

Development of ICT Tool for Enforcing/Monitoring Quality Assurance in Tertiary Education In Nigeria

Ogunlola O.O¹, Fele T², Abiodun O.A.³

^{1,2,3}Department of Computer Science, The Federal Polytechnic, Ado Ekiti Nigeria.

Abstract:- The wealth of a nation is in education of her citizens. Ensuring quality assurance in Nigerian tertiary Institutions is a big issue that needed attention. Regulating bodies responsible for quality assurance in Nigerian Institutions only ensuring through accreditation exercise which periodical, about five years interval. This exercise is not learners focus but more of facilities focus. A system that will ensure learners' focus is essential so as to make the lecturers deliver as expected. This system is proposed by this research work. A web based system is designed and implemented. The system enables students to evaluate all lectures immediately each lectures end and throughout the semester. In this way, management committee saddles with responsibility of ensuring quality assurance get regular feedback on service delivery of all lecturers' performance. The system was hosted for about 10 months which was a period of testing. The system takes averagely 12 minutes to complete and an average response time of 0.0008 milliseconds (time in between time of submission and display of evaluation result). It was also observed that was improvement in service among the lecturers used as the awareness increases. This system only ensure feedback from students on mode of service delivery from their lecturers while it is expected that managers of our tertiary Institutions will ensure all necessary equipment and facilities are provided to ensure learning process are in place.

1.0 Introduction

Education is the most crucial instrument to the growth of any nation (Oladipo et al, 2009). As some nations in the world yearn for democracy and its sustainability, there is a need for an uneven attention to be given to the educational sector because it is the bedrock for national transformation and economic growth. Poor quality education creates an obstacle to political, social and economic transformation. A nation can be brought down by destroying her educational sector steadily. The quality of higher education in a nation determines the wealth and poverty of that nation (Egwe, 2016).

ETF (1999) described quality of higher education as the extent to which the education meets the client's needs and demands. In this case, students and society are the two identified clients. Thangeda et al. (2016) submitted that quality education should equip learners with competence to construe things rightly and applying the collected information in real life situations. All of these are essential to development of wealthy and healthy nations.

Quality Assurance (QA) refers to a process-centered approach for certifying that a company or organization is providing the best possible products or services (Barker, 1999; Klesta & Bartz, 1996; Mok et al 2003; Almadani et al 2011). It focuses on enhancing and improving the process that is used to create the end result, rather than focusing on the result itself. Quality assurance can be described as: A planned and systematic activities to provide adequate assurance that a product or service is filling given

requirements of quality (Almadani et al., 2011; Corengia et al, 2014). The *product* can be gotten in terms of the learners and what they have gained from their journey through education. A *service* has been offered to them and the question is the extent to which that service has changed them educationally so that they can be seen to have achieved what they are capable of achieving. (Almadani et al. 2011; Oladipo et al, 2009; Nkang 2013; Thune, 2005).

2.0 Approaches to Quality Assurance in Tertiary Institutions

Accreditation, assessment and audits are the three approaches identified by Kis (2005) for quality assurance in the tertiary Institution. There some overseeing government bodies set up to accredit tertiary Institution. This is main exercise which most institutions prepare for in ensuring some qualities. After the accreditation, most institution relaxed until for another 4 to 5 years when another exercise will be coming up. Adegbesan (2011) and Moses & Kingsley (2013) listed curriculum review as part of quality assurance methods.

Going by the description of quality assurance in tertiary institutions as to include all policies, measures, planned processes and actions through which the quality of higher education is maintained and developed (Akpan Esirah, 2005; Almadani et al. 2011), there is no limit to those approaches that can be used. The proposed approach in this paper is the evaluation of lectures and lecturers attitude to towards their service delivery. This is expected to be carried out regularly by students in attendance of the lectures.

Evaluation to be done regularly without much error, it has to go in the way of ICT. This work proposed an evaluation of lecturers services by their direct clients (students). This will actually determine if the students are satisfied with the service delivered by their lecturers.

3.0 Motivation

Most institutions rely on accreditation for ensuring or measuring their quality assurance. This approach is very faulty as most institutions play around the exercise in ensuring that the needful are put in place to record success thereby not reflecting the real situation of the institution. The focus here is not on the students. There is need for a system that will be student's focused by making the students ensuring the process of learning working. This necessitates this work. This work ensures that student evaluate each lectures and feedback are sent to relevant authority to ensure that the needful is done thereby making students the focus of services in our tertiary institutions.

