Impact of TQM Practices on Motivation of Teachers in Secondary Schools Empirical Evidence from Pakistan

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ABSTRACT

The present study investigates the relationship between impact of total quality management (TQM) practices and teachers' motivation in the presence of Educational Institution Image as a mediating variable at secondary schools in Pakistan. The data was collected from faculty members including principals and head teachers of public, semi public and private schools through five points Likert Scale. The results were analyzed using SPSS 18. The study showed a significantly positive relationship between TQM practices and the resultant motivation amongst secondary school teachers. Moreover, school image was also found a mediator between the two variables. Recommendations and some policy implications were also given along with suggestions for the future research.

KEYWORDS: Quality, Education, Image, Motivation, Pakistan

INTRODUCTION

Twentieth century witnessed lot many new management philosophies being welcome by organizations as these supported and helped both public as well as private sectors organizations. One of the new concepts was to make constant efforts to meet and preferably exceeding the needs and expectations of customers. The new concept was termed differently by different researchers but all having one common expression "Quality"[1]. Although, the concept is now somewhat, rather fairly known to the developed world, it is still in introducing phase in the developing and under developed nations like Pakistan. Particularly, the education field and more specifically at the secondary school level, concepts like TQM are very difficult to find in literature review on the subject thus showing a big research gap.

Attraction and importance of the research subject are generally considered as important factors for any research, [2]. This study is likely to be of interest to those who are looking for quality management at secondary school level education, a field not explored much in most of the third world countries including Pakistan. This study is with the aim to investigate and answer the following questions:

1) What is the impact of TQM practices on Teachers' motivation?
2) What is the impact of institution image on the motivation of teachers for implementation of TQM practices?

1.1 Background: Academic achievements of students are the outcome of many factors. Quality of education is one of the most important amongst these. At the student's individual level, his/her psychological traits are also a major influencing. [3]was probably the first author who introduced the term Total Quality Control (TQC) in his book on TQC, [4]. Initially, this was considered as a game to be played by manufacturing companies only followed by the service sector. TQM, as a management philosophy was more openly discussed by Deming (1986) [5]. [1]While discussing if TQM in education is a help or hindrance points out that both the private and public sectors are seriously concentrating on Total Quality Management in major parts of the world and it must be implemented in education field. But in spite of TQM being a way of managing an organization to improve its overall effectiveness and performance [6], it has a remarkably small impact in education institutions to be more exact [7], TQM making a headway in secondary education at Pakistan could not be found by the author in literature review.

1.2 Defining Quality:

With so many definitions and dimensions of quality, what is quality still remains vague. As the saying goes "Beauty lies in the eyes of viewer", we can also say that "Quality lies as per the perception of the customer/ consumer". This is exactly what Crosby,1979 and Caplan,1990 describe quality as the one mainly viewed from customer satisfaction view point including the internal customers (Employees) satisfaction [8].To Crosby (1979) quality is "conformance to requirement" and to Juran&Gryna (1980) as "fitness for use". Deming (1986) describes quality as "a predictable degree of uniformity and dependability at low cost and suited to the market".

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However, before we apply these concepts of quality to the field of education, we must realize that education is the most effective tool for making a social and economic development of any society and TQM has been the main tool in changing organizational thinking Selzer, et al. (1995)so deserving the highest priority. Teachers in education are the main force for correct implementation of curriculum concepts and are therefore considered the corner stone in the whole structure of the school, [9]. Mt. Edgecombe High school in Sitka, Alaska, was the ever first education institution where Total Quality Management (TQM) was introduced in 1988 by one of the technology teacher and coordinator, David Langford[8].

