

**THE APPLICABILITY OF TOTAL QUALITY MANAGEMENT PRINCIPLES
TO ZAMBIA'S EDUCATION SYSTEM: A SURVEY OF PUBLIC SCHOOLS ON
THE COPPERBELT PROVINCE**

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ABSTRACT

The aim of the research is to establish the applicability of TQM principles to Zambia's education system, the extent to which Zambian public schools implement TQM principles as well as examine the challenges they face in their TQM approach to school management. A cross-sectional survey was used as research design for this study by sampling 300 educators. This is necessary in order to test hypotheses to establish the relationship between TQM and school performance and customer satisfaction.

Findings reveal that Zambian public schools do apply TQM principles in the management of school processes. Among the principles applied are School management commitment to quality; focus on customers/clients; training, teamwork and continuous improvement. The results from data analysis further shows that the extent of applying these principles is up to 45.8%. The data analysis also shows that there is greater school performance in schools applying TQM principles than in those not doing so. The findings further support the view that there is greater customer satisfaction in TQM schools than non-TQM schools. Above all, it is also established that Zambian schools are faced with challenges in their TQM application effort. These challenges include lack of funding and associated factors such as lack of adequate teaching and learning materials; bad work culture among teachers; bad management and leadership style of some head teachers and other school administrators. The hypotheses tests carried out proves that application of TQM at schools leads to improved school performance and customer satisfaction. The research also indicates that there is a positive relation between school performance and customer satisfaction.

Key Words: *Total Quality Management, Public Schools, Customer Satisfaction and Performance.*

Introduction and Background

The centrality of education provision in the economic, social and political development of a country has for many decades been stressed. In Zambia, this has been noted since the country's independence in 1964 which was followed by the expansion of the then existing primary, secondary schools as well as colleges. In 1966 the country's first public university opened its doors. In addition Colleges to train the much needed human

resource in the running of the country's affairs were also set up. To ensure that the developments in the education sector were of required standards, the *1966 Education Act* was passed (Kelly, 1999). This provided a comprehensive legal framework for the functioning of a viable education system.

Funding for the sector was adequate to meet the requirements until after 1975 when the country's mining industry's major export commodity copper prices, started to fall on the international market coupled with rising oil prices. This decline in revenue led to a reduction in financial allocations towards the education sector which in turn affected the development of the education system. The later years of structural adjustment programs by the World Bank and International Monetary Fund made access to funds for education difficult. With declining real expenditure towards education, the growth of Zambia's education system was to be characterised by intensive use of existing facilities as opposed to additional investments (GRZ, 1992). This was achieved through double, triple and quadruple class sessions in the Primary School subsector. The Government further attempted to remedy the shortfall of funding through the introduction of fees in boarding schools as well as colleges. It also, through the Fourth National Development Plan (1989-1993) sought support from the private sector for the provision of social services such as education.

Besides the financial challenges, the new state's education was faced with numerous other challenges which culminated in the formulation and national wide debate on the *1977 Education Reforms*. The immediate success came under scrutiny with regard to the national aspirations and the extent to which these aspirations were, or could be met through the prevailing education system. According to Kelly (1999), there were 623,000 children aged between 7 years and 14 years, of whom only 350,000 were in primary schools (270,000 in lowest four classes, while 80,000 were in standards III to VI) in 1963. Primary schools were 1,769, out of which 1000 were mission schools. About 7,050 pupils were in 20 mission and 16 government secondary schools respectively. Only 7,200 teachers were available to cater for the above number of pupils. Of these, only 600 had completed secondary education. At the primary school level, only 150 teachers had

completed their secondary education, the majority of whom were teaching in European schools. There was limited higher education of any kind and no university in the country.

The country was also faced with challenges of educational inequalities. The dual system that had existed during the colonial era saw lavishly equipped and well-staffed schools being a preserve of Europeans. These had compulsory education up to Form VI. They constituted 3,500 out of the 60,000 secondary school population (Kelly, 1999). Government was faced with the challenge of how to integrate this system without affecting standards and without replacing racial distinctions by distinctions based on class as a result of wanting to rectify the racial based education provision challenge.

Girls' participation was poor with only 42% of enrolment into primary school being for girls. The secondary school level had only 20% of the population being female and the rest male. The case was not any different where staffing was concerned in terms of gender equality. Female teachers were only 19% of the total teaching staff.

The education system was also characterized by uneven geographical distribution. Some large areas had few or no schools. This was worse in urban areas, especially in cities and large towns. The country faced human resource problems of diverse nature. Among these were; scarcity of skilled and educated manpower; surplus of unskilled labour and prejudices against technical education. There was need for a rapid provision of high-level manpower needed for development of the economy and replacement of departing expatriates as well as for the Zambianization agenda of the Government (Kelly, 1999).

In most of the duration of Zambia's existence as a sovereign state, developments in the education sector have been mainly quantitative than qualitative as can be observed from the numerous policy formulation and pronouncements. Consequently, the country is doing considerably well where access to education is concerned as opposed to the quality of that education being accessed (GRZ, 1996). Numbers of schools built have been on an ever increasing rate, while mechanisms aimed at quality assurance in these schools have remained limited to the inspectorate that on several occasions is said to have problems with transportation to enable it carry out its mandate. Resulting from this has been a situation where some schools especially in rural areas go for as many as three years

passing between one inspector's visit and that of the next. Education provision under such conditions has been rendered ineffective especially quality-wise.

Many questions have arisen as to what the reason for the low quality of the education provision could be. These have been answered mostly on the basis of lack of qualified teachers, low motivation among teaching staff, as well as lack of teaching and learning materials. The role of management has also been looked at. What, however, seems to be much more clear is the general slow rate of accommodating changes in the way the education system is managed as well as the adopting of a quality management system by the Ministry of Education aimed at achieving quality education service delivery/provision.

Problem Statement

The current supervision and inspection measures used to ensure quality are not satisfying the quality of Zambia's education service delivery now, and probably in the future. The progression rate at Grades 9 and 12 has kept declining with each passing examination. The preparedness for earning a living using the acquired knowledge and skills by those being churned out of the education system tends to be below societal expectations (GRZ, 1996).

Zambia is a signatory to many international treaties on various aspects, including education. In the education sector, Zambia signed the Education for All agreement that is aimed at ensuring that children in the school going age (7years -14years) attain the minimum of basic education. In order to achieve this target, the Government has enacted policies such as that of free basic education (now primary up to junior secondary levels of education). The Government has also gone as far as abolishing the compulsory requirement of school uniforms especially in rural areas in a bid to reduce on costs that may hinder enrolment (GRZ, 1996). These and many other policies aimed at increasing access up to grade 9 level of Zambia's education system, however, have not been met by a corresponding expansion at the senior secondary (formerly high school) level. This as a result has led to an increase in the number of children exiting the school system at grade 9 level as well as increased repetition rates.

The aspect of the quality of education has been of great concern ever since it had become apparent that quantity as opposed to quality has been the main focus of many policy formulations in the education sector. As per 2012 examination results, the country's progression at Grade 9 currently stands at 34.65% while the Grade 12 pass rate is at 58.08% (ECZ, 2013). With over 65% of pupils in Grade 9 leaving the school system every year, it is vital that managers of the school system play a critical role in ensuring that the nine years of education that these would have received is of a satisfactory quality so that they face life's challenges as adults. These challenges therefore, form the basis of this research.

Research Objectives

The purpose of this research is to assess the applicability of Total Quality Management (TQM) as a management tool for improving quality of the education being offered by public schools in Zambia.

The specific objectives of the research are as follows:

- To identify the TQM principles being used in the management of schools.
- To establish the extent to which management in Zambian public schools apply TQM principles in the managing of the teaching-learning process.
- To establish the relationship between application of Total Quality Management principles and school performance.
- To establish the relationship between application of TQM principles in management of schools and customer satisfaction.
- To examine the challenges that schools face in implementing TQM in their quest for continuous improvement in education service delivery.

Scope of the Study

The scope of the study was limited to 15 secondary and 15 primary schools on the Copperbelt Province. The main variables included TQM principles (the Independent Variables), and school performance and client (customer) satisfaction (as the Dependent Variables). The survey was undertaken from 13th January, 2014 to 28th February 2014.