4.0 The Methods

4.1 The design

The system consists of two main modules. These are set up and evaluation modules. This is depicting in the use case and activity diagram in figures 1 and 2 respectively.

4.1.1 The Set-up Module: this module ensures registration of students, lecturers and uploading of courses in the Institution. Names, registration numbers, department and level of all students are captured at the student setup sub module while details of lecturers are captured by the lecturers set up sub module. Lecturers’ names, staff numbers, departments and courses taken in each semester are details for lecturers while courses are uploaded based on the course registration of each department.

4.1.2 The Evaluation Module: this allows each registered student to evaluate each lecture on weekly basis. The evaluation is expected to be done immediately after the lectures. Questions relating to the lecturer’s delivery are asked and students in attendance are expected to respond to them. The questions are fifteen in number and range from punctuality to the class to exit of the lecturer. Other factors evaluated are attitude of the lecturer to students’ questions, class work and his/her ability to attend to previous assignment given and take assignment in the current class.

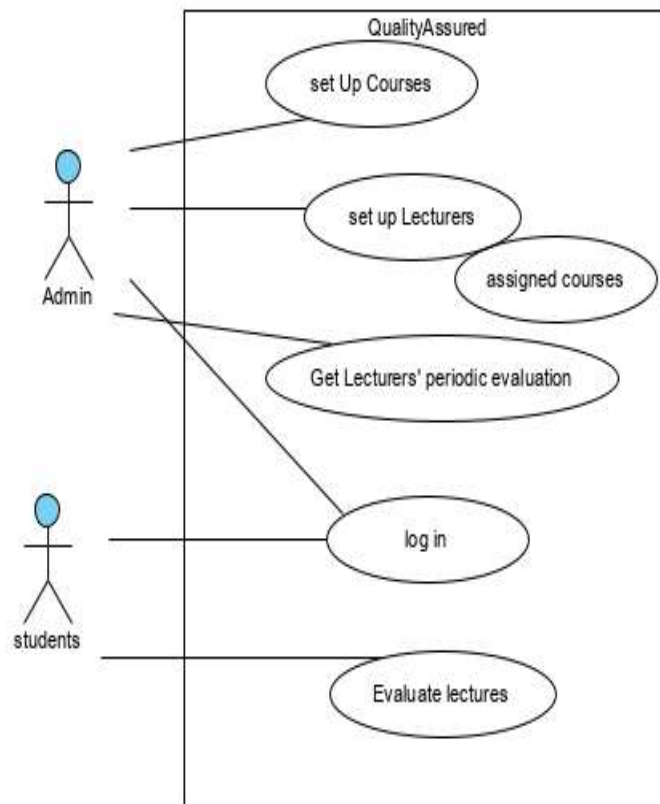


Figure 1: Use Case of QA Tool

Each of the questions is attached certain score so each lecture is scored per student as:

$$A = \sum_{i=1}^{15} q_i \text{ equation 1}$$

While for all attendance of the lecture will have:

$$B = \sum_{j=1}^k A_j \text{ equation 2}$$

Where k is number students in attendance. K may vary from class to class.

The average score in this class is given by:

$$C = \frac{\sum_{j=1}^k A_j}{k} \text{ equation 3}$$

In most situation, a lecturer takes more than one class, enhance the cumulative average score from each class will be given by :

$$D = \frac{\sum_{m=1}^t C_m}{t} \text{ equation 4}$$

Where t is the number of lectures taken by a particular lecturer in a particular semester.

