

Appraising the Impact of Total Quality Management on Students' Academic Performance in Public Secondary Schools in Ogun State, Nigeria

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Abstract

Low academic performance of secondary school students in our society has been the greatest challenges facing the educational system in the country. The challenges associated with the country's educational performance especially at the secondary schools could be improved upon if total quality management control is taken seriously and mainstreamed into the educational development policies and programmes in the country. This study investigated the impact of total quality management on students' academic performance in public secondary schools in Ogun State, Nigeria. Descriptive survey design was adopted. Simple random sampling technique was used to select a total of 201 respondents from the eleven public secondary schools in Ikenne Local Government Area of Ogun State, Nigeria. Three research hypotheses were tested using Total Quality Management Control Questionnaire; ($r = 0.85$). Data were analysed using Pearson Moment Correlation Coefficient. Findings of the study revealed that when total quality management is applied to schools in terms of employment of quality teachers, physical resources, setting achievable goals and objectives it contributes significantly to students' academic performance. Thus, the study recommended the adoption and application of Total Quality Management and its principles at schools in order to improve and better students' academic performance in the studied area.

Keywords: Total Quality Management; Academic Achievement; School Improvement.

INTRODUCTION

Most formal organizations like secondary schools are aimed at effective and efficient management of both human and material resources available to them for the attainment of the school academic goals. The teachers are charged with lots of functions to perform in the teaching

and learning process; and their effectiveness in teaching is assessed by their ability to use varied classroom management techniques to control students towards effective and meaningful learning during instruction. Meaningful teaching and learning cannot be achieved in environment characterized by noise making and other distractions by students. Thus, academic achievement of students in a particular school can be attributed to the teachers' ability to manage and control the classrooms during instruction.

The word "quality" simply deals with either the product or the services producing these products/services. Teaching and learning involves wide range of activities such as writing on chalkboard, discussing with students, demonstrating a procedure, supervising students' class work, reading and marking assignments. Thus, secondary schools are service providing organizations and classroom environment with good desks and seats well-spaced out, well ventilated, good lighting, good ceiling and roof and smooth floor enhances effective teaching and learning. According to Boit, Njoki and Chang'ach (2012), the purpose of secondary education is to equip the citizenry to reshape their society and individual development. It plays a vital role in creating a country's human resource base at a level higher than primary education (Achoka, Odebero, Maiyo & Mualuko, 2007). Provision of quality secondary education is therefore important in generating the opportunities and benefits of social and economic development (Onsumu, Muthaka, Ngware & Kosembei, 2006). Hence, the need for quality management in the educational sector cannot be overemphasized. The quality of education could only be improved upon when the principles of quality management of schools are ensured. That is, turning the inputs material (i.e. students enrolled) into outputs (i.e. qualified graduates) that would satisfy the needs of the various stakeholders such as parents, teachers, governments, non-governmental agencies and the entire spectrum of the society.

Total Quality Management can be defined as "the process of integrating all activities, functions and processes within an organization to achieve continuous improvement in cost, quality, function and delivery of goods and services for customer's satisfaction" (Murad and Rajesh, 2010). It referred to the application of quality principles to overall process and all the management functions in order to ensure total customer satisfaction (Gardner, 1994).

Total Quality Management implies the application of quality principles right from identification of customer needs to post purchase services (Sallis, 2006). According to Murad and Rajesh (2010), quality in education has four dimensions:

- *Consistency*: Here the educational processes involve specifications through zero defect approach and a quality culture. But the limitations are in achieving consistent standards and conformity to those standards.
- *Fitness to purpose*: fitting the customer specifications, minimum-based fitness for purpose and customer satisfaction.
- *Value for money*: through efficiency and effectiveness
- *Transformative*: education is an ongoing process of transformation that includes empowerment and enhancement of the customer.