Literature Review

The word education has many meanings. Kelly (1999) opines that it can refer to a system or institution such as a school system, a certain activity (education is the action exercised by the adult generations on those who are not yet ready for social life); to content (the curricula and syllabi); or to product (when we refer to an educated person). By its nature, education can either be formal, non-formal or informal. Formal education is the chronologically graded system that runs from preschool to university or other forms of higher education, while non-formal education on the other hand is any organized educational activity outside the established formal system that is intended to serve identified learning clienteles and learning objectives (Kelly, 1999). Kelly (1999) further defines informal education as the life long process whereby every individual acquires attitudes, values, skills and knowledge from daily experiences and educative influences and resources in each one's environment. For the greater part, individuals acquire most of their knowledge from daily experiences. In Zambia and many other countries that are signatories to the United Nations' Universal Declaration of Human Rights, education from Grade 1-9 is considered as a Human Right.

Purpose of Education

The main purpose of education is to provide everybody, not only those in urban areas and the privileged few, but also the majority of the rural disadvantaged and underprivileged with quality and relevant education that would enable them to acquire relevant skills, knowledge, attitudes and ideas to lead more fulfilling and satisfying lives (Mwansa, 2006). The current service delivery of education in Zambia as such falls short of the above expectation of what education should do.

Customers of Education service

Education, going by its definition and nature is a service. Schools provide advice, tuition, assessment and guidance to pupils and students, their parents and sponsors (Sallis, 2002). The customers of the education system are a diverse group whose roles and importance varies according to the level of education being looked at (Winn and Green, 1998; Sallis, 2002). Sallis (2002) argues that it can be helpful to make distinctions between:

- primary customers—who directly receive the service;
- Secondary customers—such as parents, governors, sponsoring employers of vocational students, all of whom have a direct stake in the education.
- tertiary customers—such as future employers, government and society
- Internal customers—who are the employees of the institution.

It is worth noting as eluded by Sallis (2002) that to some educationalists ‘customer’ has a distinctly commercial tone that is not applicable to education. These advocate the use of the term ‘client’, which has connotations of professional service. ‘Stakeholder’ is another term often used in this context (ibid.). The current researcher has, however, for convenience’s sake opted to use the terms interchangeably as the difference among them are perceived to some extent are matter of semantics.

Quality

Quality has been defined by different scholars differently. This is especially the case because of the different meanings that could be attached to the word Quality under different circumstances. The word Quality does not mean the Quality of manufactured products only. It may refer to the Quality of the process (*i.e.*, men, material, and machines) and even that of management. Where the quality of manufactured product is concerned, Quality of a product is the degree in which it fulfills the requirement of the customer. It is not absolute but is judged or realized by comparing it with some standards (Naidu et al., 2006)

Goetsch and Davis (2010) as cited in Knowles (2011) defined quality as a dynamic state associated with products, service, people, processes, and environments that meets or exceeds expectations and helps produce superior value. The strength of the dual’s definition lies more on the dynamic aspect of quality. This is especially the case if we are to view quality as a walk towards the horizon. This means every step taken into quality service or product provision implies change in what formerly characterized its quality. For instance, if the school performance stands at 60% in national examinations, the rise to 70 % of the same can be taken to be a measure of dynamism in the education service provided. In a school case, dynamism can also be extended to the providers of the service in terms of the training they acquire while attempting to provide education. In Zambia, the quality of teachers can be said to have portrayed elements of dynamism. The initial years were characterized by teachers that had education qualifications as

low as today's Grade 5-9 pupils. Currently, however, the least educated teacher has gone past Grade 12 (and holds a certificate for primary schools, while secondary schools have diplomas holders).

According to Hoyles (2007:10-11), the word *quality* has many meanings: A degree of excellence, conformance with requirements. The totality of characteristics of an entity that bear on its ability to satisfy stated or implied needs and fitness for purpose.

Quality of Education (QoE)

Flores-Molina (2011:19) alludes that the task of defining quality is a very complex assignment, and is even more difficult when one enters the field of education. She argues that in education a "product" is not referred to in the same way as it is in industry. Education as a field itself, involves working with human beings, and customers are no longer individuals but society at large. Quality is a goal set repeatedly in the education policies of all countries, however, each country and each society has a different concept of education, and therefore of the concept of "quality education." Where education is concerned, M'sango (1988) identified the following aspects as useful in characterizing its quality:

Quality as the efficiency in meeting set educational goals;

Quality as relevance to human and environmental needs and conditions and;

Quality as the pursuit of excellence.

Total Quality Management (TQM)

Dale et al., (2001) is quoted by Hansson (2003:9) to have described TQM as an umbrella of concepts and ideas in various contexts related to the quality field. Furthermore, he through his 1999 work described TQM as the mutual co-operation of everyone in an organization or associated business processes, to produce products and services which meet, and hopefully exceed the needs and expectation of the customers.

Levels of Implementation

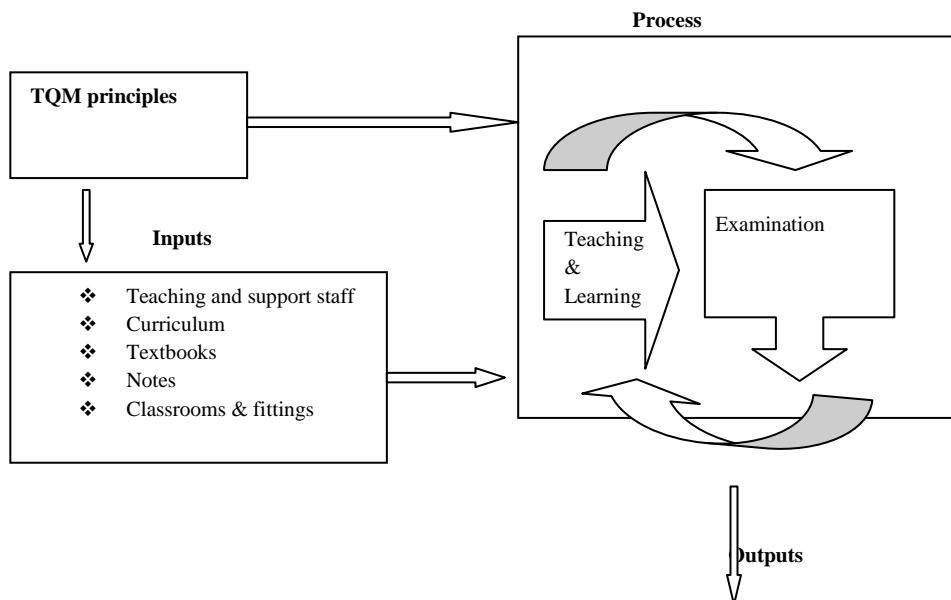
If we consider TQM as a management system that can be implemented in any organization, we must be able to form an opinion of different levels of adoption to the system (Hansson, 2003). The concept of *TQM Levels of implementation*, it can be argued, reinforces the notion that

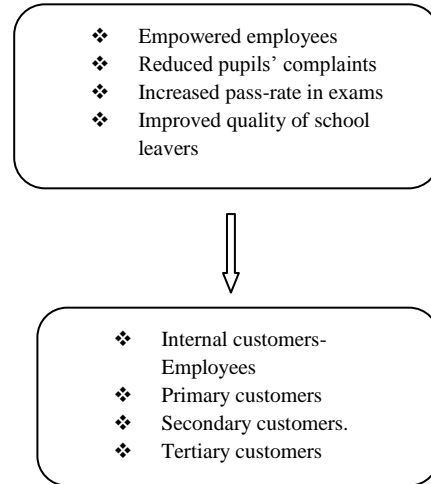
management should not be taken to be applicable universally. It can, further, be used to explain the variance in results achieved by different firms that may be using TQM as their management system.

Lascelles and Dale (1991) as cited by Hansson (2003) allude that there are six levels of TQM adoption (or the lack of it), these being; the *Uncommitted*, *Drifters*, *Tool-pushers*, *Improvers*, *Award winners* and *World class*. Dale (1999) argues that an organization does not necessarily have to pass through the outlined levels on its journey to quality through TQM. Going by this line of argument, it can be argued that a school that embarks on a TQM implementation agenda may not have to go through all the levels. It is possible depending on how TQM is implemented, for a school to move from a traditionalist management stance on quality to that of an *Awardwinner* or *Worldclass* TQM managed organization. This ironically, gives hope for *Zambian* schools that may not be TQM managed that with effort, they would achieve a status of *Award Winner* or *World Class* which for some schools in other countries have been achieved after decades of attempting TQM.

Conceptual Framework

For the purpose of the current research, the researchers have adopted and applied TQM and the concepts herein as the basis for the research in the *Zambian* context. This is done with the aim, as the title suggests, of assessing the applicability of TQM principles as a quality improvement measure in *Zambia's* public schools. The current researchers' conceptual framework is based on the model below:





Hypothesis Development

TQM and school performance

H1- There is greater school performance in TQM schools than in non-TQM schools.