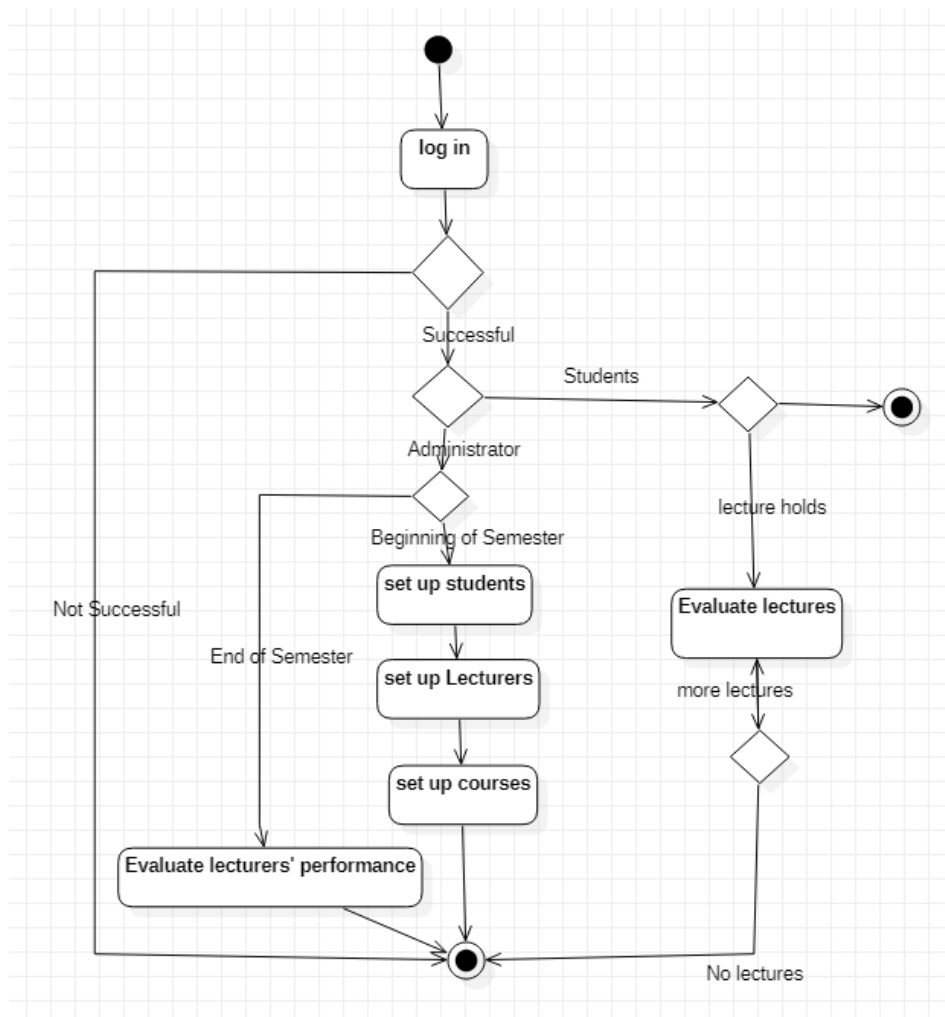


Figure 2: Activity Diagram of QA Tool

Value of D is communicated to relevant authorities in the Institution which are expected to take decision on the concerned lecturer if performance is below benchmark. This is essential because this performance eventually build up to the overall performance of such lecturer which is given as:

$$E = \frac{\sum_{n=1}^p D_n}{p} \text{ equation 5}$$

Where p is the number of lecture weeks in a semester.

$E = \{E_1, E_2, E_3, E_4 \dots E_r\}$ is expected result from the system that will be published at the end of semester on performance of lecturers. r is total number of lecturers engaged for service in an evaluated semester.

4.2 Implementation

The system is a web based solution where the students are expected to login into based on course registered for and access given by the admin. The students are expected to log in and answer the questions relating to the lectures attended not later than 10 hours after the lecture must have taken place on daily basis. The application is named **myclassmonitor**.

