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Total Quality Management: A Technique for Improved Student Achievement

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Abstract

Total Quality Management (TQM) as a concept of management could be applied in any organisation including the school system. The goal of this study is to determine whether TQM was being practised in the system and the extent to which its practice in the school system has effected positively on student achievement. The core concepts of TQM were interpretatively translated into a checklist to collect data for the purpose and a simple questionnaire for the study was thus also designed to elicit relevant information from the students. It was discovered that TQM was practised in the sampled schools. Its practice invariably involved the student in decision-making leading to improvement in student achievement. The following recommendations were made: its practice should be improved upon to further enhance improved student performance, more schools should use it and all stakeholders should be involved in school management, and seminars on its importance should be held regularly for all stakeholders in the sector to make its practice more effective and thus further improve student achievement.

Background

School management need to yield maximum results in order to justify the investment in education by various stakeholders. Education is an enterprise and no enterprise without proper management can be of any benefit to the society. Management is a very dynamic profession, which is needed in every facet of a nation's economy. It employs various techniques/models to ensure maximum benefit and minimum cost for the said maximum benefit.

The Total Quality Management is one of such modern techniques/models that can be used in school management so that the learning outcomes including student achievement could be engendered.

The study, therefore, intend to outline how the application of the total quality management (TQM) technique by the school manager can engender the student achievement and also the student performance in certificate examinations.

What is Total Quality Management?

Centerpiece Consultants (2001) defines TQM as:

- Continuously meeting agreed customer requirements at the lowest cost, by releasing the potential of all employees.

- The integration of all functions and processes within an organisation in order to achieve continuous improvement of the quality of goods and services. The goal is customer satisfaction. Ibru (2002) sees TQM as systems approach to management which amount to continuously increase value to clients by designing and continuously revising the design.

- TQM expresses a way of thinking about and doing things in an organisation which enable the organisation to consistently achieve planned and continuous improvement in the quality of all its activities, processes, products, and services in order to meet or even exceed the expectations of the customer.

Akpeiyi (1996) posits that TQM is a customer-focused, performance-enhancing tool, which can be applied to any type of organisation. Thus, for our purpose, we may view TQM as a student-focused tool or technique which engender his performance/achievement. Akpeiyi further states that TQM balances the diverse elements of business (leadership, strategic planning, human resource development and management, work processes, management information system, external customers, employer, other stakeholders) and stimulate them to achieve excellent results.

Applying TQM to the school context would mean balancing the elements of leadership, strategic curriculum planning, teacher development and management, teaching, and provision of good instructional materials amongst others.

Onamusi (1997) posits that the implementation of TQM in an organisation portends that all hands must be on deck, it also calls for attitudinal change on the part of management and the managed. Leadership provided by the management in our context of discourse must be excellent.

Akpeiyi describes TQM as a revolutionary management tool that secures for its committed practitioners phenomenal benefits.

The very features of TQM are:

(1) A total commitment to quality.

(2) A total commitment to the customer (stakeholder/student).

(3) A total commitment to continuous quality improvement (CQI).

(4) A total commitment to employee (teacher) empowerment.

While Centerpiece Consultants (2001) posits the following as the key concept of TQM:

(1) Focus on providing effective free goals/objectives and services.

(2) Fully meeting or even exceeding the expectations and requirements agreed upon with the (students/stakeholders) customer.

(3) Doing things right, on time, first time and all the time.

(4) Precisely defining the requirements of the customer (stakeholder/student) and measures to ensure the satisfaction of the (stakeholders/students) customers (if it cannot be measured, then it is not quality).

(5) Investment in prevention in order to reduce cost of rework.

(6) Continuous improvement in the search for excellence (excellence in journey, not a destruction).

(7) Quality has four dimensions - technical, functional, process and relational. Akpeiyi posits the following core concepts of TQM.

(1) Achieve quality in everything: people, processes, products and services.

(2) Do the right things right, first time everytime.