TQM and Customer satisfaction

H2 There is greater customer satisfaction in TQM schools than in non-TQM schools.

H3 There is a greater degree of teacher satisfaction in TQM schools than in non-TQM schools.

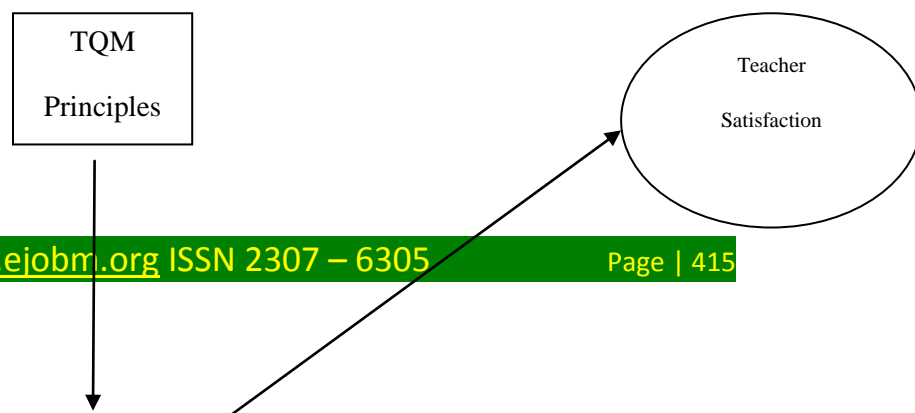
Performance and Customer satisfaction

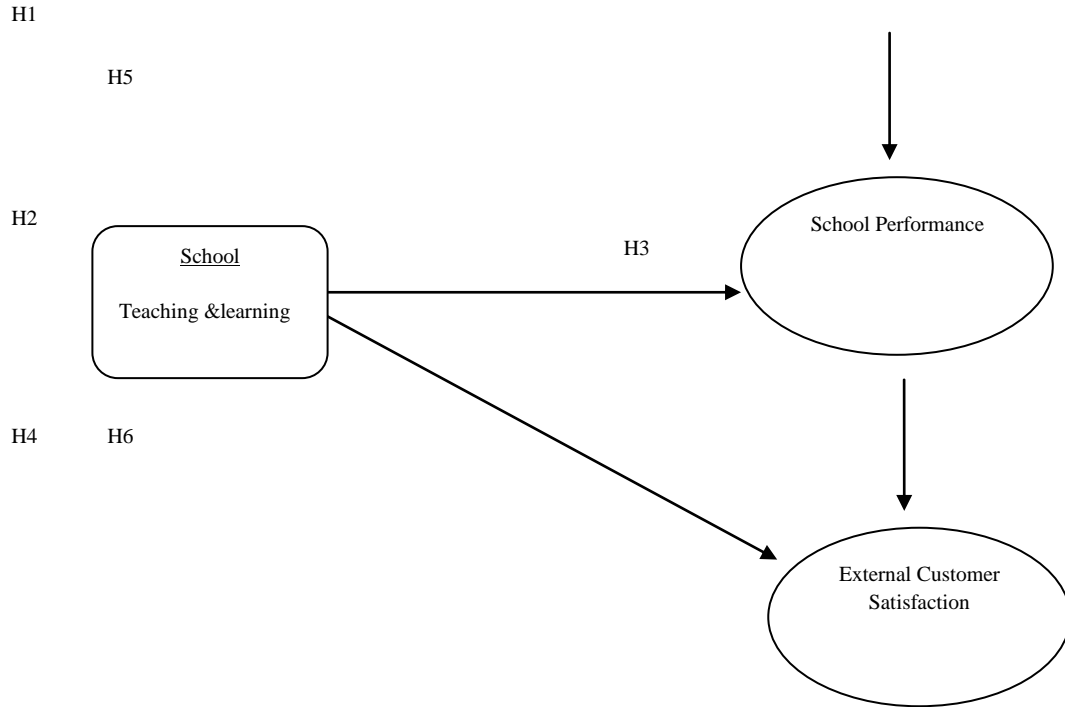
H4- Teacher satisfaction is positively related to school performance.

H5-There is a positive relation between school performance and customer satisfaction.

H6-There is a positive relation between teacher performance and number of pupils' complaints.

Researchers' operationalization model





The Research Design

This research was conducted through a cross-sectional survey that utilized a combination of the quantitative and the qualitative approaches on the basis that such an approach as supported by Borland (2001) when he argues that quantitative and qualitative research are not mutually exclusive approaches, rather the most useful research findings typically result from appropriately applying both paradigms (Ncube, 2004). The population for this study was thus, defined as all the 635 Public Schools on the Copperbelt Province. The researchers used a simple random sampling method through which thirty schools from six districts out of the ten on the Copperbelt were picked. From each of the schools, five administrative members of staff and five from among the teaching staff were randomly selected as respondents for the survey (a total of 150 administrators and 150 class teachers were sampled).

Table 1: Descriptive statistics for class teachers

Item	M	SD	Skewnes s	Kurtosis
School Management Commitment 1	4.15	0.95	-1.73	3.34
School Management Commitment 2	4.30	0.72	-1.30	2.69
School Management Commitment 3	3.98	0.98	-1.40	1.94
School Management Commitment 4	4.34	0.70	-1.64	5.90

School Management Commitment 5	4.37	0.91	-2.17	5.48
Focus 1	4.33	0.76	-2.12	7.65
Focus 2	4.50	0.68	-1.71	4.05
Focus 3	4.13	0.98	-1.42	1.82
Focus 4	3.65	1.23	-0.88	-0.32
Focus 5	4.19	0.74	-1.37	3.94
Training 1	3.98	1.10	-1.33	1.14
Training 2	4.15	0.98	-1.63	2.78
Training 3	3.53	1.19	-0.71	-0.50
Training 4	2.64	1.31	0.35	-1.04
Training 5	4.12	0.98	-1.57	2.58
Training 6	2.36	1.19	0.47	-0.73
Teamwork 1	4.09	1.17	-1.39	1.27
Teamwork 2	4.40	0.74	-2.36	7.11
Teamwork 3	4.47	0.32	-0.85	2.04
Teamwork 4	3.42	1.64	-0.76	-0.64
Teamwork 5	2.36	1.55	0.81	-0.43
Teamwork 6	4.67	0.29	-1.88	5.29
Continuous improvement 1	4.52	0.68	-1.80	4.31
Continuous improvement 2	4.33	0.89	-1.94	4.45
Continuous improvement 3	2.92	1.62	0.03	-1.69
Continuous improvement 4	3.24	1.42	-0.37	-1.26
School performance 1	4.52	0.82	-0.60	1.58
School performance 3	3.67	1.13	-0.82	-0.41
School performance 5	3.64	1.06	-0.32	-0.63
Satisfaction 1	3.57	1.17	-0.75	-0.51
Satisfaction 2	2.87	1.33	-0.10	-1.35
Satisfaction 4	3.50	1.28	-0.84	-0.58
Satisfaction 5	3.95	0.89	-1.53	3.12

The descriptive statistics generated for the management educators was no less different from those of class teachers depicted above. The means ranged from 2.13 to 4.68, while the standard deviation ranged from 0.53 to 1.37. The skewness was in the range of -2.67 to 1.17. There were 23 items with negative skewness, of which 14 were significantly below -1. This too, shows that the data collected from school administrators was negatively skewed. The Kurtosis for the items ranged from -1.37 to 14.06. This shows significant departure from the kurtosis for class teacher items. However, the number of items with a kurtosis value significantly greater than 1 is 16, which represents a reduction by 2 when compared to the 18 items in the class teachers' kurtosis values. Here too, it is evident that there were some items whose responses were not normally distributed. The box-plots were also utilized in this case to ascertain the distribution of responses. A summary of the descriptive statistics for school management data is as outlined in the table below.