The some screenshots of the application are shown in figures 3 to 7

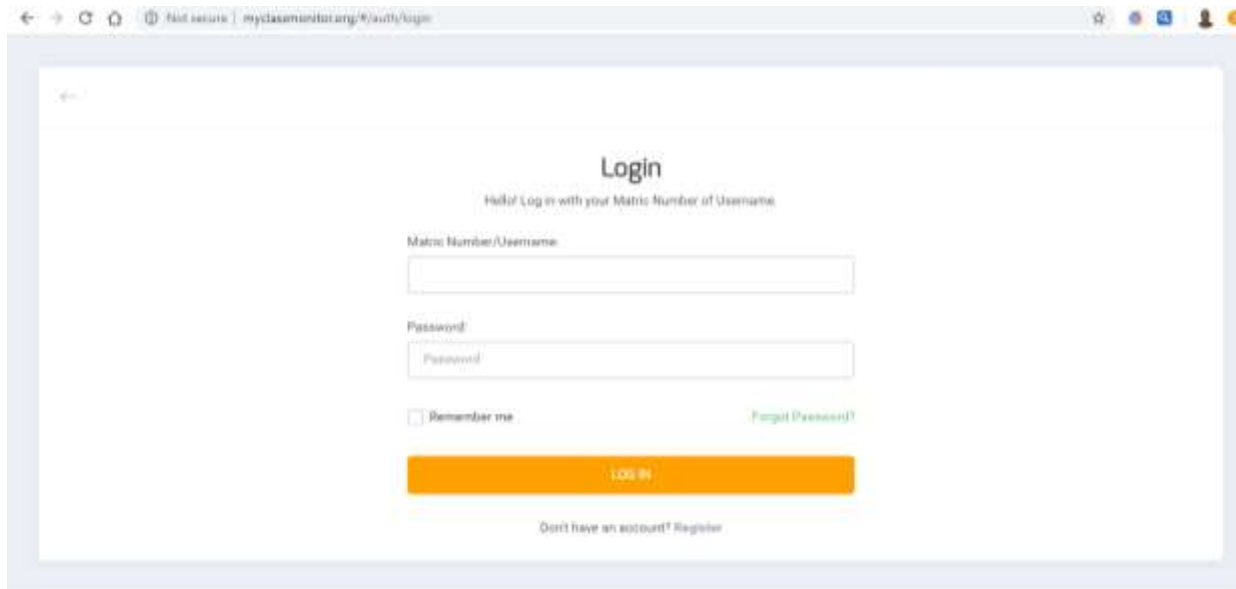


Figure 3: Log in screen

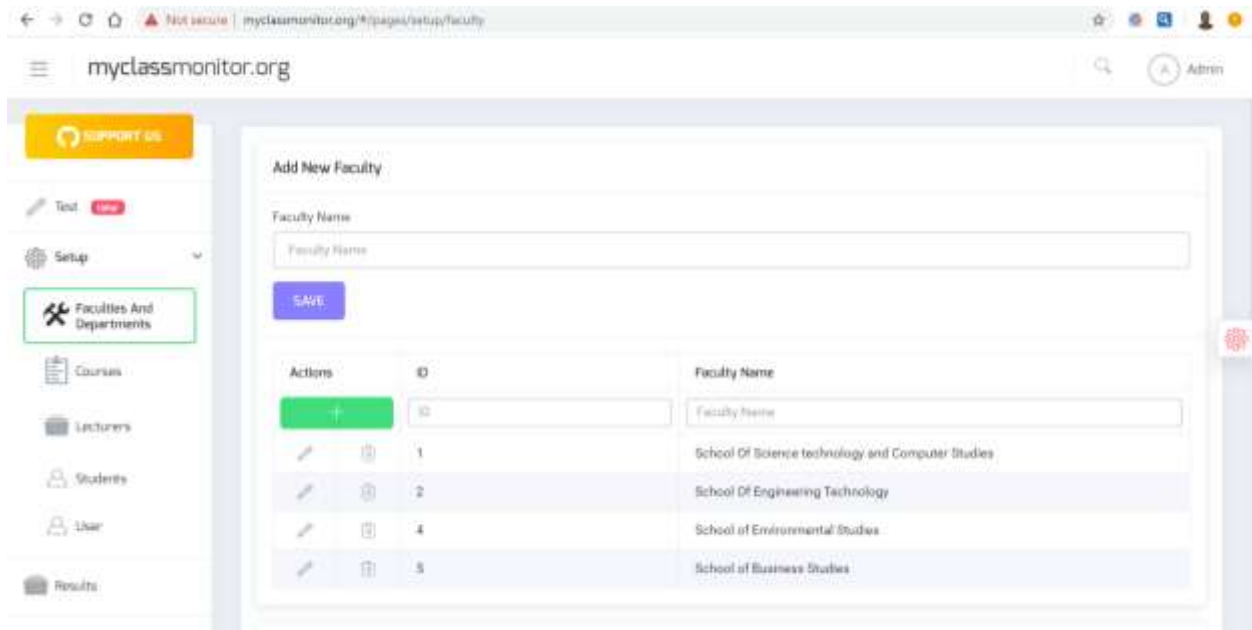


