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ABSTRACT
Aim: Total Quality Management (TQM) is a management approach that was established to seek sources of continuous motion of improvement to provide quality products and services to customers or clients. TQM promotes organizational effectiveness through promoting stakeholder satisfaction, pursuing continuous improvement and fostering proactive leadership. The purpose of this paper was to explore total quality management (TQM) practices in secondary schools. The researchers set objectives which were to identify the TQM principles being practiced in secondary schools, the extent to which these principles are practiced and finally to determine the factors that affect the practice of these principles. The paper includes findings from an exploratory study of TQM practices in Zambian secondary schools.

Methodology: The research employed a purposive and simple random sampling in order to collect data from 120 secondary school teachers from a total of 1740 secondary school teachers in Lusaka district drawn from 10 secondary schools which were stratified into 5 zones namely Lusaka central, Chilenje, Mumuni, Chibolya and Chunga zones. Questionnaires and structured scheduled interviews were used to collect data for the research. The research was also anchored on the theoretical and conceptual framework where hypotheses were formed and tested.

Findings: The research formed hypotheses based on the seven principles of TQM and this was also verified through the analysis of questionnaires and structured interviews conducted. From the analysis and interpretation of the results, the following was found. Teamwork principle was found to be practiced although most respondents did not know the extent to which it was been practiced. Continuous improvement and training are also principles which were explored and found to be practiced. For continuous improvement, most of the respondents indicated this to have been achieved through carrying out monthly tests and end of term examinations to measure the excellence in service delivery, as for the training principle; this has been interwoven with the policy of the ministry in programs aimed at training in-service teachers and anticipated teachers. For the commitment principle, there was commitment from management with a view to working together for pupil-satisfaction. For the quality principle, it was found that, at 95% confidence level the mission statement, the motto and the vision of the school depicted quality related activities. The research also established that at 95% confidence level, teachers were empowered to take direct action whenever action is likely to affect quality.

Originality: This research is original work as it has never been done before in Lusaka district.

Value: Firstly the value of this research was to inform management on the need to employ strategies aimed at sensitization programmes before, during and after the programme has come to an end. Secondly to promote work attitudes that should promote quality management in education for continuous improvement in pupil performance. Thirdly, for TQM to create a platform among head teachers, teachers, pupils, parents and other stakeholders to work to everyone’s ultimate advantage.

Keywords: TQM, Principles, Schools, Teamwork, Quality, Training, Continuous Improvement.
1. Introduction

Total Quality Management (TQM) is a management approach that was established in the 1950’s to seek sources of continuous motion of improvement to provide quality products and services to customers or clients, (Pandi, 2008). This approach was later migrated to the service, banking and financial sectors in order to provide good quality services to customers. The movement for total quality in education is of more recent origin as the surge of interest had started to occur in nineteen ninety onwards. Since quality is a passion for excellence, education is also recognizing the need to pursue it and to deliver to pupils or students (Peters, 1999).

Many of the ideas associated with TQM are now developed in higher education and it has started to become the mainstream in schools even though its users are not acquainted with the name but use its features. There are quite a number of areas in education which can be a source of quality. Amongst these can be excellent examination results, outstanding teachers, well balanced and challenging curriculum, application of latest technology, strong and purposeful leadership and plentiful resources. It is for this reason that the research had to be done to ascertain whether the objectives set can be proved and justified.

The principles of TQM can also be applied to different levels of high school, middle school, and elementary school educational processes as well as to training institutions. Indeed, the concepts formulated by TQM founder, W. Edwards Deming, have proved so powerful that educators have applied TQM to schools (Lunenburg, 2010). Deming’s 14 principles are based on the assumption that people want to do their best and that it is management’s job to enable them to do so by constantly improving the system in which they work and it was therefore imperative that this research also look at the extent to which these principles are practiced in the secondary schools especially that, for schools, the purpose of the system must be clear and shared by all stakeholders, school board members, administrators, teachers, support staff, parents, community, and students.

