TOTAL QUALITY MANAGEMENT AND STUDENTS' ACADEMIC PERFORMANCE IN ILORIN METROPOLIS SECONDARY SCHOOLS, NIGERIA

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ABSTRACT

This study was carried out to examine the relationship between total quality management and students' academic performance in Ilorin metropolis secondary schools, Kwara State, Nigeria. This is to find solutions to the problems of quality management in relation to negative effect of academic performance of students in senior secondary schools. The study examined the principles and component of total quality management as it is applicable to educational settings. The researchers adopted a descriptive survey design. Both stratified and simple sampling techniques were used to select fifteen out of twenty-five public secondary schools and 120 respondents respectively. An instrument titled Total Quality Management Questionnaire (TQMQ) and Student Academic Performance Checklist (SAPC) were used to collect relevant data. Seven research questions were raised and seven hypotheses were formulated including one main hypothesis to guide the study. Both simple percentage and Pearson product moment correlation statistics were used to analyze the data at 0.05 levels of significance. The findings revealed that there is no universal standard of achievement for all students before permitting them to move to the next class; there is effective communication in the schools; principal and staff are not re-trained on new methods of school-based management and there is significant relationship between total quality management and student academic performance in Ilorin metropolis secondary schools. Based on the findings, some recommendations were made which include; the state ministry of education should set a minimum and universal standard of achievement for all secondary school in the state and there is need to regularly organize re-training programs on new methods of school based management for the principals and staff in Kwara State secondary schools.

Keywords: Total Quality Management, student academic performance, secondary schools, quality

INTRODUCTION

The word "quality" has been derived from the Latin word *qualis*, meaning, "what kind of". With a wide variety of meanings and connotations attached to it, quality is a difficult and elusive term to define, having thus been referred to as a "slippery concept" (Pfeffer and Coote, 1991). It is slippery because it has a wide variety of meanings. The word implies different things to different people. It has, thus, been defined with different perspectives and orientations, according to the person, the measures applied and the context within which it is considered. Amid the wide gamut of such definitions, there seems to be no consensus definition, but they all deal either with the product or the services producing these products/services. From the perspective of the consumers or users, the product or service-based definition is more useful. From the perspective of the

organization providing goods/services, the process-perspective is more useful (Sangeeta and Banwe, 2004).

Secondary education is a weak link in the education chain in many countries, even though an increasing number of children are going on to secondary schools (Kanishka and Sharma, 2006). The quality of school graduates and the literacy rate represent the most telling indicators for a country educational status. Today, despite the mushrooming of schools, the continued sensitization of the public on the importance of investing in education, schools are still marked with shortcomings in the quality of learning which has drastically been affecting the students' academic performance both at internal and external examination. These are greatly associated with the continued reliance on the old traditional ways of managing things and the absence of the latest quality management strategies. In order to combat these problems, educational stakeholders have to strive to ensure all systems and practices are aimed at ensuring schools product which fit for their purpose--innovative, efficient and of benefit to the societies. Also, the traditional approach to accountability which has focused unduly on teacher performance has to change. The focus has to be on collective responsibility of the whole school in a corporate framework. However, these are not always adequately met, particularly in the developing countries hence are still plagued by underdevelopment (Suleiman, 2010).

Dimensions of Quality in Education

According to Murad and Rajesh (2010) quality in education has the following 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 (TQM): Although Total quality management were adopted prior to World War II by a number of organizations, the creation of the Total Quality management philosophy is generally attributed to Dr. W. Edwards Deming (Magutu, 2010). In the late 1920s, while working as a summer employee at Western Electric Company in Chicago, Dewing found worker motivation systems to be degrading and economically unproductive; incentives were tied directly to quantity of output, and inefficient post-production inspection systems were used to find flawed goods (Hunt, 1992). Indeed, the concepts formulated by TQM founder, W. Edwards Deming, have proved so powerful that educators want to apply TQM to schools. Deming's 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. Total Quality Management can be defined as "the process of integration of all activities, functions and processes within an organization in order to achieve continuous improvement in cost, quality, function and delivery of goods and services for customer satisfaction". It refers to the application of quality principles to overall process and all the management functions in order to ensure total customer satisfaction. Total Quality Management implies the application of quality principles right from identification of customer needs to post purchase services.