(3) Have visceral commitment to, and obsession for customers (stakeholders/ students).

(4) Continuously strive for improvement.

(5) Strengthen the supplier-customer chain (teacher/student)

(6) Manage business (teaching) through team building and team working.

(7) Flatten hierarchies and have stable structure.

(8) Reduce cost of bad quality by investing substantially in cost of good quality.

(9) Use of TQ tools to generate hard facts to manage (teaching) business problems which should be tackled proactively, use total quality tools to generate hard facts to manage (teaching) business rather than depend on opinions or whims.

(10)Use structural process when solving (teaching business problems, which should be tackled proactively.

(11)Provide quality leadership and motivation to enable all teachers (employees) commit to the total quality process.

Dimensions of TQM in Schools

Technical Quality: denote the fact that specifications like behavioural objectives are built into the school product/service which is educating.

Functional quality implies the performance of the product/service of the teacher, i.e. the degree to which the service of the teacher fulfils the functions it was intended to perform. Basically, the function of the teacher is to raise up the taught to a standard, that the student can attain all that is required of the educand to attain at a particular point in time.

Process Quality: refers to the quality of transactions i.e. the way both internal customer (student) and teacher interacts in the classroom/laboratory when the service of teaching is being delivered.

Functional quality implies the performance of the product/service of the teacher, i.e. the degree to which the service of the teacher fulfils the functions it was intended to perform. Basically, the function of the teacher is to raise up the taught to a standard that he can attain all that is required of the taught to attain at a particular point in time.

Relational Quality: implies the way the customer-student or stakeholder is treated after the delivery of the service of teaching. TQM in schools will view the student as "king" and as "always right" - both express the need for being student oriented school. This requires that each teacher adopt a service attitude, offering total instructional service, taking holistic or comprehensive needs of the student. It portends the fact that determination of the student need is done in conjunction with him/her. Have ombudsman kind of system of identifying and handling the complaints. Ombudsman in this school sense can be the school guidance counsellor.

TQM is a commitment to improvement in the sense that the school acknowledges better ways of achieving better results, planning quality improvement noting, the on-going nature of quality improvement, analysing different instructional strategies or combining a number of instructional strategies so as to improve the quality of instruction.

It is noteworthy that TQM is a process to manage change and respond to the dynamics of the environment rather than

being a fixed goal for an institution or organisation. Therefore, TQM rather than pursue a fixed institutional goal, pursue programme which respond rapidly to societal and environmental dynamics.

According to Akpeiye, TQM tool is used to achieve excellence if and only if the necessary time and effort are invested in it. Thus, having the TQM tool in the school system implies the investment of time and effort in the people i.e. students and teachers. TQM is aimed at achieving better employee relations, higher productivity, greater customer (student) satisfaction, increased market and improved profitability (benefits/results).

There is a great investment implication for the use of TQM technique in schools because it calls for adequate infrastructural provisions such as conducive school environment, instructional equipment, appropriate staff development strategy, accountability programme through an inbuilt evaluation to enhance quality of the school products among others.

Ibru (2002) posits that quality has evolved through four major areas as follows:

1. the inspection era;
2. statistical quality control era;
3. quality assurance era; and
4. strategic quality management.

According to her, Dr. W. Edwards Deming fathered the TQM. His revised 14 points of management are listed below:

1. Management must demonstrate constantly their commitment to the clearly stated purposes of (an institution).
2. Learn new philosophy (management and everybody).

3. Understand the purpose of inspection, for improvement of processes and reduction of cost.
4. End the practice of awarding business on the basis of price tag alone.
5. Improve constantly and forever the system of production and service.
6. Institute training.
7. Teach institute leadership.
8. Drive out fear. Create trust. Create options for innovations.
9. Optimize toward the purposes of the institution. The efforts of teams, groups, staff areas.
10. Eliminate extortion of the workforce.
11. Eliminate numerical quotas for production and institute method for improvement. Eliminate management by objectives and improve the capabilities.
12. Remove barriers that rob people of pride of workmanship.
13. Encourage education and self-improvement for everyone.
14. Take action to accomplish the transformation.