Table 2: Descriptive statistics for School managers

Item	M	SD	Skewness	Kurtosis
School Management Commitment 2	4.53	0.92	-2.49	6.24
School Management Commitment 3	4.18	1.00	-1.69	2.98
School Management Commitment 4	4.60	0.64	-2.67	12.31
Focus 1	4.32	0.93	-2.08	5.15
Focus 2	4.68	0.65	-3.13	14.06
Focus 3	4.24	0.99	-1.86	3.65
Focus 4	4.39	0.81	-2.12	6.64
Training 1	4.49	0.65	-1.53	3.82
Training 2	4.57	0.53	-0.58	-1.02
Training 3	3.76	1.25	-0.83	-0.52
Training 4	2.85	1.18	0.47	-0.97
Training 5	4.49	0.92	-2.59	7.30
Training 6	2.13	1.20	1.17	0.44
Training 7	2.26	1.22	1.09	0.29
Teamwork 1	4.42	0.87	-2.26	6.22
Teamwork 2	4.21	0.95	-1.66	3.00
Teamwork 3	4.53	0.65	-2.33	10.59
Teamwork 4	4.58	0.58	-1.48	3.72
Teamwork 6	3.90	1.06	-1.25	1.04
Teamwork 7	2.42	1.18	0.65	-0.77
Continuous Improvement 1	3.75	0.78	-0.44	1.07
Continuous Improvement 2	3.46	0.71	1.00	0.07
Continuous Improvement 3	4.28	0.81	-1.70	4.29
School Performance 1	4.64	0.63	0.14	-0.31
School Performance 4	3.65	1.02	-1.04	0.14
School Performance 6	3.68	1.11	-0.60	-0.55
Satisfaction 1	3.08	1.37	-0.22	-1.37
Satisfaction 2	3.75	1.00	-1.45	1.70
Satisfaction 4	3.88	0.85	-1.70	3.40

Qualitative Data analysis

Open ended questions were utilized in the survey to hear opinions of the respondents on certain issues. This section of the data analysis is dedicated to the responses obtained in the open question segments of the questionnaire. The most frequent responses were grouped under common themes.

School managers' perception of quality education

This item was aimed at understanding school managers’ perception of quality education. They were given a range of attributes with which they were supposed to give a definition of quality education. The first five are a list of single definitions out of which school managers were requested to use a combination that in their view best defines quality education. The table below depicts the response combinations chosen.

Table 3: Managers’ definition of quality

Response	Frequency	Percent	Cumulative Percent
High cost	9	12.5	12.5
Satisfying teachers’ work related needs	3	4.17	16.67
Satisfying pupils and parents’ expectations	4	5.56	22.23
Physical school environment	0	0	22.23
Increased pass rate in national exams	5	6.94	29.17
Attributes 1 & 3	1	1.39	30.56
Attributes 1 & 4	1	1.39	31.95
Attributes 1 & 5	1	1.39	33.34
Attributes 2 & 3	5	6.94	40.28
Attributes 2 & 4	2	2.78	43.06
Attributes 2 & 5	1	1.39	44.45
Attributes 3 & 5	9	12.5	56.95
Attributes 4 & 5	1	1.39	58.34
Attributes 1,2 & 3	4	5.56	63.9
Attributes 1,2 & 5	1	1.39	65.29
Attributes 1,4 & 5	1	1.39	66.68
Attributes 2,3 & 4	3	4.17	70.85
Attributes 2,3 & 5	8	11.11	81.96
Attributes 2,4 & 5	3	4.17	86.13
Attributes 3, 4 & 5	1	1.39	87.52
Attributes 2,3,4 & 5	9	12.5	100.02
TOTAL	72	100.02	

From table 3 above, it is clear that defining quality education cannot be done using a single definition by everyone. The table also shows that some school managers (12.5%) describe quality education on the basis of the cost people pay for it. Another 12.5 % defined quality education using a combination of attributes provided with the exception of cost. The remaining 75% defined it using a combination of either two or three of the provided attributes as shown in the table.

Use of initiative by teachers

Both school managers and class teachers were asked to explain how teachers are encouraged and supported in their improvement initiatives. The responses were as summarized in the table below.

Table 4: Management’s response to teachers’ improvement initiatives

	Response	Frequency	Percent	Cumulative percent
Class teachers	Positive	49	89.1	89.1
	Negative	06	10.9	100
	TOTAL	55	100	
	Response	Frequency	Percent	Cumulative percent
School administrators	Positive	62	98.4	98.4
	Negative	01	1.59	
	TOTAL	63	100	

Continuous improvement

Respondents were asked to state their views on how their schools can continue improving the service delivery. Approximately 33% of those that answered the question making up this item were of the view that the management style needs to be changed. These felt that the management style they were under was not good enough to achieve continuous improvement. About 11% suggested the provision of remedial lessons to pupils, most especially the slow learners that lagged behind during an ordinary lesson. The other 11% were of the view that there should be a good work culture if schools have to keep improving. This was in lieu of absenteeism among some teachers, as well as a general negative attitude towards their work among others. The timely provision of adequate teaching and learning materials was perceived by about 38% of the respondents as key to school improvement, while the remaining 5% suggested making afternoon preparation (prep) compulsory. The table (Table 5) below summarizes details on the continuous improvement item.

Table 5: How schools can keep improving

Response	Frequency	Percent	Cumulative percent
Management style	6	33.33	33.33
Remedial lessons	2	11.11	44.44
Material provision	7	38.39	82.83
Compulsory prep	1	5.56	88.39
Good work culture	2	11.11	100
TOTAL	18	100	

School Performance

Teacher performance

One item in the school performance section required the respondents to rate teachers’ performance. A follow up open ended question was asked to get views about the rate given to teacher performance. A variety of reasons were advanced as causes of the rate of teacher performance. The causes of high teacher performance were grouped under five thematic areas. These themes included; good management style, in-service training, good work culture, availability of teaching and learning materials, as well as teamwork. Three themes were identified under the cause for low performance section, which included; bad management style, bad work culture as well as inadequate teaching and learning materials. The tables below summarize the data on causes of both high and low performance rate among teachers:

Table 6: Factors affecting teacher performance (class teachers’ perspective)

	Response	Frequency	Percent	Cumul ative percent
High teacher performance	Good management style	07	35	35
	In-service training and CPD	02	10	45
	Good work culture	06	30	75
	Availability of teaching and learning materials	03	15	90
	Team work	02	10	100
	TOTAL	20	100	
	Response	Frequency	Percent	Cumul ative percent
Low teacher performance	Bad management style	01	33.33	33.33
	Bad work culture	01	33.33	66.67
	Inadequate teaching and learning materials	01	33.33	100
	TOTAL	03	100	

In the table above, 35% of the respondents were of the view that teachers were performing at their schools as a result of the management style in place. This view to a large extent supports the view that good management style leads to increased productivity among employees. The availability of in-service training and CPD opportunities were cited as the cause for a good teacher performance rate by 10% of the class teachers while 30% were of the view that a good work culture brings about high performance. 15% attributed the high performance rate to the availability of teaching

and learning materials while 10% attributed it to teamwork. It is no doubt that a combination of any of the five causes cited can lead to high performance in conjunction with the others, but not alone.

In some cases, teachers were of the view that their performance was low. Those that were of this view advanced bad management style; bad work culture and inadequate teaching and learning materials. These causes had each 33.33% of those rating teacher performances as low citing them.

Among school managers, the themes under which causes for the selected teacher performance rate were the same as those in the section for class teachers. However, what differed were the frequencies. Only 23.33% of the school managers saw good management style as cause for high performance rate, while 16.67% cited in-service training and CPDs as causes of high performance. Good work culture was given as a cause of high performance by 10% of the school managers. The remaining 50% cited either availability of teaching and learning materials (30%) or teamwork (20%) as the reason behind high teacher performance.

Among school managers too, there were those that viewed teachers' performance as low. Bad management style and bad work culture among teachers were each cited by 42.9% as causes of low teacher performance. The remaining 14.3 cited the unavailability of adequate teaching and learning materials as the reason behind the low teacher performance. Both class teachers and school manager mainly described bad work culture through attributes such as absenteeism and failure to consistently assess the pupils through class exercises, homework and tests. Table 7 below shows a summary of responses from school managers on teachers' performance:

Table 7: Factors affecting teacher performance (administrators' perspective)

	Response	Frequency	Percentage	Cumulative percent
High	Good management style	07	23.33	23.33
	In-service training and CPD	05	16.67	40

teacher	Good work culture	03	10	50
performa nce	Availability of teaching and learning materials	09	30	80
	Team work	06	20	100
	TOTAL	30	100	
	Response	Frequenc y	Percen t	Cumula tive percent
Low teacher performa nce	Bad management style	03	42.9	42.9
	Bad work culture	03	42.9	85.7
	Inadequate teaching and learning materials	01	14.3	100
	TOTAL	07	100	

Literacy and Numeracy rates

The survey’s questionnaire also had open ended items that sought to solicit information on the rate that respondents attached to literacy and numeracy at their schools. Of all the diverse causes suggested by the respondents, five themes were identified for high literacy and numeracy rates, while a total of eight were for low literacy and numeracy rates.