Total quality management was adopted from Edwards Deming's philosophy in the late 1920s, and this philosophy proved so powerful that educators want to apply TQM to schools. Deming's (1994) philosophy provides a framework that can integrate many positive developments in education, such as term-teaching, site-based management, cooperative learning, and outcomes-based education. He therefore provided 14 Total Quality Management Principles to be applied to

secondary schools based on the assumption that people want to do their best and that it is management's job to enable them do so by constantly improving the system in which they work (Fred, 2010). The frameworks for transforming schools using Deming's 14 principles are as follows:

- *Create constancy of purpose for improvement of product and service:* The purpose of the school system must be clear and shared by all stakeholders and the aims of the system must be to improve the quality of education for all students.
- *Adopt the new philosophy:* The principle requires a rethinking of the school's mission and priority is to replace the existing methods, materials, and environments by new teaching and learning strategies where success of every student is the goal. Individual differences among students are addressed.
- *Cease dependence on inspection to achieve quality:* In industry this was called product inspection. According to Deming, it always costs more to fix a problem than to prevent one. Reliance on remediation can be avoided if proper intervention occurs during instruction.
- *End the practice of awarding business on the basis of price alone:* The lowest bid is rarely the most cost-efficient. Schools need to move toward a single supplier for any one time and develop long-term relationships of loyalty and trust with that supplier on the basis of quality and reliability of their product.
- *Improve constantly and forever every activity in the organization, to improve quality and productivity:* The focus of improvement efforts in education under Deming's approach is on teaching and learning processes. According to him, the best strategies must be attempted, evaluated, and refined as needed. He concluded that educators must redesign the system to provide for a broad range of people – handicapped, learning disabled, special needs students – and find ways to make them all successful in school. This means requiring universal standards of achievement for all students before permitting them to move to the next level.
- *Institute training on the job:* Training for educators is needed in three areas. First, there must be training in the new teaching and learning processes that are developed. Second, training must be provided in the use of new assessment strategies. Third, there must be training in the principles of the new management system. For schools, this means providing continuous professional development activities for all school administrators, teachers, and support staff.
- *Institute leadership:* According to Deming's seventh principle, improvement of a stable system comes from altering the system itself, and this is primarily the job of management and not those who work within the system. This is also referred to as systems thinking by Senge (2006). Deming asserted that the primary task of leadership is to narrow the amount of variation within the system, bringing everyone toward the goal of perfection. In schools this means bringing everyone toward the goal of learning for all. It means removing achievement gaps for all population groups – a movement toward excellence and equity.
- *Drive out fear:* A basic assumption of Total Quality Management is that people want to do their best. The focus of improvement efforts then must be on the processes and on the outcomes, not on trying to blame individuals for failures. If quality is absent, the fault is in the system, says Deming. It is management's job to enable people to do their best by constantly improving the schooling system in which they work. Fear creates an

insurmountable barrier to improvement of any system. In schools, staffs are often afraid to point out problems, because they fear they may be blamed. School leaders at all level need to communicate that staff suggestions are valued and rewarded.

- *Break down barriers among staff areas:* Deming's ninth principle is somewhat related to the first principle: Create constancy of purpose for improvement of product and service. In the classroom, this principle applies to interdisciplinary instruction, team teaching, writing across the curriculum and transfer of learning. Collaboration needs to exist among members of the learning organization so that total quality can be maximized.
- *Eliminate slogans, exhortations, and targets that demand zero defects and new levels of productivity:* This implies that many causes of low quality and low productivity in schools are due to the system and not the staff. The system itself may need to be changed. In education, some slogans can be used like "All children can learn" such slogan serve as targets in school organizations.
- *Eliminate numerical quotas for the staff and goals for management:* There are many practices in education that constrain our ability to tap intrinsic motivation and falsely assume the benefits of extrinsic rewards. They include rigorous and systematic teacher evaluation systems, merit pay, management by objectives, grades, and quantitative goals and quotas. Such approaches are counterproductive for several reasons: setting goals leads to marginal performance; merit pay destroys teamwork; and appraisal of individual performance nourishes fear and increases variability in desired performance.
- *Remove barriers that rob people of pride in their work:* Most people want to do a good job. Effective communication and the elimination of 'de-motivators' - such as lack of involvement, poor information, the annual or merit rating, and supervisors who do not care—are critical.
- *Institute a vigorous programme of education and retraining for everyone:* The principal and staff must be retrained in new methods of school based management, including group dynamics, consensus building, collaborative styles of teaching and decision making. All stakeholders on the school's team must realize that improvements in student achievement will create higher levels of responsibility, not less responsibility.
- *Put everyone in the organization to work to accomplish the transformation:* The school board must have a clear plan of action to carry out the quality mission. The quality mission must be internalized by all members of the school organization. The transformation is everybody's job.