The major items of TQM are:

1. Clientele and clientele value
2. Continuous improvement
3. Process and the System; processes refer to groups of activities that take input and add value to it, an output to both internal and external clientele (customer) systems are the collections of processes and resources.

The basic goals of TQM are:

1.   Customer/clientele satisfaction

2.   Continuous improvement

3.   Staff development

4.   Increased profitability/productivity/ benefits.

TQM in School

The purpose of applying TQM in the school system is to satisfy stakeholders in the education industry, to improve the education system output, to develop the school system personnel for increased and quality productivity in the education sector of an economy. Stakeholders in education are multifarious namely: Government, the community, industries and other enterprises, utilising the products of the system, parents, school workforce. The pupil has triple role in the system as an input, an output and a participant in the process system of the sector.

The pupil, therefore, should be the main focus of TQM in the system. This is so, because the pupil is an input into the system who would be brought out as improved output through the process of transformation from being an input to becoming an output. This would be incomplete without his active cooperation or participation. He must, therefore, be a participant at the decision-making level of the application of TQM or at the level of defining behavioural objectives. In other words, his views as to what constitute the desirable educational outcomes should be taken cognisance of. The school management and the individual teacher constitute the major processor of education system in terms of management and the teaching process. The stakeholders other than the aforementioned include parents, government, community, industries all of whom need to be part of the implementation of TQM scheme in the school system, if it were to be successful, every stakeholder needs to develop interest in the use of TQM in schools, in order to improve the lot and performance of the pupil as well as help develop the most important indicator of national wealth - the human resource.

The Problem of this Study

The objective of this investigation is the determination of how much the application of TQM in the school system has helped to improve student achievement.

Research Questions

In the light of the objective of this study the following questions were addressed.

1.   Does the school system apply the TQM in its management?

2.   Do the pupils have any input into the application of TQM?

3.   Has the application of TQM in the school system improved student achievement?

Scope

This research covers selected schools in the five Local Government Areas of Adavi, Ajaokuta, Ogori-mangongo, Okehi and Okene that make up the Central Senatorial District of Kogi State, Nigeria.

Research Methodology

Design: The design for the study was *ex post facto*, because the variables in the study are non-manipulable, since their occurrence had taken place.

Sampling: multistage random sampling was adopted in the study as follows: Selection of schools: Three schools were randomly selected from each local government making a total of fifteen schools. All the principals were part of the sample, while 19 teachers were then randomly selected from each school.

The student samples were randomly drawn from SS2 in each school. Ten students were also drawn from each school giving a total of 300 students. The total sample is made up of 150 teachers including the principals and 300 students totalling 450 subjects in all.

Instrumentation

Based on the core concepts of TQM and the various samples for this investigation a checklist to test the basic understanding of TQM concepts and their application in the school system was constructed. The first instrument, which contains thirteen items, was constructed by the researcher based on thirteen of the concepts of the application of total quality management in an organisation particularly educational institution. Its construction was also premised on the assumption that all stakeholders in the organisation should be aware of its practice or else it is not TQM that is being practiced. This checklist is the school manager/teacher TQM checklist in which they were required to rate the item of TQM as very high, high or low as regards the practice and effectiveness of TQM and the resultant improvement in student learning outcomes. Management experts with bias for the practice of TQM were consulted for both face and content validity of the school manager/teacher TQM checklist before a trial testing of the instrument was carried out on ten subjects. The trial testing after analysis was found valid at coefficient of 0.79 (employing test-retest technique by administering it twice on subjects not used in the study).

The second instrument is the students TQM simple questionnaire consisting of simple response of either yes or no to determine the student's awareness of the use of TQM management principle in his school and his level of improvement in the practice of TQM, since it is a notion that expects all to participate in its execution. It consists of ten items. It was constructed by the researcher who carried a pilot test of the instrument on twenty randomly selected students from a school, which practices TQM in its administration and teaching (curriculum execution). It was found to be valid at cronbach alpha coefficient of 0.84.