Where high literacy and numeracy rates are concerned, 33.33% of class teachers, and 30% of school managers cited availability of teaching and learning materials as one of the reasons for high rate. Good reading culture and positive attitude towards arithmetic was yet another cause. This was given as a cause by 20% of the class teachers and school managers. Qualified and committed teachers as a cause of high literacy and numeracy rate was cited by 20% of class teachers and 30% of the school managers. Above all some school managers (30%) and class teachers (26.27%) were of the view that pupils’ literacy and numeracy rates were as high as rated due to adequate contact hours. Those of this view argued that when pupils have adequate contact hours in both literacy and numeracy, their skills are enhanced unlike where there is less learning time.

Despite some respondents such as those discussed above rating literacy and numeracy high, there were others that were of the view that the literacy and numeracy rates are low. These advanced some reasons they perceived as being responsible for the low rates selected. In the case of teachers that rated literacy and numeracy low, 30% gave poor reading culture and negative attitude towards arithmetic as the reason. This view was shared by 16.67% of the school managers. 15% of the teachers and 22.22% of school managers saw inadequate teaching and learning materials as the cause for low literacy and numeracy rates. Others (10% of class teachers and 11.11% of school managers) blamed the low rates on the inadequate contact hours allocated to the teaching of pupils in literacy and numeracy subjects.

Lack of qualified teachers was seen by some of the respondents as a factor contributing to the low rates of literacy and numeracy while others identified the negative attitude towards work by some teachers. In addition to the causes discussed, there was the issue of lack of supervision for teachers and pupils. This view was held by 10% of the class teachers, while none of the school managers that rated numeracy and literacy as low shared this view. The tables below are a summary of the details contained in this section dedicated to the literacy and numeracy rates of the surveyed schools.

Table 8: Factors affecting literacy and numeracy rates (Class teachers' views)

	Response	Frequency	Percent	Cumulative percent
Causes of high literacy and numeracy rates	Teaching and learning materials	10	33.33	33.33
	Good reading culture/attitude towards arithmetic	06	20	53.33
	Qualified and committed teachers	06	20	73.33
	adequate contact hours	08	26.2	100

			7	
	TOTAL	30	100	
Reasons for low literacy and numeracy rates	Response	Frequency	Percent	Cumulative percent
	Poor reading culture /Negative attitude towards arithmetic	06	30	30
	Inadequate teaching and learning materials	03	15	45
	Inadequate contact hours	02	10	55
	Lack of qualified teachers	02	10	65
	Some teachers' negative attitude towards work	03	15	80
	Lack of supervision of both teachers and pupils	02	10	90
	Poor elementary foundation	02	10	100
	TOTAL	20	100	

Table 9: Factors affecting literacy and numeracy rates (school administrators' views)

	Response	Frequency	Percent	Cumulative percent
Causes of high literacy and numeracy	Teaching and learning materials	09	30	30
	Good reading culture/ Pupils positive attitude towards arithmetic	09	30	60
	Qualified and committed teachers	09	30	90
	adequate contact hours	03	10	100

rates				
	TOTAL	30	100	
	Response	Frequency	Percent	Cumulative percent
Causes of low literacy and numeracy rates	Poor reading culture/Negative attitude towards arithmetic	03	16.67	16.67
	Inadequate teaching and learning materials	04	22.22	38.89
	Inadequate contact hours	02	11.11	50
	Lack of qualified teachers/	03	16.67	66.67
	Inadequate study place due to limited buildings	02	11.11	77.78
	Some teachers' negative attitude towards work	04	22.22	100
	TOTAL	18	100	

Correlation Matrix

A look at the correlation matrix for the variables showed that the variables under study are positively correlated. The correlations were, however, not very strong. The strongest was between Teamwork and Focus which was at 60.7%, while the weakest correlation was between school management commitment to quality (SCHMGTCOM) and School performance which was at 13.5%. The table below (table 10) is of a correlation matrix table showing the details obtained from the correlation analysis of TQM principles and school performance. The correlation between TQM principles and Satisfaction does not offer a different picture from that of TQM principles and School performance.

The correlation is positive, though not very strong. Here too, Teamwork and Focus had the strongest correlation which was at 60.7%, while the weakest correlation was between Continuous Improvement (CONTIMP) and Satisfaction which was at 22.3%.

Table 10 Correlation of TQM principles and school performance (Schperf)

	<i>SCHMGTC OM</i>	<i>FOCU S</i>	<i>TRAININ G</i>	<i>TEAMWO RK</i>	<i>CONTIM P</i>	<i>SCHPER F</i>
<i>SCHMGTCOM</i>	1.000					
<i>FOCUS</i>	.546	1.000				
<i>TRAINING</i>	.314	.397	1.000			
<i>TEAMWORK</i>	.438	.607	.503	1.000		
<i>CONTIMP</i>	.317	.361	.180	.407	1.000	
<i>SCHPERF</i>	.135	.209	.164	.265	.270	1.000

sample size
158
critical value .05
(two-tail)
± .156
critical value .01
(two-tail)
± .204

Table 11 Correlation of TQM principles and customer satisfaction (CSATIS)

	<i>SCHMGTCO M</i>	<i>FOCU S</i>	<i>TRAININ G</i>	<i>TEAMWOR K</i>	<i>CONTIM P</i>	<i>CSATI S</i>
<i>SCHMGTCOM</i>	1.000					
<i>FOCUS</i>	.546	1.000				
<i>TRAINING</i>	.314	.397	1.000			
<i>TEAMWORK</i>	.438	.607	.503	1.000		
<i>CONTIMP</i>	.317	.361	.180	.407	1.000	
<i>CSATIS</i>	.254	.229	.240	.311	.223	1.000

158	sample size
± .156	critical value .05 (two-tail)
± .204	critical value .01 (two-tail)

Hypothesis testing

Comparisons of Performance and Satisfaction between TQM schools and non-TQM schools

One hypothesis testing was done through a t-test comparing the two independent groups under study. These independent groups were TQM schools and non-TQM schools. For the purposes of this research, TQM schools were taken to be those that had averages of means for each of the TQM principles (independent Lvariables) of 4 and above. The non-TQM schools on the other hand were taken to be those with averages below 4. Table 12 shows the two categories of schools.

Table 12 Category of schools (TQM and non-TQM schools)

School	SCHMGT COM	FOCUS	TRAINING	TEAMWORK	CONTIMP	OVERALL TQM SCORE
A	4.21	3.96	3.68	3.9	3.63	3.876
B	4.54	4.41	3.04	4	4.06	4.01
C	4.6444444	4.5166667	3.724867	4.2407407	4.1666667	4.258677
D	4.8777778	4.8166667	3.448412	4.2222222	3.7222222	4.217460
E	3.5916667	3.90625	2.910714	3.6666667	3.11458	3.437976
F	4.3466667	4.19	3.776190	3.9333333	3.7666667	4.002571

			5		67	429
G	4.7666667	3.9916	3.301587	3.75	3.93055	3.948095
		667	3		56	238
H	4.2285714	4.1357	3.931972	4.3333333	3.63095	4.052108
		143	8		24	844
I	4.4444444	4	3.857142	3.8333333	3.44444	3.915873
			9		44	016
J	3.8	4.3	3.222222	4.0555556	3.5	3.775555
			2			556
K	4.3666667	3.925	3.444444	3.75	4.125	3.922222
			4			222
L	4.6833333	4.2375	3.380952	4.25	3.75	4.060357
			4			143
M	4.3809524	4.4357	3.523809	3.9761905	3.83333	4.03
		143	5		33	
N	4.4814815	4.35	3.539682	3.8148148	3.64814	3.966825
			5		81	397
O	4.5238095	4.8714	3.687074	4.3333333	4.82142	4.447414
		286	8		86	966
P	4.4666667	4.775	3.380952	4.2222222	3.97222	4.163412
			4		22	698
Q	4.44	4.31	3.385714	3.9666667	4.11666	4.043809
			3		67	524
R	4.3333333	4.5	4.071428	3.5833333	3.66666	4.030952
			6		67	381
S	3.9047619	4.3071	3.812925	3.6666667	3.70238	3.878775
		429	2		1	51
T	4.025	4.3937	3.458333	4.0416667	3.94041	3.971833
		5	3		67	333
U	4.1666667	4.5	3.071428	4	4.16666	3.980952

			6		67	381
V	4.1333333	3.9	3.589285	4.1666667	3.875	3.932857
			7			143
W	4.25	3.5	3.1025	3.5	3.5	3.5705
X	4.225	4.1875	3.577381	3.8958333	3.5	3.877142
						857

The TQM schools are those in shades of green, while the non-TQM schools are those not shaded. The data from the survey shows that 11 out of 24 schools are TQM schools. This represents approximately 45.3% of the schools that participated in the survey. The remaining 54.3% are non-TQM.