Many studies have been conducted in developed countries to show the practice of TQM practices in secondary schools. According to Jamaa (2010) who looked at the effectiveness of applying TQM in public senior high school reported that in an effort to address the quality challenge and meet the global quality education standard, the Government of Indonesia national educational policy (No. 20, 2003) recommended the establishment of model schools in the existing primary and secondary schools which had to be based on international education standard. While in a similar research in Malaysia, where Pourrajab et. al (2011) conducted a literature review and showed that educators in Malaysia believed that applying TQM in education can enhance the performance of schools especially in improving the quality of teaching and learning in schools. Rampa (2004) argued that, they tried to identify how TQM has and can be conceptualized in an education system regarding Deming’s fourteen points in education but the problem is that words like learning and curriculum are not found in this method. Consequently some of Deming’s terminology needs to translate to schools as well and this can be achieved when principles of TQM are considered as management, teachers as employers, students as employees and customers, and acquiring knowledge as a product. Lunenburg and Ornstein (2008) have therefore claimed that, with these translations made, many applications to schools can be achieved.

A number of TQM principles are practiced in secondary schools and according to Pourrajab et al (2011) continuous improvement approach requires teachers to strive for zero defects and efficiency in all processes. Pourrajab et al further mentioned customer focus as another principle in which external and internal customers are the focus of TQM systems and in this research the external customers are pupils or individuals who place orders for products from the school while internal customers in a school are co-workers or departments that accept work as it moves through the school. For a school that uses TQM, each teacher must identify his customers and determine the best way to satisfy their quality needs. Teachers must therefore identify their suppliers and communicate their quality needs to the supplier. Team involvement principle is indeed essential in the implementation of TQM in schools and therefore creating an atmosphere of teamwork and empowering workers to take the initiative to improve the processes and quality. TQM uses measurable tools such as statistical process, process mapping and bar graphs in order to make decisions for the company’s improvement efforts and in the case of a school setup, schools can use these tools to track and find areas that need improvement and basically this is the data driven principle.
According to Garvin, (1987), quality is a composition of eight different stages which include performance, suitability, reliability, endurance, utility, aesthetic, credit, and so forth. For this research, quality is an element in TQM and therefore for a school setup, the quality approach came in as most schools contacted during the research did not include the positive mentality on quality. The efficient quality control can be provided by statistical quality control process in the frame of quality control system. The system of quality control includes administrative interventions that would be made at the stages of input, process, and output in order to produce product and service that reached to the level of appreciated quality (Tekin, 199) while according to Purkey (1978), there is a relation between administrators’ education levels and their perception of quality, administrators’ educational fields and their attitudes toward ‘clients’ and administrators’ educational levels and their attitude toward determination of institutional objectives (Purkey, 1978) and consequently, their application of TQM principles.

According to MoE (2010), in Zambia it has been shown that the government attaches great importance to teacher education in a bid to improve the quality of education. The government has worked together with several stakeholders such as donor agencies like Japan International cooperation Agency (JICA), Nongovernment Organizations and schools themselves. The government, together with other stakeholders, has embarked on several initiatives. Some of these initiatives include Teacher Group Meeting (TGM), subject meetings at the resource centre (SMARC) and therefore it was still important for the researchers to conduct this research in order to identify the TQM principles being practiced and the extent to which these principles have been practiced and finally highlight the factors affecting the practice of these principles.

2. Theoretical framework

Deming’s Theory (1986) provides a useful framework for TQM to explain customer satisfaction through continuous improvement in the effectiveness and efficiency of the organization and its processes. The sole purpose of the theory was to improve the quality of products and it was anchored on the fourteen key principles in order for managers to transform the effectiveness of the business. The Deming theory provides an intensive, long-term effort directed at the creation and maintenance of the high standards of product quality and services expected by the customers and for this research, the high quality education has to be continuously applied to the students who are the customers. The 14 points of Deming’s theory which can be used to seek sources of improvement are:

1. Create constancy of purpose towards improvement
2. Adopt the new philosophy by management and workers alike
3. Do not depend on quality inspection but build quality into the product and process.
4. Choose quality suppliers over low cost suppliers to minimise variation in raw materials and supply
5. Improve constantly to reduce variation in all aspects such as planning, production and service.
6. Institute training on the job. If people are inadequately trained, they will not all work in the same way and this will introduce variation.
7. Institute leadership not supervision to get people to do a better job, not just meet targets.
8. Drive out fear. Deming sees fear as counter –productive in long-term because it prevents workers from acting in the organization’s best interest.
9. Breakdown internal barriers between departments in an organization. Departments in an organization are internal customers to each other and must work together.
10. Eliminate slogans. It’s not people who make most mistakes. It’s the processes they are working within. Harassing the workforce without improving the processes they use is counter-productive.
11. Eliminate Management objectives instead production targets as encouraging the delivery of poor-quality goods.
12. Remove barriers to worker satisfaction including annual appraisals.
13. Encourage self improvement and education for all.
14. Everyone is responsible for continual improvement in quality and productivity particularly top management.