Specimen 1: Checklist on the Practice and Effectiveness of TQM in Schools

Item	*	Very high	High	Low
1	Quality attainment (transactions, pupils, teachers)			
2.	Are things right the first time every time?			
3.	Is there any striving for continuous improvement?			
4	Is there commitment to students/teachers welfare			
5	Any interactive session between teacher/student on trial learning?			
6	State of team building and team working			
7	Application of structured approval to solving problems			
8	Staldo structures in place			
9	Quality of teachers			
10	Structural technique in generating information/data			
11	Leadership quality			
12	Motivational quality			
13	How much did the practice of TQM improve students achievement			

NB: Instruction indicates the extent to which you perceived that appropriate look.

Specimen 2: The Student (Pupil) Questionnaire on Practice of TQM in Schools

Instruction: indicate your knowledge of each item below by ticking the correct responses.

1. Have you ever heard of TQM in your school?   Yes/No
2. Is TQM being practised in your school?   Yes/No
3. Is TQM effective in your school?   Yes/No
4. Any interaction session between teachers and students on TQM? Yes/No
5. Any commitment to students' welfare in your school? Yes/No
6. Have you ever had any feedback about your performance on one to one basis? Yes/No
7. Have you ever been counselled on how you can improve   Yes/No
8. Have you been taught to set goals (target) of accomplishment for yourself? Yes/No
9. Do you know how to systematically solve problems?   Yes/No
10. Do you study in a team with other students?   Yes/No
11. Has your performance improved as a result of all of the above? Yes/No

Data Collection Strategy and Analysis

The first instrument was administered on the principals, randomly selected teachers in the sampled schools twice thus multiplying number of subjects in this category by two and the other on three hundred students randomly selected from SS2 of each school. The data were analysed using simple percentage for which the data lent itself.

Findings and Discussion

Table 1: Analysis of the School Manager/Teacher TQM Checklist

Item No	Very high	%	High	%	Low	%
1	196	65.3	84	28	20	6.7
2	172	57.3	128	42.7	-	0
3	158	52.7	118	39.3	24	8
4	160	53.3	120	40	20	6.7
5	154	51.3	88	29.3	58.	19.3
6	162	54	100	33.3	38	12.7
7	162	54	98	32.7	40	13.3
8	138	46	82	32.7	80	26.7
9	190	63.3	70	27.3	40	13.3
10	202	67.3	52	17.3	46	15.3
11	198	66	58	19.3	44	14.7
12	198	66	58	19.3	44	14.7
13	228	76	72	24	-	0

Table 1 above shows the responses of the school managers/teachers in the study to checklist items on the core concepts of the TQM technique of management in their respective schools and how its TQM's practice has affected improvement in student achievement.

280 out of 300 subjects in this category believe that there is qualitative attainment of school set objectives and goals by the involvement of teachers and students on school transactions (operations). This constitutes 93.3% of the sample, while 20 or 6.7% of the students felt otherwise.

300 (100%) agreed that the right things are done right the first time, implying that the right people are put in the right place and because they are knowledgeable in what they are doing, they do them well, the very first time they try such: be it methodology or other practices, since both the teachers, students and other stakeholders are involved and are also well informed about the operations of the school in improving learning outcomes particularly student achievement. 276 (92%) perceived the application of TQM in schools as siring continuously to improve the student achievement while only 8% (24) did not agree that it does or insisting its impact in that direction is insignificant. Another 280 (93.3%) managers/teachers agreed on the fact that there is the practice of TQM in their schools because there is commitment to teachers/students welfare to enhance the accomplishment of school goals/objectives of achieving better learning outcomes and particularly of improving students' achievement. Only 6.7% sees its practice as impactless. The practice of TQM also manifests in the interaction among managers, teachers, students and other stakeholders in the sector (80.6%). 77.3% agreed on its team building/team working nature as manifesting in its practice while 22.7% did not think so. 73.3% believes that there was structured or systematic approach to problem solving in the system, 26.7% feels the contrary. 86.6% rated the quality of teachers as high and 13.3% feels otherwise. 84.6% agreed that TQM practice results in generating information.