1.3 Model for Measuring TQM at Education Institutions:

All people have a basic role in organization. So, all organizations are seriously interested to increase in employees' efficiency through any mean, [2]. It also warrants applying new management techniques and tools for more efficiency. Total quality management is one of such tool and a number of researchers carried out exhaustive studies to measure the extent to which TQM implemented at education and then its impact at various aspects of education. In that they used various scales for measurement all having emphasis on different constructs. Many a times the TQM is also explained by the model of a quality awards, such as European Quality Award (EFQM, 1999) awarded by the European Foundation for Quality Management (EFQM) and the Malcolm Baldrige National Quality Award in the USA (NIST, 1999) etc. [10]. Another well known model for TQM in education is the 5C TQM Model of Academic Excellence Sakthivel et al. (2005). It comprised of commitment of top management, Facilities at campus, Course delivery, courtesy and customer feedback[11].This work was further refined and improved by [12]by developing a list of 27 critical quality factors for measuring relationship between TQM's dimensions and performance of an institution. However, from [13] to [12] no literature could be found on issues of Quality and its relationship to Secondary school education sector of services in developing / under developed countries. A unique problem with TQM is that it's suggested core values are not same with different authors, even the number of core values in TQM differ; see [14] for detailed discussion, [10].

A comparison of ten constructs (Table-1) that emerged from seven different studies during the literature review is given in the table: 1. the comparison shows a commonality of at least two of the constructs (Leadership and Employee involvement) among all the seven papers "Process control and improvement" and "Student Focus" are the next common in at least five papers. Similarly, "Quality Improvement Systems" has been found common to four different papers considered in this study. At the same time, since, program design and resources at secondary schools level in Pakistan are formally structured by the government /respective Boards of Intermediate and Secondary Education leaving no choice/ liberty and selection of resources to the schools, this aspect has also therefore not been included in the present study. Thus, there remain only five constructs of the scale to measure TQM at secondary school education in Pakistan.

Table: 1: TQM Measures used in different studies

	Constructs / Instruments	Badri et al., (1995)	Owlia and Aspinwall (1997)	Tang and Zairi (1998)	Kanji *et al*. (1999)	Lorstegen, 2003)	Magnus Svensson*et al.*(2004)	Sakthival*et al.* (2005)
1	Leadership	O	O	O	O	O	O	O
2	Employee involvement	O	O	O	O	O	O	O
3	Process control and improvement	-	-	O	O	O	O	O
4	Student focus	-	O	-	O	O	O	O
5	Quality system improvement	-	O	-	O	-	O	O
6	Measurement and evaluation	O	-	-	O	-	-	-
7	Education and training	O	O	-	-	-	-	-
8	Other stakeholders' focus	-	-	-	O	-	-	-
9	Program design and resources	O	O	-	-	-	-	-
10	Fact based decisions					-	O	-

1.4 Research Design and Methodology: The study under review is an effort to investigate impact of implementation of TQM practices at secondary schools in Pakistan at teachers' motivation, an area where no precedence of any such study in Pakistan could be found during literature review. Survey was carried out through the questionnaire to quantitatively investigate impact of TQM practices in Secondary Schools on teachers' motivation. "The original form of TQM tool comprised of 84 statements based on Bonstingle's conceptualization of Demming's 14 points of Total Quality Management (TQM) in Education [8]. These constructs were then reduced to five (table: 1). Teacher Motivation and Job Satisfaction survey by [15]was used to measure the motivation level of teachers while Education Institution Image (EII) was measured by getting teachers response on their Institution's image from teachers themselves, students, parents, competitor schools and the outsiders viewpoints.

(Note: Some of the dimensions of similar meanings are taken alike in the table e.g. commitment of top management considered similar to the leadership etc.)

Hypotheses:

$H_{1a:}$ Leadership has significant relationship with Teachers' Motivation.

$H_{1b:}$ Process Control has significant relationship with Teachers' Motivation.

$H_{1c:}$ Quality System and Improvement) has significant relationship with Teachers' Motivation.

$H_{1d:}$ Teachers' Participation has significant relationship with Teachers' Motivation.

$H_{1e:}$ Student Focus) has significant relationship with Teachers' Motivation.

$H_{2a:}$ Education Institution Image (EII) will mediate the relationship between TQM practices (Leadership) and Teachers' Motivation.

$H_{2b:}$ Education Institution Image (EII) will mediate the relationship between TQM practices (Process Control) and Teachers' Motivation.

$H_{2c:}$ Education Institution Image (EII) will mediate the relationship between TQM practices (Quality System and Improvement) and Teachers' Motivation.