Our research therefore tried to identify the key principles of TQM in secondary schools and the extent to which they are practiced in order to seek quality, continuous improvement and teamwork in these learning institutions. The Deming theory have therefore been used to provide a framework for TQM to explain customer satisfaction through continuous improvement in the effectiveness and efficiency of the organization and its processes. For this research the principles of TQM are considered as management,
Out of the fourteen key principles expounded by Deming and modified by Lockwood (1992) to form a framework for the application of TQM principles in schools, the research focused on the principles numbered 2, 6, 7, 10, 13 and 14. It is clear that the human factor plays a major role in TQM. The activity of everyone participating in the achievement of one objective is especially significant and valuable, leading to their taking ownership of TQM. It can therefore be said that TQM is an approach that seeks to improve quality and performance which will meet or exceed customer expectations. This can be achieved by integrating all quality-related functions and processes throughout the company or organization.

2.1 Conceptual Framework

In Zambia, the management of secondary schools has adopted the kind of management used in manufacturing industries with a view to producing quality educated boys and girls. This kind of management focuses on the quality of the pupil “produced” at the end of the learning process which is assessed using standard examination at either grade nine or grade twelve. In particular, Deming’s principles of management have been adopted in schools in Zambia. This kind of management which is aimed at bringing out the required results involves several factors including Secondary school managers, teachers, parents and pupils who work together for a common goal. Thus the quality of education denoted by the quality of pupils and expressed through performance is the result of the function of good management adopted from Deming. Thus, the quality of pupils is dependent on the practice of TQM principles and vice versa. In the conceptual framework (fig 2.1), the school management institutes TQM principles which involve teachers, pupils and other stakeholders including parents. Teachers and other non-teaching staff implement TQM principles to give quality service and teaching to the pupils who gain quality information, skills, values, attitudes and many more.

As earlier pointed out the Deming theory does not just apply to manufacturing industries but it also applies to educational institutions. Tribus (1987), provided a compelling argument for applying TQM principles in the school setting. Tribus (1987) argued that quality in education is what makes learning a pleasure and a joy. In the education circles, managers must focus, first and foremost, on their suppliers and customers. In a TQM organization, everyone is both a customer and supplier; this confusing concept emphasizes “the systematic nature of the work in which all are involved”. In other words, teamwork and collaboration are essential. Traditionally, education has been prone to individual and departmental isolation. However, according to Bonstingl (1988), this outdated practice no longer serves educationists and one cannot boast that when he or she closes the classroom door, the pupils in the classroom becomes his or hers. This notion is too narrow to survive in a world in which teamwork and collaboration result in high-quality benefits for the greatest number of people. The very application of the first pillar of TQM to education emphasizes the
synergistic relationship between the “suppliers” and “customers”. The concept of synergy suggests that performance and production is enhanced by pooling the talent and experience of individuals. The research focused on the following key principles expounded by Deming and modified by Lockwood (1992) to form a framework for the application of TQM principles in schools.

2.2.1 **Have managers who become leaders for change**
According to Taggar (2007), teachers who emphasize content area, literacy and principle-centred teaching provide the leadership, framework, and tools necessary for continuous improvement in the learning process and therefore continuous improvement is made possible as that supervision in secondary schools aims at helping teachers, support staff and pupils do a better job.

2.2.2 **Consistently strive to improve the service provided to students.**
Organizations using a TQM system engage in incremental improvements continuously to affect the quality of the business’s processes and products. A continuous improvement approach requires teachers to strive for zero defects and efficiency in all processes of the school. Continuous-improvement activities seek areas requiring improvement in a proactive manner (Taggar and Ellis, 2007).