The Table 13 shows how the two categories of schools scored in terms of means in the three items used to carry out the t-tests (basis of comparisons)

Table 13: Outputs on which comparison between TQM and non-TQM schools was based

School	OVERALL	T-SATIS	SCHPERF	C-SATIS
TQM				
SCORE				
A	3.876	4	3.7	3.5
B	4.01	4	4.3	3.78
C	4.258677249	2.6666667	4.4074074	3.722222222
D	4.217460317	3.2857143	4.5	3.638888889
E	3.43797619	2.7142857	3.2916667	3.239583333
F	4.002571429	2.7142857	3.3333333	3.216666667
G	3.948095238	4.1428571	3.6111111	3.652777778
H	4.052108844	3	4	3.607142857
I	3.915873016	3.1428571	3.2222222	3.666666667
J	3.775555556	3.2857143	4.4444444	4.055555556
K	3.922222222	3.4285714	4.0555556	3.263888889
L	4.060357143	2.7142857	4.0833333	3.166666667
M	4.03	2	4.2857143	3.535714286

N	3.966825397	2.8571429	4.1111111	3.712962963
O	4.447414966	3.5714286	4.1904762	3.904761905
P	4.163412698	3.7142857	4.3888889	4.027777778
Q	4.043809524	4.3333333	3.8666667	3.5
R	4.030952381	2.6666667	3.5	3.666666667
S	3.87877551	4.1666667	4.2380952	3.535714286
T	3.971833333	3.8333333	4.0833333	3.322916667
U	3.980952381	3.5	2.8333333	3.166666667
V	3.932857143	3.6666667	3.6666667	3.541666667
W	3.5705	4.1666667	3	3.416666667
X	3.877142857	4	4.2083333	3.6875

The findings in Table12 do, however, show that even the non-TQM scored high in the application of certain principles. For instance, out of the 24 schools, 21 (87.5%) scored 4 and above where school management commitment is concerned. There were 18 (75%) schools out of the 24 schools which scored above 4 in terms of Focus on the customers, while only 2 (8.33%) out of 24 schools that had a score above 4 in the Training principle. Findings further show that 10 (41.7%) out of 24 scored above 4 in Teamwork, only 6 (25%) scored a 4 in Continuous Improvement, 14 (58.3%) in school performance, while only 2 schools scored 4 and above in Customer satisfaction.

Table 14 School Performance- t-test results

Hypothesis	t-value	p-value	Comment
H1- There is greater school performance in TQM schools than in non-TQM schools.	2.78	0.0054	Hypothesis supported

In the above, it was initially hypothesized that schools applying TQM principles will have greater performance than those not applying. The difference at 0.05 was found to be significant, thereby supporting the hypothesis. The p-value of 0.0054 was obtained from the t-test performed.

Table 15 Customer satisfaction- t-test results

Hypothesis	t-value	p-value	Comment
H2- There is greater customer satisfaction in TQM schools than in non-TQM schools	2.17	.0204	Hypothesis supported
H3-There is a greater degree of teacher satisfaction in TQM schools than in non-TQM schools.	2.19	0.0149	Hypothesis supported

Table 15 shows t-test results for two hypotheses on customer satisfaction in TQM and non-TQM schools. The first hypothesis in the table states that TQM schools have greater degree of customer satisfaction than non-TQM schools. The t-test result shows a p-value of 0.0204, suggesting that the hypothesis is strongly supported. The other hypothesis was also strongly supported with a p-value of 0.0149.

Regression Analysis

Regression analysis was performed in order to test the other (three) research hypotheses. The results as shown in table 16 revealed that the hypothesis that *Satisfaction of internal customer is positively related to school performance* was the only one not supported. Its p-value was 0.5089 which happens to be greater than 0.005 which was the point of significance. The other two regression analyses showed that the hypothesis that *there is a positive relation between school performance and customer satisfaction* was supported with a p-value of 0.0023. *There is a positive relation between teacher performance and number of number of pupils' complaint* had regression results showing a p-value of 0.000, which suggested very strong support for it.

Step-wise regression analysis was also done in order to select the best model of correlation between the research's inputs and outputs. The selection of the best model was based on the standard error, adjusted r^2 and r^2 from the analyzed correlations. The

best model for TQM verses school performance was that with Team work (p-value coefficient of 0.027) and Continuous Improvement (p-value coefficient of 0.021)) whose standard error was 0.852, adjusted R² of 0.090, R² of 0.102 and p-value of 0.000. The best model for correlation of TQM with satisfaction was a two model that comprised school management commitment (p-value coefficient of 0.085) and team work (p-value coefficient of 0.004) which had a standard error of 0.644, Adjusted R² of 0.102, R² of 0.114 and p-value of 0.000 (refer to Appendix 4 for details on all regression analyses carried out).

Table 16 Hypotheses tests 2- Regression analysis results

Hypotheses	p-value	Comment
H4- Teacher satisfaction is positively related to school performance.	.5089	Not supported
H5- There is a positive relation between school performance and customer satisfaction.	.0023	Supported
H6- There is a positive relation between teacher performance and number pupils' complaints	0.000	Supported

DISCUSSION OF THE RESEARCH FINDINGS AND THEIR IMPLICATIONS

The aim of the research was to assess the education management system’s quality management mechanism with regard to application of Total Quality Management in public schools in light of the continued underperformance of pupils in their examinations. It sought to answer questions ranging from the extent of the application of TQM principles in public schools, to some of the challenges school administrators face in their TQM quest. In order to achieve this, the researcher relied on existing literature on TQM in general, and that pertaining to its implementation in the education sector, as well as that collected through the use of questionnaires. This chapter discusses the findings of the

survey on the topic in relation to the objectives, as well as their implications for both school administrators and class teachers.

TQM principles being applied in the managing of Zambian schools

The TQM principles being investigated included; school management commitment, focus on clients (customers), teamwork, training and continuous improvement. The findings showed that all these are currently being applied in the managing of Zambian public schools. What, however, varied was the degree of implementation from one school to the other. Whereas one school might show a higher rate of school management commitment for instance, another might not.

School management commitment to quality

As highlighted in the preceding chapter, many schools (87.5%) scored high where the TQM principle of management commitment to quality is concerned. This principle is very vital if TQM is to take root in an organization. This is especially the case because it is management in an organization that crafts its strategy and spearheads its implementation. Winn and Green (1998) argue that when the support of everyone in the chain of supervision is obtained, the TQM effort may see management mobilize (and in some instances redeploy available) resources in a way that results in satisfying of the school system's stakeholders. This arises from the understanding that management decides what resources are made available to which cause. In the quest for quality education service delivery for instance, some school managers have come up with initiatives aimed at supplementing government's effort in providing teaching and learning materials. This is especially evident in the secondary school subsector where there is evidence of human and financial resources mobilized through the PTA board funds. When management is committed to quality, it must provide the much needed leadership and further communicate to all the schools' sections and levels the vision and mission.

Focus on Clients/stakeholders

In terms of application, the TQM principle of focus on stakeholders was found to be the second most applied. This is evident through the 18 (75%) which scored a high mean of 4. In business, customers are said to be reason why entities exist. The same is true for schools when it comes to stakeholders, with the pupil being the core reason schools exist. There are also other stakeholders whose input is of great value to schools. These include

the internal (teaching and support staff) and the external (government, donors/co-operating partners, parents, suppliers of school requisites and higher levels of education). The diversity of customers for the school system makes meeting their expectations and consequently satisfying them a daunting task. As a result, the caution by Winn and Green (1998) that there is need to identify the schools' customers and examine their needs does hold if satisfaction of customers is to be achieved and sustained through TQM principles.

Training

TQM as discussed in the literature review is management philosophy aimed at providing goods and services that are to the satisfaction of customers. It among other things emphasizes the need to improve processes continuously. It is as suggested by many authors, through training that this continuous improvement for customer satisfaction can be achieved. This learning can take many different forms, ranging from on the job training, to long term training at institutions of higher learning. Where education is concerned, training provides both administrators and teachers an opportunity to be updated with the managerial, as well as pedagogical advancements in education. The research's findings show that only 2 (8.33%) of the schools that participated in the survey are applying this principle. This as such implies that the rest of the schools are not empowering those that deliver the service with adequate training opportunities. It can be deduced from this, that school administrators and teachers may be lacking capacity to sustain continuous improvement and thus make customers of the school system satisfied. Perhaps this explains the trend in which Zambia's education system has been showing perennial quality problems manifested in the low progression rate at G9 and slightly low pass rate at G12.