$H_{2d:}$ Education Institution Image (EII) will mediate the relationship between TQM practices (Student Focus) and Teachers' Motivation.

$H_{2e:}$ Education Institution Image (EII) will mediate the relationship between TQM practices (Student Focus) and Teachers' Motivation.

$H_{3:}$ Education Institution Image (EII) has significant relationship with Teachers' Motivation.

$H_{4:}$ Male teachers are more effective than female teachers in implementing TQM in schools.

1.5 Sampling of Education Institutions for the Study: A convenience sampling of educational institutions at Lahore was done with two institutions each in the following broad categories formed on the basis of EII.

1.5.1 Public Schools. (Government schools)

1.5.2 Semi Public Schools (Institutions under management by semi government organizations having comparatively more autonomy as compared to government institutions)

1.5.3 Private High Level schools (Private schools with high fee structure (USD 10,000 per annum)

1.5.4 Private Low Level schools (Private schools with low fee structure (USD 40 per annum)

1.6 Respondent Faculty Sample: The respondents from faculty members were selected at random ensuring to include Principals, Head masters/ Head mistresses / Section Heads and teachers. The researcher personally contacted the respondents and explained the purpose of the study. They were also briefed on how to respond to the scale survey instrument. Further clarifications were offered on the questions/ doubts by them.

Total of 30 questionnaires each were served at the eight institutions making it total of 240 questionnaires. Although, questionnaires were immediately collected back with 100% return rate but the usable questionnaire number was not very encouraging. Out of total 240 questionnaires served, only 143 forms were usable with 59.6 %. This rate ranged from minimum 43.3% to maximum 87% from different individual schools. However, when seen from institution category wise, the questionnaire percentage share was public 63%, Semi public53.5%, private high 56.5% and private low 65%. Recovery rate from independent schools is at Table: 2 below:

Table: 2 Frequencies of Returned Forms Out of Total 30 Questionnaires Served at Each Institution

School Category	Frequency	Percent	School Category	Frequency	Percent
Public 1	16	53 %	Pvt High 1	18	60 %
Public 2	22	73 %	Pvt High 2	16	53 %
Semi Public 1	14	47 %	Pvt Low 1	13	43 %
Semi Public 2	18	60 %	Pvt Low 2	26	87 %

The gender distribution of the respondents sample remained 84 females (59%) and 59 males (41 %) while education level of the respondent teachers was 4 M Phil/ MS (2.8%) 127 Masters (88.8%) and 12 Bachelors (8.4%). The responses were then analyzed at SPSS 18. Results are discussed in the succeeding paragraphs.

1.7 Measurement of Variables: Following is the brief literature review on TQM constructs used in this study.

1.7.1 Role of Leadership: Leadership is sometimes defined as process where an individual attempts to frame and define others inside realities generally in a natural and spontaneous manner [16]. It has always been the key factor in implementing and maintaining quality at all sorts of industry and services, [17]. A strong commitment from the top management remains like soul in the body of TQM and is vital for ensuring quality. Contrary to it an ineffective leadership can slower and even altogether stop and destroy the efforts for implementing total quality management[18].

1.7.2 Process Control: Total quality management guarantees a predetermined quality, during entire process right from planning to the final product or service through strict monitoring and availing all opportunities for improvement [19]. Organizations which have adopted the process control and redesign their activities exhibit marked improvements and betterment in their products, [20].

1.7.3 Quality System Tools: The quality system is a mirror showing a firm's strategy and policy that is likely to shape its future development and survival. Briefly speaking the development of a quality system comes from the quality strategy of an enterprise [21]. Irrespective of which system is adopted, it must have an aim as according to Deming (1994) there is no system without an aim. Therefore, one of the aims of the TQM system is always to increase satisfaction of internal and external customer with no additional expenses of resources and the system must have a clear focus on both external as well as the internal customers, [10].