Total Quality Management has been adopted as a management paradigm by many organizations worldwide. Quality movement in across the world starts with quality improvements project at manufacturing companies. But later it spread to other service institutions including banking; insurance, non-profit organizations, healthcare, government and educational institutions. Total Quality Management models, based on the teachings of quality gurus, generally involve a number of "principles" or "essential elements" such as teamwork, top management leadership, customer focus, employee involvement, continuous improvement tool, training etc. Awards like Deming in Japan, Malcolm Balridge in USA; European Quality awards etc are reflection of growing concern in this area.

Deming's 14 Total Quality Management Principles Applied to Secondary Schools

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 Fred (2010). The frameworks for transforming schools using Deming's 14 principles are as follows:

1. **Create constancy of purpose for improvement of product and service:** the purpose of the school system must be clear and shared by all stakeholders – school board members, administrators, teachers, support staff, parents, community, and students and the aims of the system must be to improve the quality of education for all students.

2. **Adopt the new philosophy:** Implementation of Deming's second principle requires a rethinking of the school's mission and priorities with everyone in agreement on them where by existing methods, materials, and environments may be replaced by new teaching and learning strategies where success of every student is the goal. Individual differences among students are addressed.

3. **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. Examples of preventive approaches in schools include Robert Slavin's (2009) ―success for all schools, James Comer's (2000, 2006) ―school development program, parent involvement strategies and long-standing intervention approaches: Head Start, Follow Through, preschool programs, and other remedial interventions. These intervention strategies can help students avoid learning problems later.

4. **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.

5. **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. Based on the latest research findings, the best strategies must be attempted, evaluated, and refined as needed. And, consistent with learning style theories (Dunn & Dunn, 1992; Dunn, Dunn, & Perrin, 1994), Howard Gardner's (1994) multiple intelligences, and Henry Levin's accelerated schools for at-risk students, educators must redesign the system to provide for a broad range of people – handicapped, learning disabled, at-risk, 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.

6. **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 (Popham, 2010a, b). 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.

7. **Institute leadership:** Deming's seventh principle resembles Peter Senge's (2006) systems thinking. According to both Senge and Deming, 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. Deming asserts 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.

8. **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.

9. **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.

10. **Eliminate slogans, exhortations, and targets that demand zero defects and new levels of productivity:** Implicit in most slogans, exhortations, and targets is the supposition that staff could do better if they tried harder. This offends rather than inspires the team. It creates adversarial relationships because the 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.

11. **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. These Deming refers to as forces of destruction. 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.

12. **Remove barriers that rob people of pride in their work. Remove the barriers that rob people in leadership of their right to 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 don't care — are critical.

13. **Institute a vigorous program 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, and collaborative styles of 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.

14. **Put everyone in the organization to work to accomplish the transformation:** The school board and superintendent 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 (school board members, administrators, teachers, support staff, students, parents, community). The transformation is everybody's job. (Deming, 1988, pp. 23-24).

Total Quality Management major constant imperative "is a concern for standard achievement" (Sallis, 1993). Total Quality Management is identified as one of the best means in effectively achieving educational goals and objectives. However, it has not been widely used in school organization. Even those schools that adopted the Total Quality Management practices are still faced with challenges such as absence of a guiding Total Quality Management framework, inadequate human resource and resources, lack of leadership, perception of Total Quality Management as a program instead of a culture of continuous improvement. So what effective Total Quality Management implementation offers is a treatment for these problems by ensuring the creation of quality culture where every member of the school is an instrumental. Juran's rule of thumb (Sallis, 1993:52) says that "85% of an organization's quality problems lie with management, as they have control over the system of the organization.