Total Quality Management is identified as one of the best means to achieve educational goals and objectives but it has not been widely used in school organization because the TQM practices are still faced with challenges such as absence of a guiding TQM framework, inadequate human resources, lack of leadership, and perception of TQM as a programme instead of a culture of continuous improvement. According to Sallis (2006), the principles of TQM can be grouped in to five components which are student services, physical environment and resources, human resource, processes and product (output). This was diagrammatically represented by Burnham, 1997 to promote effective strategies for quality-based school improvement. The components are drawn below:

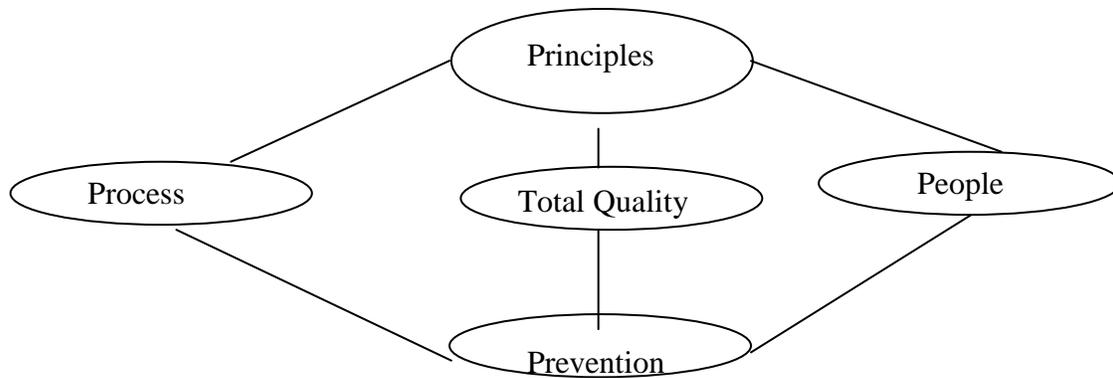


Figure 1: Effective Strategies for Qualities-Based School Improvement by Burnham (1997)

The conceptual framework used was structured based on the above components and principles of total quality management as well as that of evaluation programme of three steps sequences. The conceptual frame work of TQM and students' academic performance was adapted from Suleiman (2010), the effectiveness of applying total quality management in public secondary school. The components are drawn below:

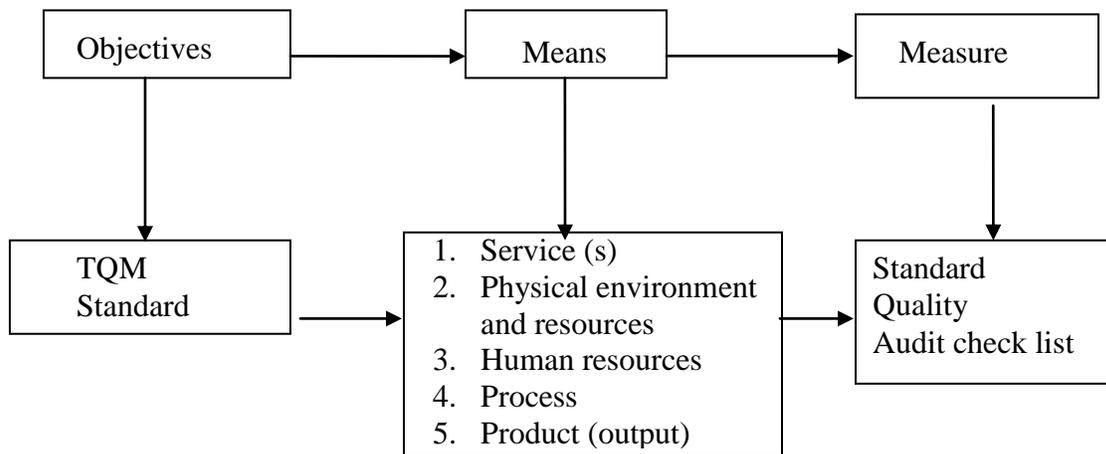


Figure 2: The Effectiveness of Applying TQM in Public Educational Institutions (Suleiman, 2010).

The low academic performance of secondary school students in our society can be related to the quality control and management of the educational system in our country which is characterized by inadequate government funding, poor parental care, absenteeism of both teachers and students from school and lack of effective supervision by education supervisors from the ministries of education, lack of effective human resource management policies such as regular in-service training of principals on school management and other training programmes for teachers to sharpen their skills for effective teaching. The challenges associated with the country's educational performance especially at the secondary schools could be overcome if total quality management is taken seriously and mainstreamed into the educational development policies in the country. Hord and Monk (2007) opined that TQM needs to gain ground rapidly and become a way of life in many organisations. He said further that TQM is a method by which management, teachers and non-teachers in the secondary school system can become better in the continuous

improvement in the production of students as quality graduates. TQM is a combination of quality and management tools aimed at expanding the school system in terms of students' enrolment and provision of requisite resources as well as reducing wastages resulting from inefficient use of resources.

Statement of the Problem

Every year, students' performance in external examination has shown a large number of candidates having less than five credits in their different subjects including Mathematics and English Language. Such unwholesome performance prevents many from gaining admissions into tertiary institutions for upward studies. In most situations, such students' poor performances are often blamed on the quality of teachers, quality of facilities, and inadequate funding. However, wholesome students' performances in examinations are always the result of the input of many stakeholders including parents, teachers, school management and students. Based on this premise, this study investigated the impact of total quality management on students' academic performance in public secondary schools in Ikenne Local Government Area, Ogun State, Nigeria.

Hypotheses

- **H₀₁:** There is no significant relationship between quality of teachers and students' academic performance in public secondary schools in Ikenne Local Government Area (LGA), Ogun State.
- **H₀₂:** There is no significant relationship between quality of physical facilities in schools and students' academic performance in public secondary schools in Ikenne Local Government Area (LGA), Ogun State.
- **H₀₃:** There is no significant relationship between the principles of TQM and students' academic performance in public secondary schools in Ikenne Local Government Area, (LGA), Ogun State.

METHODOLOGY

Research design

The research designs adopted for this study were descriptive survey design and the ex-post facto design. This was adopted because the researchers want to discover the relative distribution and interrelations of variables. Also, an ex-post facto research was adopted because the data collected cannot be manipulated by the researchers as they were already in existence.

Population

The target population for this study comprised of all the public secondary schools in Ikenne Local Government Area (LGA) of Ogun State, Nigeria. which has a total of 11 public secondary schools, 33 principals (including vice principals) and 300 teachers.

Sample and Sampling

The sample for this study comprised 11 principals and 190 teachers who were randomly selected from the eleven public secondary schools in the local government through a simple random sampling technique. The sample were selected from a total of 33 principals (including vice principals) and 300 teachers.

Instrumentation

The instruments used for this study were self-structured questionnaire titled “Total Quality Management and Control Questionnaire” (TQMCQ) and a checklist Titled “Students’ Academic Performance Checklist” (SAPC). The TQMCQ consisted of two sections. Section A elicited demographic information about each school such as the name of the school, its location, number of students who sat in the senior secondary certificate examinations for five years (2011 – 2015), qualification and years of experience of the respondents while section B contained 25 items on four rating scale of strongly agreed, agreed, strongly disagreed and disagreed respectively to elicit information on TQM practices in each of the school used. The SAPC was adopted to elicit information from the principals of each school on students’ WAEC results from 2011 to 2015.