2.2.3 **Institute on the job training for all: teachers, administrators and students.**
Companies provide training in the tools, concepts and techniques of the quality management system to all employees. TQM in secondary schools create an atmosphere of teamwork and empower workers to take the initiative to improve processes and quality. These systems cannot function without the involvement and encouragement of upper management. Adoption of both insights and experiences comprising knowledge either embodied in individuals or embedded in organizations as processes or practices. Porter (1985) stated that TQM in secondary schools focuses on organizational objectives such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration and continuous improvement of the organization. When the school develops and encourages an open knowledge-sharing culture, and facilitates the learning of all its members, consciously transforming itself and its context is said to be a learning organization (Pedler et al, 1997). This is typically exemplified when the story or history of a particular institution is written up and filmed in such a way that the most noticeable features of success come to the fore. This can therefore be used as part of a staff development or quality improvement session.

2.2.4 **Encourage team-teaching and, by so doing, eliminate the barriers between teachers or departments.**
The synergy required to make quality improvements comes from people working in harmony. The team is considered to be the essential building block for delivering quality and has a number of important functions (Miller et al., 1992) being accountable for the quality of learning; being accountable for the use of the teachers’ time, non-teaching time as well as the materials and space; being a vehicle for monitoring, evaluating and improving quality; acting as a channel of information to management on the changes needed to improve provision and the opportunities for its learners. This is also supported by Crosby (1979) who affirms that too often in education teamwork is just expected to happen, but the fact is that this is a skill and we have to learn to be part of a team.

2.2.5 **Change the focus in education from quantity to quality and by so doing remove barriers that deprive students, teachers and school administrators of their pride in workmanship.**
It is important that the leaders guide, support and empower not only teachers, but also all those involved in teaching-learning process, so that they feel committed to and involved in the course of improving their students’ learning. Spanbauer (1992) argues that educational leaders should guide and assist others to develop a similar set of characteristics, encouraging shared responsibility and a style which will create an interactive working environment.

2.2.6 **Involve everyone in transforming the school into a quality environment.**
Put everybody in the school to work to accomplish the transformation. The transformation is everybody’s job. TQM systems rely on the people working in an organization to improve quality and processes. Every individual from top-level managers to the lowest level employee is involved in the continuous improvement process in organizations using this system.
2.3 Hypotheses Development

Based on the conceptual framework in fig 2.1, the hypotheses were then developed.

**Hypothesis 1**

H₀: Teamwork as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: Teamwork as a TQM principle is practiced in secondary schools in Lusaka.

**Hypothesis 2**

H₀: Continuous improvement as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: Continuous improvement as a TQM principle is practiced in secondary schools in Lusaka.

**Hypothesis 3**

H₀: Training as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: Training as a TQM principle is practiced in secondary schools in Lusaka.

**Hypothesis 4**

H₀: Collaboration between Management and pupils as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: Collaboration between Management and pupils as a TQM principle is practiced in secondary schools in Lusaka.

**Hypothesis 5**

H₀: Management commitment as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: Management commitment as a TQM principle is practiced in secondary schools in Lusaka.

**Hypothesis 6**

H₀: The School culture and its processes as a TQM principle is not practiced in secondary schools in Lusaka.

H₁: The School culture and its processes as a TQM principle is practiced in secondary schools in Lusaka.

2.4 Research methodology, data and analysis

2.4.1 Survey Administration

The total population of secondary school teachers in Lusaka district is approximately 2,201. However, due to factors such as serving teachers going for further training under a government programme called fast track, vocation and maternity leave and other factors contributed to a lower number of teachers. Therefore the accessible population was estimated to be 1,740 at the time the research was conducted. The research sample for this research was 120 secondary school teachers in Lusaka District drawn from 10 secondary schools which were stratified into 5 zones namely Lusaka central, Chilenje, Mumuni, Chibolya and Chunga zones.

2.4.2 Sampling Design

The research employed a purposive and simple random sampling where a total of 120 respondents were randomly sampled out of 1,740. Senior standards officers (SESOs) who ensures that schools are run effectively and efficiently were also interviewed. The SESOs interviewed were specialists in English, maths, social sciences and business studies. Specialists in other disciplines could not be reached as they were not available.