Figure 1. Diagram of Total quality Management Components

Figure 1. Adapted from Managing quality in schools: Effective strategies for quality-based school improvement by Burnham, 1997, p.32-33. London: Pearson.

Generally, these ideas, principles of Total Quality Management by the quality theorist can be grouped in to five components which are student services, physical environment and resources, human resource, processes and product (output).

The conceptual framework used was structured based on the above components and principles of total quality management as well as that of evaluation program three step sequences.

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Figure 2. The conceptual frame work of Total Quality Management and student academic performance
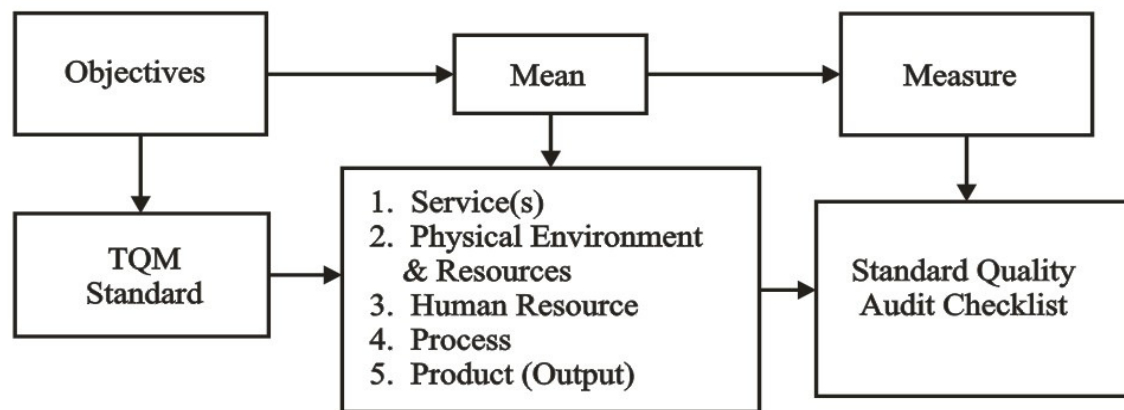
Adapted from Suleiman (2010), the effectiveness of applying total quality management in public secondary school, Indonesia.pg 27.

Quality management is a method for ensuring that all the activities necessary to design, develop and implement a product or service are effective and efficient with respect to the system and its performance (Deming, 1986). Quality management (QM) also called total quality management, evolved from many different management practices and improvement processes. QM is not specific to managing people, but rather is related to improving the quality of goods and services that are produced in order to satisfy customer demands. QM permeates the entire organization as it is being implemented. Total Quality Management has its roots in the quality movement that has made Japan such a strong force in the world economy. The Japanese philosophy of quality initially emphasized product and performance and only later shifted concern to customer satisfaction (Sergesketter, 1993).

Youngless (2000) argued that rather than trying to inspect the quality of products and services after they have been completed, Total Quality Management instils a philosophy of doing the job correctly the first time. It all sounds simple, but implementing the process requires an organizational culture and climate that are often alien and intimidating. Therefore, this paper examined the component of total quality management as it relate to student academic performance.

PURPOSE OF THE STUDY

The main purpose of this study is to examine whether Total Quality Management in secondary schools affects the students' academic performance in Ilorin Metropolis secondary school. Specifically, the study was to:

a. Examine the relationship between staff development and students academic performance
b. Examine the relationship between adequacy of qualified teachers and students' academic performance
c. Determine the relationship between availability and adequacy of physical facilities and students' academic performance

d. Examine the relationship between student support services and students' academic performance
e. Examine the impact of teachers teaching effectiveness and students' academic performance
f. Examine the relationship between students class size and their academic performance

RESERACH QUESTIONS AND HYPOTHESES

This was based on the problem earlier set out in this study. The following questions and hypothesis formed the premises upon which data was collected, treated and analyzed.