Leadership quality and motivational quality manifested in the practice of TQM in schools were put at 85.3% for both. The question on whether or not it has improved student achievement was answered in the affirmative by all respondents in this category (100%). Implying TQM in schools improve students' performances thus confirming that TQM is a tool for improving performance in all its ramification (Akpeiyi, 1996; Onamusi, 1997; Ibru, 2002). The conclusion is that TQM is practiced in the schools in Kogi Central and its practice has led to improvement in student achievement from the perspective of the school managers and teachers. From the students perspective, TQM is being practiced because:

- 66% of student respondents heard about the practice of TQM as against 34% who did not hear of it.

- 67.3% knew of its practice in their school while 34% knew nothing about TQM.

- 59.3% said TQM was effective while 40.7 thought otherwise.

- 61.3% claimed there were interactive sessions with the students but 38.7% said nothing of the sort took place.

- 66.7% agreed that there was commitment to students welfare with a core concept of TQM while the rest of the respondent in this category didn't think so.

- 65.3% got feedback on one to one basis, the others did not get feedback.

- 68% were counselled on how they can improve their performance

- 63.3% against 34.7% had been taught to set goal of accomplishment.

- 64.7% against 35.3% know how to systematically solve problems.

- The same number/percentage had been involved in teamwork.

- 66% against 34% agreed that TQM has improved their achievement/performance.

Table II: Student TQM Questionnaire of Student Acknowledging Awareness of TQM Practice and Effectiveness in Improving School Performance

Item No	No of Yes	%	No of No	%	Item No	No of Yes	%	No of No	%
1	198	66	102	34	11	198	66	102	34
2	202	67.32	98	32.68					
3	178	59.33	162	40.67					
4	184	61.33	58116	38.67					
5	200	66.67	50100	33.33					
6	196	65.33	52104	34.67					
7	204	68.00	48196	32.00					
8	190	63.33	55110	36.67					
9	194	64.67	53106	35.33					
10	194	64.67	53106	35.33					

The main implication of the above responses to the practice of TQM, is the understanding of the core concepts of TQM and the fact that TQM improves students' achievement as far as the majority of the students were concerned. A fair number of the student respondents lacked the knowledge and understanding of TQM and its practice. But the study nevertheless, confirmed the fact that it was being practiced in the sampled schools, improves student achievement and the fact that one way or the other the students make input into the application of TQM in their schools. These confirmed the postulation of Akpeiyi (1996), Onamusi (1997) and Ibru (2002) that the practice/application of TQM get all stakeholders involved in the system and leads to increased productivity. In summary, therefore, the study found that TQM was applied in the management of the fifteen schools in the sample for this study, that its application brought the students into decision making process of the school system and led to the improvement of student achievement.

Conclusion

From the findings and the subsequent analysis that follows, the following conclusions can be drawn:

- That there was the practice of total quality management in schools, but not all.
- Members of the school system are aware of its application, though majority do not.
- The application of TQM improves learning outcomes in schools, particularly with regard to, student achievement.
- The students in whose school TQM was practised were involved in decision-making process concerning their own improvement.
- The teachers also felt more sense of belonging as a result of TQM practice in their schools.

Recommendation

The following recommendations are thus made:

- That the practice of TQM in schools need to be further enhanced and improved for better learning outcome/ student achievement.
- That all stakeholders must be involved in its practice in the school to make it more meaningful.
- That the schools where it is not being practiced should introduce it for better results.
- That its continued practice must be encouraged and sustained.
- Seminars on TQM should be organised for school managers, teachers and other stakeholders for better implementation of the programme in the school system.

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