Validity of the Instrument

The face and content validity of the self-structured questionnaire (Total Quality Management and Control Questionnaire) were determined by three experts in test construction. Their comments led to the modification of the items and 25 items were retained and administered on the sampled respondents.

Reliability of the Instrument

The reliability of the instrument was determined using the test-retest reliability technique. In conducting the test re-test reliability for the questionnaire, the instrument was administered to 30 respondents (5 principals and 25 teachers) drawn from five public senior secondary schools in Ijebu Ode local government area of Ogun State, Nigeria. After a period of two weeks, the instrument was re-administered to the same respondents. The data collected on the two tests were analyzed using the Pearson Product Moment Correlation analysis. A correlation coefficient ‘r’ of 0.84 was obtained indicating that the instrument was reliable and consistent for the study.

Administration of Instrument

The instrument was administered to the respondents by the researchers and three research assistants. After a period of seven working days, the completed instruments were retrieved from the respondents. All the respondents duly completed the instrument indicating 100 percent response rate.

Method of Data Analysis

The data collected were analysed using frequency counts, percentages, mean and Pearson Product Moment Correlation. This was used to test the relationship between the study variables as contained in the research hypotheses raised at 0.05 level of significance.

Hypotheses One

There is no significant relationship between quality of personnel (principals and teachers) and students' academic performance in public secondary schools in Ikenne Local Government Area (LGA), Ogun State.

Table 1: Correlation between quality of personnel and students' academic performance

Variables	N	Mean	Std. Dev.	R-value	Df	P-value	Decision
Quality of teachers	201	17.39	3.57	.427	1636	.000	Rejected
Academic Performance	1437	59.13	10.02				

Note. **correlation is significant at the 0.05 level (2-tailed)

The result of Table 1 shows that there is significant positive moderate correlation between quality of personnel (principals and teachers) and students' academic performance ($r = .427$; $df = 1636$; $p < .05$). Therefore, the null hypothesis which states that quality of personnel (principals and teachers) does not significantly correlate with students' academic performance in public secondary schools in Ikenne Local Government Area (LGA) is hereby rejected. This means that quality of personnel (principals and teachers) significantly correlate with students' academic performance in public secondary schools in Ikenne Local Government Area (LGA).

Hypotheses Two

There is no significant relationship between quality of physical facilities in schools and students' academic performance in public secondary schools in Ikenne Local Government Area (LGA), Ogun State.

Table 2: Correlation between quality of physical facilities and students' academic performance

Variables	N	Mean	Std. Dev.	R-value	df	P-value	Decision
Quality of teachers	201	16.55	5.57	.311	1636	.000	Rejected
Academic Performance	1437	59.13	10.02				

Note. **correlation is significant at the 0.05 level (2-tailed)

From Table 2, the result of the findings revealed that there is significant low positive correlation between quality of physical facilities and students' academic performance ($r = .311$; $df = 1636$; $p < .05$). Therefore, the null hypothesis which states that there is no significant relationship between quality of physical facilities in schools and students' academic performance in Ikenne Local Government Area (LGA), Ogun State is rejected. This means that quality of physical

facilities significantly correlate with students' academic performance in public secondary schools in Ikenne Local Government Area (LGA).

Hypotheses Three

Ho₃: There is no significant relationship between the principles of TQM and students' academic performance in public secondary schools in Ikenne Local Government Area, Ogun State, Nigeria.

Table 3: Correlation between principles of TQM and students' academic performance

Variables	N	Mean	Std. Dev.	R-value	Df	P-value	Decision
Quality of teachers	201	25.80	4.00	.751	1636	.000	Rejected
Academic Performance	1437	59.13	10.02				

Note. **correlation is significant at the 0.05 level (2-tailed)

From Table 3, the result of the findings revealed that there is significant high positive correlation between principles of Total Quality Management and students' academic performance ($r = .751$; $df = 1636$; $p < .005$). Therefore, the null hypothesis which states that there is no significant relationship between the principles of TQM and students' academic performance in public secondary schools in Ikenne Local Government Area of Ogun State is hereby rejected. This means that principles of Total Quality Management significantly correlate with students' academic performance in public secondary schools in Ikenne Local Government Area of Ogun State, Nigeria.