2.4.3 Data Collection

2.4.3.1 Questionnaires

Structured questionnaires were used to collect data from secondary school teachers across a cluster of schools from 5 zones in Lusaka district. These questionnaires were administered to secondary school teachers. To ensure the effectiveness of the questionnaire, a pre-test was carried out with Arakan Boys secondary school teachers. The representative sample involved 5 secondary school teachers who were used to validate the instrument that was then used. After the piloting of the questionnaire, adjustments were made on some questions. The questionnaire was based on 6 principles from Deming theory and modified by Lockwood which was then used for each section in the questionnaire. Each principle was used to create a section comprising of an average of 5 questions and a probing question at the end of each section. In order to avoid ambiguity and enhance clarity of what was required from the respondents, the questionnaire had the following parts:
The first part of questionnaire focussed on demographic issues. It assessed the secondary school teachers on issues such as gender, age, marital status, and employee work position, and departmental subject, level of education and length of service as an educator.

Section A of the questionnaire aimed at exploring whether teamwork was used in schools to improve and coordinate work in order to provide quality education or not.

Section B focussed on whether continuous improvement through assessment exercises was effected in secondary schools to provide quality education or not.

Section C of the questionnaire was mainly aimed at exploring the management commitment in the provision of quality education.

Section D of the questionnaire aimed at exploring whether training of teachers was being practised or not.

Section E of the questionnaire assessed the collaboration between management and teachers.

Section F of the questionnaire intended to explore if the school culture and processes contributed to attaining total quality management in secondary schools.

2.4.3.2 Interviews

Structured interviews were conducted with four senior standards officers (SESOs) at provisional level who monitor schools in Lusaka district for purposes of ensuring that quality education is provided. The interviews were conducted in their offices during working hours. Even though it was a guided interview, the minimum period each interview lasted was 30 minutes.

2.4.3.3 Triangulation

More than one method was used in the data collection. This was done to strengthen on the weakness of using one method and to get accurate information because the two methods helped to validate the information.

2.5 Data Analysis

A total number of 100 respondents were successfully interviewed out of the 120 questionnaires which were distributed. These were from 10 Government and Government aided Secondary schools within Lusaka District. The selection of these schools was carefully tailored to capture both technical and non-technical schools covering a wider range of characteristics and with well-known historical performances. The data collected from the questionnaires was presented and analyzed using frequency tables. The questionnaires addressed all the objectives of the research and had a total of seven sections namely; the personal details, teamwork, continuous improvement, management commitment, training, management collaboration and school culture and processes.

2.6 Research Findings

Table 2.1: Results for the hypotheses on Teamwork

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teachers work closely together as a team</td>
<td>47.06</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Support Teamwork for coordination and improve quality</td>
<td>70.64</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Management is more in favor of team recognition rather than individual recognition.</td>
<td>80.96</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Management implements decisions which the majority of teachers want.</td>
<td>92.72</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Do you think your school should improve working as a team?</td>
<td>116.40</td>
<td>0.000</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 2.1 showed that all the hypotheses on teamwork were supported (p-value < .001). The distributions for all the items are leaning towards agreement. Thus, teamwork as a TQM principle was practiced in secondary schools in Lusaka district.
Table 2.2: Results for the hypotheses on Continuous Improvement

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>We carry out monthly tests and end of term examinations.</td>
<td>106.80</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Pupils have time and place to carry out their studies.</td>
<td>78.68</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>School has effective quality improvement plans.</td>
<td>106.40</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Change Initiatives driven by below par performance.</td>
<td>52.88</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Educational facilities are provided adequately for pupils.</td>
<td>62.84</td>
<td>0.000</td>
<td>Supported*</td>
</tr>
</tbody>
</table>

Table 2.2 showed that all the hypotheses on continuous improvement were supported (p-value < .001). However, the distribution of the education facilities item was leaning towards disagreement. Overall, continuous improvement as a TQM principle is practiced in secondary schools in Lusaka district.