Research questions

1. Is there team work among teachers in the school?
2. Is there a universal standard of achievement for all students before permitting them to move to the next class?
3. Does effective communication exist in the school?
4. Are the principal and staff re-trained on new methods of school based management?

Research Hypotheses

HO: There is no significant relationship between Total quality management and student academic performance in Ilorin Metropolis secondary school.

HO_1: There is no significant relationship between human resources in the school and student academic performance in Ilorin Metropolis secondary school.

HO_2: There is no significant relationship between physical environment and resources and student academic performance in Ilorin Metropolis secondary school.

HO_3: There is no significant relationship between principal leadership behaviour and student academic performance in Ilorin Metropolis secondary school.

HO_4: There is no significant relationship between student performance in internal examinations and their performance in external examinations in Ilorin Metropolis secondary school.

METHODOLOGY

A descriptive survey design was adopted for the study in order to discover the relative distribution and interrelations of variables. The population of the study comprise of 25 public secondary schools in Ilorin metropolis of Kwara state. The sample consists of those senior secondary schools that had been presenting candidate for senior school certificate examination (SSCE). Fifteen out of twenty-five public secondary schools were selected using stratified random sampling techniques which make up 60% of the sampled schools. Three secondary schools were selected from each of the five Local governments that constitutes Ilorin metropolis. The principal, two vice-principals and five teachers including head of departments were selected in each sampled schools. A total of 120 respondents were used for the study.

An instrument titled Total quality management questionnaire (TQMQ) was used to gather information from the respondents and a checklist Titled student academic performance checklist (SAPC) was adopted to elicit information from the principals of the sampled schools on students WAEC result from 2006 to 2010. The questionnaire consisted of two major parts. The first part sought information about the respondent's demographic variables while the second parts are

questions to elicit information on total quality management practices in each of the sampled schools.

The analyses of the data collected were analysed using both descriptive and inferential statistics.

RESULT AND DISCUSSION

Table 1. *Analyses of responses to the research questions.*

QUESTIONS	RESPONSES			
	YES		NO	
	f	%	f	%
1. Are there team work among teachers in the school?	102	85	18	15
2. Is there a universal standard of achievement for all students before permitting them to move to the next class?	05	4.2	115	95.8
3. Does effective communication exist in the school?	90	75	30	25
4. Is the principal and staff re-trained on new methods of school based management?	16	13.3	08	86.7

From table 1, it shows that there is no team work among teachers in Ilorin metropolis secondary schools as 65% of the respondents said there is no team work among them which is as a result of the principal managerial behaviour. 95.8% of the respondents also indicate that there is no universal standard of achievement for all students before promoting to the next class and 86.7% of the respondents also indicate that principals and teachers are not re-trained on the new methods of school based management.

The study has also established that there is a need for the state to build a constant supply of the needed manpower including leaders for the schools. Responses from both the teachers and head teachers indicated that none of the schools had as part of their plans staff development and succession plans.

Main hypothesis: There is no significant relationship between Total quality management and students' academic performance in Ilorin Metropolis secondary school.

Table 2. *Total quality management and students' academic performance*

Variables	N	$\overline{X}$	SD	DF	Cal. r-value	Critical r-value	Decision
Total Quality Management	120	12.62	4.31				Ho
				119	.672	.183	Rejected
Student Academic Performance	120	38.31	1.42				

Table 2 shows that the main hypothesis that states that there is no significant relationship between Total quality management and student academic performance should be rejected as the calculated value of .672 is greater than the table value of .183.which indicates that there is a significant relationship between total quality management and students' academic performance.

HO_1: There is no significant relationship between human resources in the school and students' academic performance in Ilorin Metropolis secondary school.

