}-E_{ir}) + I_{ie}\,(P_{ie}-E_{ie}) + I_{iv}\,(P_{iv}-E_{iv})],$$

$$SQ_{MA} = \sum_{i=1}^{n}[0.65\,(P_{ir}-E_{ir}) + 0.20\,(P_{ie}-E_{ie}) + 0.15\,(P_{iv}-E_{iv})]$$

Where SQ_{MA} is Service Quality for an industry or organization considering minimum attributes (3 attributes) namely responsiveness, empathy and innovative power of a worker,

P_{ir}, P_{ie}, P_{iv} is perceived service qualities for responsiveness, empathy and innovative power attributes respectively to an individual or worker 'i'.

E_{ir}, E_{ie}, E_{iv} is expected service qualities for responsiveness, empathy and innovative power attributes respectively to an individual or worker 'i'.

From this equation, we can calculate service quality of an organization or institution (SQ_{MA}) by summing up all worker's individual service quality. At the same time we can compute efficiency or service quality ($SQ_{MA,\ i=1}$) of the individual worker associated in that service industry. Thus it serves as a quick solution for getting the correct and immediate information about the standard of service imparted by the service industry which ultimately indicates efficiency level of the industry as well as that of each individual human being involved in the service offering. These three attributes are attained higher order or value by proper implementations of HRD policy in an industry. Then advance computer software such as Data Base Management System (DBMS), Relational DBMS, Data Mining, Data Warehousing, Teradata etc are utilized to measure and analysis the service quality by taking the three attributes (SQ_{MA}) for an individual employee or worker as well as whole organization or industry.

VI. HRD RELATE WITH SERVICE QUALITY

The main criteria of a HRD manager is to motivate the total working strength or staff by providing a very good working climate, so that optimum level of production can be achieved. He is the key factor of an organization. He is involved in all type of management function like planning, organizing, directing, controlling, operational, welfare, amenities, recruitment, training and development etc. He is developing skills, abilities, in born qualities of employees by imparting proper training, guidance, education - on line and off line, morale building, effective communication network. An authentic HRD manager should have direct communication to each staff of his organization. He should suitable offers proper facility and demand to individual worker in the organization. Davis explains Quality of Work Life (QWL) as those efforts are systematic efforts by organizations to give workers a great opportunity to affect the way they do their jobs and the contributions they make to the organization's overall effectiveness. A HRD manager should be well aware of oriented life style. He will develop new skills and technologies according to present days demand and hike. Some sort of compensation policy like accident, disability, prolonged illness, voluntary retirement scheme (VRS), physical exercise and yoga etc should be adopted keeping in view of organization's growth and gains. Thus Total Reputation Management (TrM) focuses to provide a wholesome approach to reputation building, even as it works at overhauling the organization or individual's inherent approach to business. The TrM programme revolves around four key domains like Organizational Behaviour (supporting a client in building an energized and positively-charged organization), Marketing (working at leveraging the brand's equity by providing brand reputation strategies), Communication (delivering a do-it-yourself media strategy rather than the more traditional "wining and dinning" approach) and Corporate Strategy (computing the reputation value using a proprietary value index, which keeps the

organization informed as to where it stands on the reputation barometer).

Recently a revolutionary change in human resource management has been taken place. Following trends [24]-[31], which are encountering at the global level, have sound impact in Human Resource Development (HRD):

1) Globalization of Economy.
2) Organizational designs and pattern changing.
3) Press on Knowledge Management.
4) Emphasis on Total Quality Management (TQM).
5) Corporate restructuring.
6) Introduce Kaizen i.e. continuous development.
7) Changing workforce profile.
8) Increasing role of Woman employees.
9) Develop modern technology oriented job profile.

If we can adopt right HRD in the above fields, obviously service quality of a service firm is improved; hence obtain the best service quality with higher impact on organizational goal and society.

VII. CONCLUSION

SERVQUAL and SERVPERF are being the two most widely used methods for determining the service quality scales at present. Although these two techniques are done on an assessment of the psychometric and methodological soundness towards computation of the service quality scales, but it is very difficult process to calculate all the attributes correctly in a stipulated time. As a result the essence of service quality measurement is not correctly implied in human related service zone by these two methods.

The new technique as proposed to calculate service quality of a service industry by taking three main attributes like responsiveness, empathy and innovative power, termed SERVQUAL-MA [32], with present days computer software is the authentic tool. This method also indicates efficiency level of an individual human being involved in the service industry. If HRD policy can be implemented in a better effective way, obviously these three parameters like responsiveness, empathy and innovative power of an individual employee or worker involved in the industry will also be improved or higher value one. Thus development of human resource development is a powerful technique to achieve the service quality of a servicing industry with the highest level in a real time basis.

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