DISCUSSION OF FINDINGS

The findings of the study showed that positive significant relationship existed between quality of personnel (principals and teachers); in terms of mastery of subject taught and human relation skills and students' academic performance. This means that students' taught with high quality teachers have high grades. This absolutely coincides with the findings of Adesina (1980) cited in Olaleye (2011) who observed that teachers are the major predictor and determinant of quality education. However, there is no doubt that teachers play an important role in facilitating teaching and learning as well as determining the quality of education service delivery. They are the supporting pillars for the realization of planned educational goals and objectives and the prime mover in the development of optimum condition for teaching-learning in and outside the classroom. This was also supported by Comer (2000, 2006) and Ferguson (2011) when Ferguson revealed that at the high school level, students taught by high quality teachers had significantly higher test scores than students whose teachers had one to three years of experience. The findings of the study also supported Slavin (2009) and Anita, Jairo, Odhiambo and Mary (2013). In their study on the influence of manpower and physical facilities in secondary schools in Delta State concluded that there was significant correlation between teachers' qualifications and the students' academic performance. This good performance was attributed to excellent instructions given by qualified teachers in addition to other input materials.

In terms of the impact of quality of physical facilities on students' academic performance, the findings showed a positive significant correlation between the two variables. The result was supported by the findings of Senge's (2006) and Sangeeta and Banwe (2011) who found that the

availability of quality physical resources like the school building and other plants contribute to good academic achievement as they enhance effective teaching-learning activities. They stated further that well sited school buildings with aesthetic conditions, playground, lavatory, etc. usually contribute to achieving higher educational attainment by students. Throwing more light on this, the encyclopedia of Educational Research recorded that the total environment within a school building be comfortable, pleasant and psychological uplifting. It should provide a passive physical setting that is educationally stimulating as well as producing a feeling of well-being among its occupants, and it should support the educational process (Sangeeta & Banwe, 2011). The above conditions can only be met through the cooperative efforts of imaginative teachers, administrators, a creative and knowledgeable architect (Dunn & Dunn, 2002; Dunn, Dunn, & Perrin, 2004; Gardner, 1994). The result was also supported by Akinsolu (2011), who found that physical and material resources are very vital to the success of every educational programme. He concluded that the availability and utilization of adequate school buildings, classrooms, chairs, desks and other facilities are necessary for the attainment of educational objectives, and that physical facilities are the essential materials that must be put in place and put into consideration for the objectives of the school system to be accomplished permanent structures such as machines, laboratory equipment, the chalkboard and office assistant's tools such as brooms and cleaning materials. School building is said to have positive impact on the comfort, safety, and academic performance of the student.

In terms of Total Quality Management and students' academic performance, the findings showed that relationship existed between Total Quality Management and students' academic performance. This was supported by the findings of Popham (2010a, b) and Jamaa (2011). Jamaa concluded that total quality management aided the adoption of quality method of passing curriculum to the learners in the classroom setting. This also supports the findings of Alexander and Keeler (2005) who found that the total quality management is working to solve educational problems, and therefore concluded that TQM correlation with the use of new method of teaching in schools for increase students' academic performance. The findings corroborate the study conducted by Hamed (2004) on the impact of the application of the concept of total quality management on job satisfaction.

CONCLUSION

In conclusion, the aim of this research was to find out whether Total Quality Management correlates with academic performance among public secondary schools students in Ogun State. From the analysis, it was found that quality of personnel (principals and teacher), quality of physical facilities and the principles of Total Quality Management impacted positively on students' academic performance but they were not the only factors. Administrative styles of the school management, supervision of instruction, student self-efficacy, study habit, students' socio-economic factor, environmental factors, peer influence, etc., also have influence on what goes on in the school vis-à-vis the school outputs. Thus, government cum school management must give adequate attention to these indicators, assumptions and modes in order to make them available so as to enhance improvement of school outputs in terms of students' academic performance.

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