1.7.4 Teacher Participation (Empowerment): Quality is a function of all involved in the operation and teachers form the centre of gravity of the quality body; they are the most important component in the entire school machinery. It therefore needs a perfect congruence amongst various subjects departments of the school, [22]. An effort of involvement and participation in the quality improvement activities by the employees always help them in getting to know about the new dimensions of knowledge for improving and solving the quality problems, [6].

1.7.5 Student (Customer) Focus: It views to determine customers' needs and to find out what and how customers' expectations are to achieve quality. In fact, knowing the customer needs is the first step before these are met, or even exceeded. Therefore customer first in every decision made is the essence of quality. It warrants a close liaison and relationship with the customers and keeping customer as the main focal point of all operations from product development to warranty and after sales issues.

1.7.6 Motivation: Important role of teachers is not only as leaders of next generation, but also as "Role Model" of students. The school teachers not only watch their pupils grow but also teach and help them to grow by answering their questions, listening to the problems they are facing and guide them regarding new challenges they will be facing in their new phase of lives [23]. A well motivated teacher will also encourage students to have creativity in their thinking and find out of box solutions to the presented problems and not guide students in their academics alone but also influence their behavior in daily life [23]. Studies also show that teachers with low motivation level also lack in bringing innovations and newness in their teaching classes and students are generally not attracted to their teaching classes [24].

1.7.7 Education Institution Image (EEI): Gone are the days when equity of an organization was calculated by its properties, assets, equipments, etc. Now a day's organizations and Institutions have another important asset which is intangible and lies inside customers' minds called Image, [25].

Figure: 1 Research Model
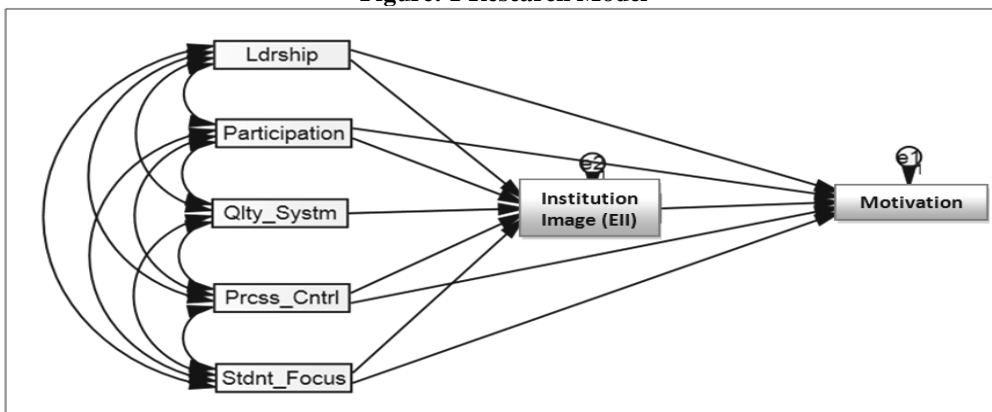
2-RESULTS AND ANALYSIS

The data was analyzed with SPSS 18 and Amos 18. It was found finds that 85 respondents female (85%) while 58 are male (41%), majority of them 127 out of 143 (89%) are holding masters qualification with only 12 (8.4%) as bachelors and just 4 (2.8) are M Phil/ MS. are The table-2 below shows the mean values of various dimensions of TQM and those of Image and motivation.

Table-3 Mean and Standard Deviations values

	Leadership	Proces_Contrl	Quality_Sys	Participation	Stud_Focus	Image	Motivation
Mean	3.6241	3.5944	3.7315	3.5804	3.7005	3.6713	3.6404
Std Deviation	.67600	.68372	.60473	.68020	.72150	.72244	.66616

2.1 Reliability: The instrument comprised of 7 variables including 5 dimensions of TQM as independent variables and motivation as the dependent variable while mediating effect of Education Institution Image was also measured between the two. These scales were evaluated for reliability by testing Cronbach's Alpha. Cronbach's Alpha is average inter-item response consistency and is considered as a reliable test since it calculates an average value of the reliability coefficients one could obtain for all possible combinations of items when these are split into two half-tests" [26]. Nunnaly (1978) finds 0.7 as an acceptable limit but even lower thresholds are sometimes used in the literature" [27]. All variables in the study show a high level of reliability (Cronbach's alpha values in acceptable limits of more than 0.7). Reliability co-efficient values of different dimensions are presented at table-3