Table 3. *Availability and quality of human resources and student academic performance*

Variables	N	$\overline{X}$	SD	DF	Cal. r-value	Critical r-value	Decision
Human resources	120	38.58	14.36				HO_1
				119	.782	.183	Rejected
Student Academic Performance	120	35.32	1.42				

Table 3 shows that human resources are significantly related to students' academic performance. The calculated value of .782 is greater than the table value of .183. Therefore, the hypothesis that stated that there is no significant relationship between human resources in school and students' academic performance is rejected.

HO_2: There is no significant relationship between physical environment and resources and student academic performance in Ilorin Metropolis secondary school.

Table 4. *Physical environment and resources and student academic performance*

Variables	N	$\overline{X}$	SD	DF	Cal. r-value	Critical r-value	Decision
Physical environment and resources	120	10.21	2.13				HO2
				119	.263	.183	Rejected
Student Academic Performance	120	36.21	1.42				

From table 4, the calculated value of .263 is greater than the table value of .183 at .05 levels of significance. Therefore, the research hypothesis that states that there is no significant relationship between physical environment and resources and student academic performance is rejected; which means there is a significant relationship between the availability of physical environment and resources with students' academic performance in Ilorin metropolis secondary schools.

HO_3: **There is no significant relationship between principal leadership behaviour and student academic performance in Ilorin Metropolis secondary school.**

Table 5. *Pprincipal leadership behaviour and student academic performance*

Variables	N	$\bar{X}$	SD	DF	Cal. r-value	Critical r-value	Decision
Principal leadership behaviour	120	5.24	3.01	119	.432	.183	Rejected
Student Academic Performance	78	35.32	1.42				

Table 5 shows that the calculated value of .432 is greater than the table value of .183. Therefore, the hypothesis that states that there is no significant relationship between principal leadership behaviour and student academic performance is rejected, which means that the leadership behaviour of the school principal significantly affect students' achievement.

HO_4: **There is no significant relationship between student performance in internal examinations and their performance in external examinations in Ilorin Metropolis secondary school.**

Table 6. Students' performance in internal examination and their performance in external examination

Variables	N	$\bar{X}$	SD	DF	Cal. r-value	Critical r-value	Decision
Internal examination performance	120	63.24	8.26	119	.173	.183	Rejected
External examination Performance	120	36.21	1.42				

Table 6 shows that the calculated value of .173 is less than the table value of .183 at .05 levels of significance. This means that the hypothesis that states that there is no significant relationship between student performance in internal and external examination is not rejected. That is, the performance of the students in external examinations is not determined by their performance in internal examinations.

CONCLUSION

The concepts formulated by total quality management founder, W. Edwards Dewing, have been suggested as a basis for achieving excellence in schools. Based on the results from data analysis and findings of the research, one can safely conclude the following:

1. There is a significant relationship between Total Quality management and student academic performance in Ilorin Metropolis secondary schools.
2. Human resources in Ilorin Metropolis secondary schools are inadequate which has also affected the students' academic performance.
3. The physical environment and resources still need to be improved upon interms of quality and quantity.
4. There is an effective communication among the staffs in the schools
5. There is no relationship between students academic performance in internal examinations and their performances in external examinations.
6. There is no universal standard of achievement for all students before permitting them to move to the next class
7. Staff professional development is not regular and inadequate. Due to the ever dynamic and changing nature of the professional demands, and the development of professional practices, training is a continuous process which lasts for the duration of the career of a committed professional teacher.

RECOMMENDATION

Based on the findings on this study, the following recommendations are made:

1. There is need to have a universal standard of achievement for all students in Ilorin metropolis secondary schools before permitting them to move to the next class. For instance, four or five credit and at least, a pass mark in English language and mathematics are needed to move to the next class.
2. In a bid to improve the performance of the teachers and school principals, there is need for them to always have a re-trained program on new methods of school based management.
3. It is also recommended that the process of developing a school's vision and mission and later on the strategic plan be a very consultative process, and involve all stakeholders including the parents and other critical friends of the school.

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