While results from the survey have shown a negative picture of effort towards training, it should be borne in mind that MOE has since undertaken an ambitious program of in-service training aimed at upgrading some non-degree graduate teachers to degree level through a distance learning program. The first graduates from this program are expected to graduate in 2015.

Teamwork

Literature on TQM strongly describes the philosophy as one that is based on an all-inclusive approach to management of processes. In a system, many parts have to work

together to achieve the common good or objective. This as such implies approaching the offering of education on a team work basis. The findings from the survey on Teamwork show that 11 (45.8%) of the schools surveyed had a high score of 4 and above. All the TQM schools scored above 4 in the application of this principle, except for one that had 3.98 as mean for Teamwork. The respondents were of the view that teamwork is essential for schools to live up to expectations of all its categories of stakeholders. This is in line with Deming (2000) and many other authors that perceive working through team effort as key to customer satisfaction.

Continuous Improvement

TQM is synonymous with continuous improvement. This results from the understanding that quality is like a walk to the horizon, there is no reaching of the final destination. Therefore, improvement has to be on a continuing basis. It is not surprising that schools that had means 4 and above on this element were only 6 out of 24. This principle is positively correlated with others such as management commitment, focus on stakeholders training and teamwork. The more management and personnel get trained, work together and focus on the school system's stakeholders, the more they are likely to offer improved education service on a continuous basis. Management when committed will mobilize and deploy resources in a manner that ensures good quality education is offered. Information obtained from the stakeholders through engaging and focusing on them becomes the basis for improving systems. The administrators and teachers will be kept abreast with recent developments in education and thus offer a service that is improved continuously. Teamwork helps bring about synergistic working relations.

School Performance

The lead impetus into undertaking this survey has been the perceived underperformance recorded by Zambian schools in the national examinations. The exams provide one of the many different mechanisms of checking the quality of education service delivery. Of all the 24 schools in the survey, 14 showed high school performance rate of 4 and above. TQM has been seen as a management system that helps in ensuring high performance in some of the implementing institutions. All the 6 TQM schools surveyed scored above 4 in performance, thereby supporting the view that application of TQM principles leads to greater performance in the implementing schools. This supports the findings by

Grundahl (2010) that showed that schools which were applying TQM principles demonstrated improvement in performance compared to those that were not.

Customer Satisfaction

Education service provision both private and public is aimed at satisfying the stakeholders. Schools are held accountable for what they offer. When they satisfy the stakeholders by not only meeting but exceeding their expectations, they are recommended. The reverse is the case when they fail to deliver a service that is to the satisfaction of any of the stakeholders of the school system. Survey results show that only 2 schools out of the surveyed 24 offer satisfactory quality of education to the level expected of TQM schools. This in a way suggests that Zambian schools are currently not offering the quality of education the stakeholders expect. The answers to the question why this is the case lies in the findings of the survey which will be highlighted in a later segment of this chapter.

Extent of Application of TQM principles by the schools

The findings as evident from the data analysis show that about 45.3% of the public schools are applying TQM principles to an extent fit of a TQM school. The remaining schools though not categorized as TQM schools, did show evidence of applying some TQM principles though not up to the level expected of a TQM school. This finding consequently give an answer on the second research question which sought to establish the extent to which Zambia's public schools apply TQM principles in the managing the teaching and learning processes.

Relation between application of TQM principles and school performance

The third research question was aimed at establishing the relationship between the application of TQM principles and school performance. The first hypothesis (H1), stated that, *there is greater school performance in TQM schools than non-TQM schools*. This hypothesis was based on the belief that TQM has an influence on human improvement and leads to high commitment and spirit in the work environment (Pour and Yeshodhara, 1992). Tlhapi (2011) further adds that TQM leads to empowerment among educators, who in turn improve school performance through the improved learning that takes place. The t-test result for the hypothesis in question as shown in Table 5.14 show that this hypothesis was supported by the data collected and analyzed. This result is in line with

the earlier research by Oduwaiye et al., (2012) that alludes that schools applying TQM principles achieve good performance than those not applying TQM.

Relationship between application of TQM principles and customer satisfaction

Data from the current survey proved that there is a positive relationship between applying of TQM principles and customer satisfaction. Two of the hypotheses of this research where as follows:

H2 There is greater customer satisfaction in TQM schools than non-TQM schools.

H3 There is a greater degree of employee satisfaction in TQM schools than in non-TQM schools.

Both of the above hypotheses were supported as shown by the test results in Table 5.15. These results strongly support the view earlier held by other researchers such as Al-Tarawneh (2000) and Hansson (2003) that allude that TQM is a means to attaining quality service delivery which in turn results in meeting and/or exceeding of customers' expectations. This in other words implies that there is a relationship between the application of TQM principles and customer satisfaction.

Relationship between school performance and customer satisfaction

As earlier stated in Chapter 3, the major drive towards TQ M implementation has been noted to be that of aiming to improve continuously in terms of the quality of goods and services so as to satisfy customers (Dahlgaard et al., 1999). This Continuous Improvement denotes performance at a certain level or standard by an organization. In this case, the performance in question was that of the schools. A causal relation in the form of the following hypotheses was hypothesized where school performance and customer satisfaction is concerned:

H4- Teacher satisfaction is positively related to school performance.

H5-There is a positive relation between school performance and customer satisfaction.

H6-There is a positive relation between teacher performance and number of pupil complaints.

Among the above hypotheses, only H4 was not supported. This is despite the availability of studies done suggesting that teachers get empowered through TQM to an extent where they work hard and improve school performance. Results of this hypothesis being

contrary to the alternative hypothesis can be linked to the challenges that have been attributed to the TQM application effort among schools. These challenges included inadequate funding (see item 6.6 of this discussion). Clearly, just a management system in place without requisite resources can not lead to high school performance.

Bishop (1989) holds the view that the purpose of education is to provide people with relevant skills and knowledge adequate enough to lead meaningful lives. It then follows that if schools perform well then the customers of education get satisfied with the service delivered. This positive relation between school performance and customer satisfaction has been supported by the current research as seen from the results of the hypothesis test for H5 contained in Table 5.16. The test result for H6 reinforces the hypothesized relation between school performance and customer satisfaction. H6 sought to establish the relation between performance of teachers and number of pupils' complaints. It can be argued based on the result of H6 testing in Table 5.16 that when teachers are empowered, their performance is high and leads to them delivering quality education. This view supports that of Casey (1997:45) as cited by Tlhapi (2011) which alludes that there is corroboration among teachers and pupils through TQM which leads to effective schooling. Because this effective schooling meets or exceeds the expectations of pupils, then they (pupils) are less likely to complain about the service being provided.

Challenges schools face in the implementation of TQM principles

The survey through the qualitative segments attempted to extract data on some of the challenges schools are faced with in their attempt to apply TQM principles. The outstanding impediment to this among Zambian schools appeared to have been that of inadequate funding to the education sector. This as a result bred many other challenges such as inadequate classroom space, lack of teaching and learning materials as well as funds for training. Because the schools lack funds to sponsor in-service programs, teachers have been using their own resources to finance training. This consequently has had to be in line, not with the missing skills, but the qualification they personally desire to obtain.

There was also evidence of training opportunities being based on academic ability, and not desire to empower underperforming teachers. This consequently has seen

underperforming teachers stay at their current competence levels, while those in the category that require minimum training advance academically.

Another challenge to TQM implementation noted has been that of lack of participation by other stakeholders. This has been very evident in all the category of schools surveyed (rural, urban and per-urban). This has been both as a result of systemic doing of those that provide education, as well as those that consume it (pupils, parents, guardians and others).

Implications of the research's findings

The above discussed findings of the survey have implications of great significance to both administrative and teaching educators.

Management Commitment

The findings have shown that if management is committed, schools are likely to perform highly. This as such entails that managers should be committed to quality service provision so that schools perform to the satisfaction of Zambian people's expectations. Some schools with high management commitment have turned out to be low performers. This to a large extent suggests that commitment should go beyond verbal or written statements. It should be accompanied by the strategic deployment of resources needed for the schools to run properly.

Focus on stakeholders

The arguments for focus on stakeholders as a means to achieve satisfaction in service delivery should be understood by administrators as well as teachers so that they offer to the stakeholder what they really need and how they want rather than what administrators and teachers may perceive.