Table-4: Cronbach's alpha values

LEADERSHIP	PROCES_CNTRL	QUALITY_SYS	PARTICIPATION	STD_FOCUS	IMAGE	MOTIVATION
0.842	0.858	0.709	0.850	0.849	0.836	0.830

2.2 Correlation: Correlation explains the relationship between all observed and latent variables. The value of Pearson correlation should lie between -1 to +1. The correlation matrix at table-4 shows that all values are significant at the 0.01 level (2-tailed) between dependent Variable (TQM) and all the 5independent variables.

Table: 5 Correlation among Variables

	LDRSHIP	QLTY_PROCES	QUALITY_SYSTEM	PARTICIPATION	STD_FOCUS	IMAGE	MOTIVATION
LEADERSHIP Pearson Correlation	1						
PROCESS Pearson Correlation	.823[**]	1					
QUALITYSYSTEM Pearson Correlation	.768[**]	.809[**]	1				
PARTICIPATION Pearson Correlation	.850[**]	.932[**]	.795[**]	1			
STUD_FOCUS Pearson Correlation	.771[**]	.825[**]	.727[**]	.783[**]	1		
IMAGE Pearson Correlation	.836[**]	.899[**]	.825[**]	.841[**]	.777[**]	1	
MOTIVATION Pearson Correlation	.747[**]	.833[**]	.559[*]	.765[**]	.779[**]	.791[**]	1
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

2.3 Regression Analysis:

2.3.1 Control of Demographic Variables: To find out the explanatory power of the independent variables (TQM dimensions) in the variance of Teachers' motivation, the dependent variable, Hierarchical regression was conducted. In the first place in order to control of variables that might impact the dependent variable more than the independent variables Gender, Education, three demographic variables: gender, Education, Institution and Institution category were blocked. For this, the demographic variables were input as control variables while Teachers' motivation was entered as the dependent variable. This ensured to control for the demographic variables effects when variance explained by the independent variables was to be checked.

Table 6: Statistical Comparison of Male and Female TQM Construct

	Males					**Females**			
	N	Mean	Std. Deviation	Std. Error Mean		N	Mean	Std. Deviation	Std. Error Mean
LEADERSHIP	85	3.7368	.66004	.07159	LEADERSHIP	58	3.4727	.67602	.09115
PROCESSCON	85	3.6779	.68665	.07448	PROCESSCON	58	3.4955	.66795	.09007
QUALITYSYSTEM	85	3.8212	.57073	.06190	QUALITYSYSTEM	58	3.6073	.64974	.08761
PARTICIPATION	85	3.6779	.68665	.07448	PARTICIPATION	58	3.4955	.66795	.09007
STDFOCUS	85	3.7883	.72251	.07837	STDFOCUS	58	3.5849	.69668	.09394
IMAGE	85	3.7404	.58498	.06345	IMAGE	58	3.5311	.60330	.08135
MOTIVATION	85	3.7906	.68446	.07424	MOTIVATION	58	3.5200	.73997	.09978

The next block of variables was comprised of the five independent variables and the results for male and female teachers are compared at Table 6.

2.3.2 Test for Multi Collinearity: The table 8 below is showing the Tolerance and Variance Inflation Factor (VIF) statistical values for the regression model Since the correlation matrix at table 5 is showing strong correlation amongst various variables, a need was felt to confirm non- multi collinearity amongst the variables [28]. he further declared that a high tolerance value

(near 1.0) proves absence of multi-collinearity. While low values (near .00) explain multi collinearity. The tolerance level of results is from 0.83 to 0.91 showing satisfactory results. Similarly, multi co linearity was also checked with Variance Inflation Factor (VIF); a value of VIF more than 10 is considered higher enough and indicates presence of the problem of multi-collinearity. Since all VIF values in the study are of the level less than 2, this is showing satisfactory results for absence of any multi co linearity.