Table 2.3: Results for the hypotheses on management commitment

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management views quality as being more important than the cost</td>
<td>54.32</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Management routinely removes barriers to performance, innovation and quality</td>
<td>123.44</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Management is actively involved in communicating the school’s vision for quality performance</td>
<td>143.96</td>
<td>0.000</td>
<td>Supported</td>
</tr>
<tr>
<td>Management is in routine contact with its teachers and pupils</td>
<td>164.84</td>
<td>0.000</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 2.3 showed that all the hypotheses on management commitment were supported (p-value < .001). However, the distribution of the education facilities item was leaning towards disagreement. Overall, management commitment as a TQM principle is practiced in secondary schools in Lusaka district.

Table 2.4: Results for the hypotheses on training

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serving teachers have a programmed plan in the school for further or in-service training.</td>
<td>84.44</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>Staff meets from time to time discuss educational matters under the guise of subject specialists.</td>
<td>140.96</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>There is a criterion for post training of teachers such as area of specialization, performance and academic merit of the teacher involved.</td>
<td>68.72</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>There are strict regulations with regards to those who go for post training under government sponsorship.</td>
<td>66.80</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>Training program at your school is tailored to meet the academic needs of the school.</td>
<td>50.72</td>
<td>0.00</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 2.4 showed that all the hypotheses on training were supported (p-value < .001). However, the distribution of the education facilities item was leaning towards disagreement. Overall, training as a TQM principle is practiced in secondary schools in Lusaka district.
Table 2.5: Results for the hypotheses on collaboration between management and pupils

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Management is aware of the level of pupil satisfaction</td>
<td>97.10</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>School Management listens to pupils’ complaints</td>
<td>133.30</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>School Management uses the information collected from pupils to improve the service delivery.</td>
<td>106.76</td>
<td>0.00</td>
<td>Supported</td>
</tr>
<tr>
<td>Pupils have a forum to lodge their quality related complaints to the school management.</td>
<td>95.72</td>
<td>0.00</td>
<td>Supported</td>
</tr>
</tbody>
</table>

Table 2.5 showed that all the hypotheses on collaboration between management and pupils’ were supported (p-value < .001). However, the distribution of the education facilities item was leaning towards disagreement. Overall, collaboration between management and pupils as a TQM principle is practiced in secondary schools in Lusaka district.

Table 2.6: Results for the hypotheses on school culture and processes

<table>
<thead>
<tr>
<th>Hypotheses</th>
<th>Chi-square</th>
<th>p-value</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>The mission statement, the motto and the vision of the school depict a quality related school</td>
<td>134.96</td>
<td></td>
<td>Supported</td>
</tr>
<tr>
<td>The status quo between school managers and the teachers is so pronounced that it can create fear among teachers.</td>
<td>36.68</td>
<td></td>
<td>Supported</td>
</tr>
<tr>
<td>Teachers are empowered to take direct action is likely to affect quality</td>
<td>109.40</td>
<td></td>
<td>Supported</td>
</tr>
<tr>
<td>All school processes have been designed to meet quality standards</td>
<td>110.72</td>
<td></td>
<td>Supported</td>
</tr>
</tbody>
</table>

THE HYPOTHESIS HAS BEEN SUPPORTED ($\chi^2 = 110.72, \text{ P- Value} = 2.89\text{E-22}$). At the 95% confidence level we have sufficient evidence to conclude that all school processes have been designed to meet quality standards. Table 2.6 showed that all the hypotheses on school culture and processes were supported (p-value < .001). However, the distribution of the education facilities item was leaning towards disagreement. Overall, on school culture and processes as a TQM principle is practiced in secondary schools in Lusaka district.

3. Conclusion

It is clear from the research findings that to a large extent all the identified TQM principles are being practiced in Lusaka district. There is therefore need to strengthen the practice of TQM principles by paying particular attention to some issues. In the case of the teamwork principle, there is need to strengthen the activities that involve teamwork in secondary schools by regular meetings and implementing the resolutions. For continuous improvement, there is need for providing teaching and learning materials adequately in the secondary schools as they are one of the things that slowed down the process of achieving timely continuous improvement plans. The training principle is practiced but most cases it hinges on favouritism. Management Commitment is very cardinal if TQM practices are to be implemented therefore there is need for management to take centre stage in fostering implementation of activities. Moreover, it was concluded that there was collaboration between management and pupils through student councils which were formed in schools to air out their views and grievances to management. Finally, it was concluded that in all secondary schools in Lusaka, school culture and processes were in conformity with the TQM principles.
References


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