Training

Findings of the survey show that teachers are given opportunities to study. They do further show that despite this opportunity, a good number of teachers are not adequately qualified for their job. The one of the major reasons for this is that leave is obtainable, but funds do not accompany this. As a result, it is those that are financially capable that take up the opportunity to study. Since these may be sponsoring themselves, chances are high that they study programmes that are not directly related to their job. This therefore sees them return to their jobs after study with the same old teaching skills. Administrators

should as such try to fund those that need to undergo training in order for them to become more productive.

Teamwork

Literature on teamwork contained in this survey should be utilized by well-meaning administrators if their schools are to meet their objectives and satisfy the stakeholder.

Continuous Improvement

One of the drivers of the implementation of TQM in education has been the desire close the gap between technological advancements and the skill and knowledge those that go through the education system acquire. It is evident that technology is ever changing in this era. This therefore poses a challenge to the education sector to improve continuously so that the school leavers and graduates produced are able to cope with the demands of work in all its forms (informal or formal). The need for continuous improvement in schools and process therein is further necessitated due to the understanding that quality service provision is not a point that can be reached and all efforts abandoned, but that it is a state that demands for an improvement constantly. That only 25% of the schools surveyed are highly implementing the principle of Continuous Improvement calls for concern among educators. This further explains the reason why one year schools may perform better in national exams, the next they are back to a low performance rate.

School performance

Hypothesis testing has clearly supported the view that implementation of TQM in schools brings about greater performance. There is need therefore for those schools that have proved to be TQM schools to sustain their effort in order for them to keep meeting and exceeding the expectations of their stakeholders. Those that are non-TQM should learn from both the literature contained in this paper on the effects of implanting TQM principles on school performance. The performance of the TQM schools should be taken as a benchmark for those that have been classified as non-TQM in this paper, as well as the other schools in the country that were not part of the survey. It is encouraging to note that 58.3% of the schools surveyed are high performing schools. This is not far from the performance of schools on the national level which for the past 10 years has been averaging at 90% at G7, 40% at G9 and 60% at G12 levels in national exams.

Customer Satisfaction

One of the least scoring variables in the current survey has been that of Customer Satisfaction. Only 8.33% of the schools exhibited a high customer satisfaction rate. Going by the growing discontent with the state of education service delivery in Zambia, this is expected. Such a low rate of satisfaction should be used as an indicator by educators to improve on the service quality so as to satisfy the stakeholders. There is need for management to re-evaluate its role as well as that of teachers and others involved so as to improve on the processes.

CONCLUSION AND RECOMMENDATIONS

General Summary of the study

This survey has been undertaken with the view of assessing whether or not Zambian schools are applying TQM principles as an education quality improvement measure. It analyzed the principles so as to see which ones are being applied and to what extent. The challenges that schools face in the implementation of TQM principles have also been examined. The findings to that effect are as summarized below (based on what has been discussed in the preceding chapter):

TQM Principles being implemented

Results show that all the five principles under investigation are being implemented in the management of Zambia's public school. These include Top management Commitment to quality, Focus on stakeholders, Training, Teamwork and Continuous Improvement.

Extent of Implementation

There is evidence from the data analysed of levels of implementation to a level fit for TQM schools. Of the 24 schools surveyed, 6 have been identified as having implementation at a TQM school level. These have shown a consistently high level of implementation of the principles under discussion, as well as the resultant school performance and customer satisfaction. The rest of the schools (18) also show evidence of application of TQM principles in the management of schools, though some of the principles were being utilized at a low level. This implies that the non-TQM schools to a certain extent do also apply TQM principles, though not at a desirable TQM implementation level. As for those identified as TQM schools, their implementation rate has been that described in the literature on TQM implementation levels as tool pushers.

Challenges schools face in the implementation of TQM principles

As discussed in the preceding chapter, outstanding impediment to the application of TQM principles in Zambian schools at a full scale appeared to have been that of inadequate funding to the education sector. There is also the challenge of a bad work culture that was noted by the respondents. Training opportunities were also seen to pose a challenge as these are said to be based on academic ability, and not desire to empower underperforming teachers. Above all, there is the challenge of lack of participation by other stakeholders which affects the application of TQM principles to the management of the teaching and learning processes in Zambian schools.

Correlation analysis

The correlation analysis performed for the variables under study showed that there was correlation among them, though none was very strong. Tables 10 and 11 showed the correlation ranged from 13.5% to 60.7%.

Hypotheses tests

Two sets of tests were carried out to test the research's hypotheses. A t-test was done for three hypotheses' testing, while a step-wise regression analysis was performed in testing the two other hypotheses. The t-test results showed that all the three tested hypotheses have been supported. The regression analysis on the other hand showed that only one of the two hypotheses was supported.

Implications- TQM

The findings of the research have great implications for management and teachers in schools, as well as other stakeholders. They spell out the role each of the stakeholders should play.

Relationship between TQM principles and School Performance

The relationship between TQM principles and school performance cannot be over emphasized. It is evident from the correlation analysis that these are strongly related, with an independent-dependent variable relation. School performance as seen from the discussion of the findings is dependent on TQM principles' application.

Relationship between TQM principles and Customer Satisfaction

Customer satisfaction, like School performance is also positively correlated with TQM principles. A look back at the rationale behind TQM suggests that the management philosophy was in essence developed in order to satisfy customers.

Limitations of the study

This survey though completed, was not void of limitations. Some of the limitations are as discussed below:

Suspicion: there was widespread suspicion on the use of the data being collected. This was despite assurance by the researcher that the data being collected was for academic purposes. The worst case was where 1 sampled school totally refused to participate, while 3 others did not submit the questionnaires that were distributed.

In certain cases, it appeared the questionnaires distributed by the researcher were collected and completed by a single individual. This was noted through questionnaires from two schools which were consequently rendered invalid.

The rate of collection of questionnaires was very slow and resulted in the collection of 158 questionnaires out of the distributed 290, resulting in a 54.5% collection rate.

The questionnaire items that were open ended saw a very low response rate of up to 30 of the respondents.

Recommendations

Based on the findings, the following are the recommendations made.

Management Commitment to quality

Top management commitment to quality as discussed in a lot of literature is a vital element for quality services and/or goods to be supplied. It is as such recommended that management in schools be committed to quality if Zambia's schools are to deliver education service of a quality satisfying to customers. This commitment should be accompanied by the desired level of resource allocation. These allocated resources should be managed prudently so as to achieve effectiveness and efficiency. There is need to seriously audit resource use in that vein. This should not only be limited to finances, but all other resources (both human and non-human resources).

Focus on stakeholders

The schools exist primarily because of pupils. Schools should as such strive to deliver up to the expectations of the pupils they are meant to serve. Maturity of the primary stakeholders (pupils/students) should be the basis for deciding their level of engagement.

Training

Training is vital for all members in an organization that seeks to offer quality service to its clients through TQM. This helps them acquire skills and knowledge needed in delivering quality. In MOE, there is enough evidence of training for teachers. This training is mostly in the teaching subject areas.

Teamwork

Team work is becoming the norm for managing people in organizations in the corporate world. The education sector will do well to enhance this way of running schools. Goals will be set collectively, and as such pursued with a great sense of ownership among team members.

Continuous improvement

Education in the 21st century is faced with the challenge of imparting knowledge and skills that march the fast changing work environment. Consequently, there is need for schools to keep improving so that their graduates can meaningfully apply themselves once in employment. MOE and schools should as such review the curriculum time and again so that changes in the school environment are taken care of. This process must be pro-active, rather than reactive.

Satisfaction of internal stakeholders/customers (teachers)

In order for school to perform well, there is need for management to ensure that the teaching and support staff are motivated. A motivated workforce under TQM is seen as the panacea for high performance. Ways and means of motivating the personnel in Zambian schools therefore have to be identified. These must not be restricted to monetary based for money can be a motivator in one instance, and a de-motivator in the other. A balance as such must be struck between monetary reward and non-monetary ones.

School performance-teachers

If teachers are to be productive, there is need to remove barriers to their effectiveness. These barriers may be manifest in the management style, lack of training or indeed the unavailability of adequate teaching and learning materials. The onus lies with

management both at school level and above to ensure that the necessary requisites are made available.

School performance-pupils

Of serious concern is the current rate of performance by pupils. Education is a service whose effective delivery depends on both the giving it, and those receiving. A look at the literacy and numeracy rates in this survey showed that there are some pupil based barriers to achieve higher literacy and numeracy rates.

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