2.3.2 Test for Model Fitness: Likewise, value of CFI (Comparative fit index) which is a measure of model fit is required to remain between 0-1 and a higher value shows the model as good fit, while the CFI in study is of 0.91), it shows a good model fit. The study also explains that the percentage of the variance of the dependent variable, Teachers' motivation, can be explained by the linear combination of the five constructs of TQM (the independent variables) as tabulated at table-8 below. The beta values suggest that Process Control (β =.73), *Teacher Participation (*β = .67)* and Leadership (β = .67) are the highest contributors to the variance explained in Teachers' motivation.

Table 7: Tolerance, VIF and β Values

Variables	Tolerance	VIF	β
Leadership	.87	.89	.67
Process Control	.89	1.11	.73
Quality System Improvement	.83	1.47	.59
Teacher Participation	.91	.98	.67
Student Focus	.88	1.81	.51

3-**Findings from Result**

3.1 Since all the values of β are reduced to the range of 0.10-0.11, the mediating role of EII, the education Institution Image is found to be significant. The study therefore, suggests confirmation of all our hypotheses.

3.2 Pakistani secondary Schools are although not typically implementing Quality in the shape through ISO 9001, Sigma6 and others, yet teachers, management etc do seriously understand the implications of implementing Quality in secondary school education in Pakistan.

3.3 The five TQM dimensions do have significant impact on motivation level of teachers.

3.4 Education Institution Image plays a significant mediating role in TQM practices and teachers' motivation.

3.5 Education Institution Image has significant positive relationship with teachers' motivation.

3.6 Both the genders are generally playing the same percent role with males having relatively more contribution than female teachers. Thus male teachers have been found more serious and concerned about TQM practices at secondary school level education (Table 6)

4-RECOMMENDATIONS

Education is the cheapest defense of a country. With less than 50% educated population and standing at 113th rank amongst 120 UN members from education view point, the story of education problems cover a span of over half a century. Some of the reasons emerged during the study are summarized here:-

a. The whole education system in Pakistan is based on an un-equal distribution of resources; better expressed un-equal access to resources amongst private and public institutions. Even the medium of instructions and different curriculum in the two is creating a disparity and division of common men in two distinct categories. This is also causing more numbers of drop-outs so, an unacceptable low literacy rate.

b. The literacy rate goes as low as 3% in females at Federal Administered Tribal Areas (FATA). Thus, there is a need to concentrate more at underdeveloped parts of the country (Balochistan and FATA), particularly in female education at school level where ratio between boys and girls attending primary schools is 10:4.

c. Another neglected area is the technical education. Less technically educated people are increasing unemployment and under employment in the country. Although, all provinces have established respective Boards of technical education, yet these are not very effective due to lesser allocation of requisite funds and lack of resources and warrant immediate attention both at the federal as well as provincial government level.

d. Different chains of schools are following different syllabi even at times having affiliation with different international education systems. Implementation of one common curriculum throughout the country will also eradicate this root cause problem.

e. Quality of education in most of the public colleges and schools is much below the desired level. Those who are not adjusted in any department of their choice get dumped in schools. They serve dissatisfied and untrained throughout, becoming a liability rather than an educated asset for the system. Quality dimensions in education should be implemented as an operation and an intentional effort in a structured form.

f. Developing countries like Pakistan have to educate large number of students as compared to the developed nations that makes the per capita expenditure on education too low to be of some meaning value for education development. Therefore, just 1.5% to 2% of GDP allocation of to education sector needs to be increased to at least 7% level.

g. Teachers' salaries, particularly the secondary school teachers in public sector education are so low that most of them are living below the poverty line and need to be given rise in income.

h. Non-teacher resources, such as text books etc also play an important role in the teaching- learning process but are not available in easy access and cost to students. This aspect also needs immediate attention.

5-CONCLUSION

Pakistan is a developing country in South East Asia where the education system is infected with viruses of variety of education systems within, very marginal portion of GDP invested in the sector and quality education being out of reach of common men. This all needs to be researched in further details to recommend surgical changes in the system along with bringing a change in the mindset of policy makers in the country, thus ensuring quality in education from schools to higher education.

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