Figure 4: Faculty and Department set up screen

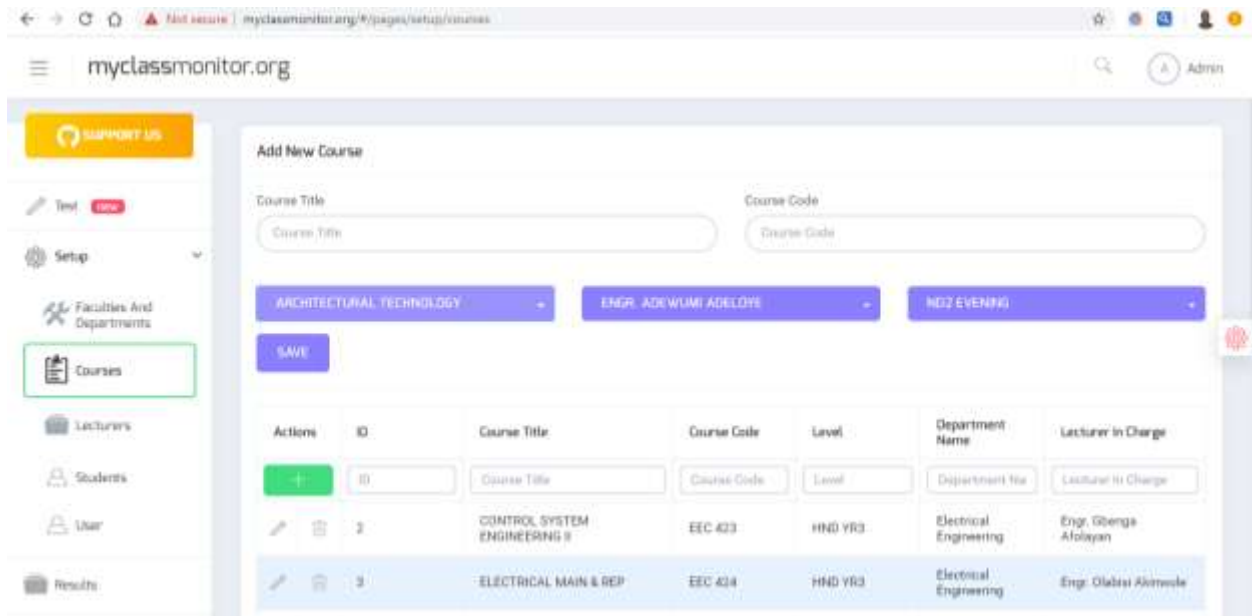


Figure 5: Course and lecturer set up screen

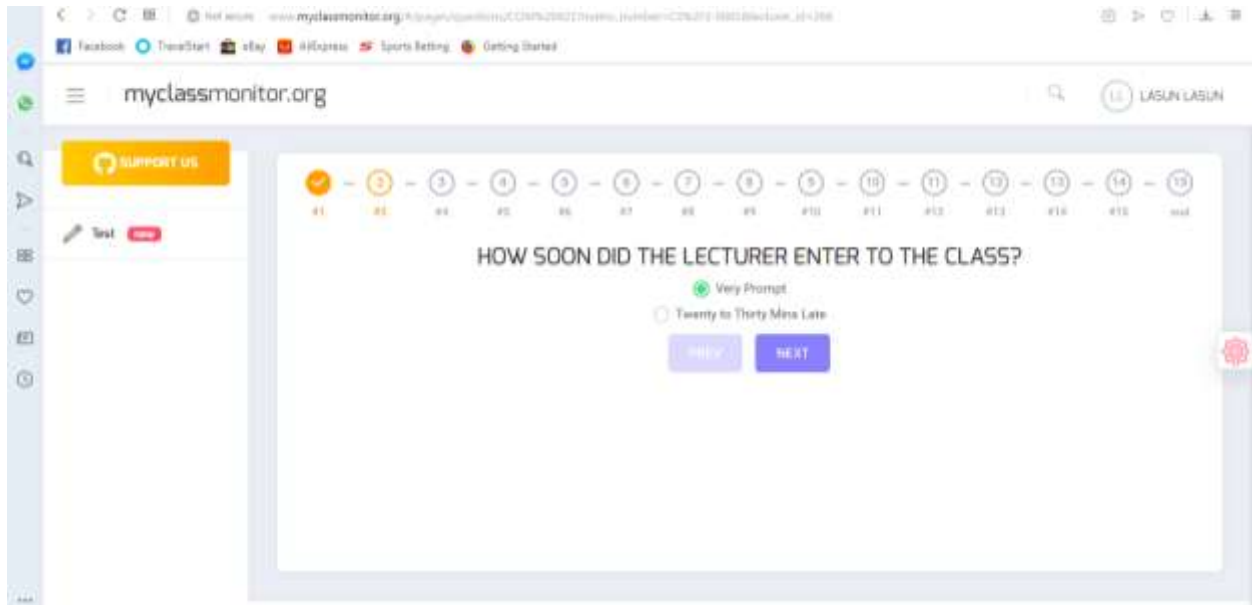


Figure 6: A sample Question Screen

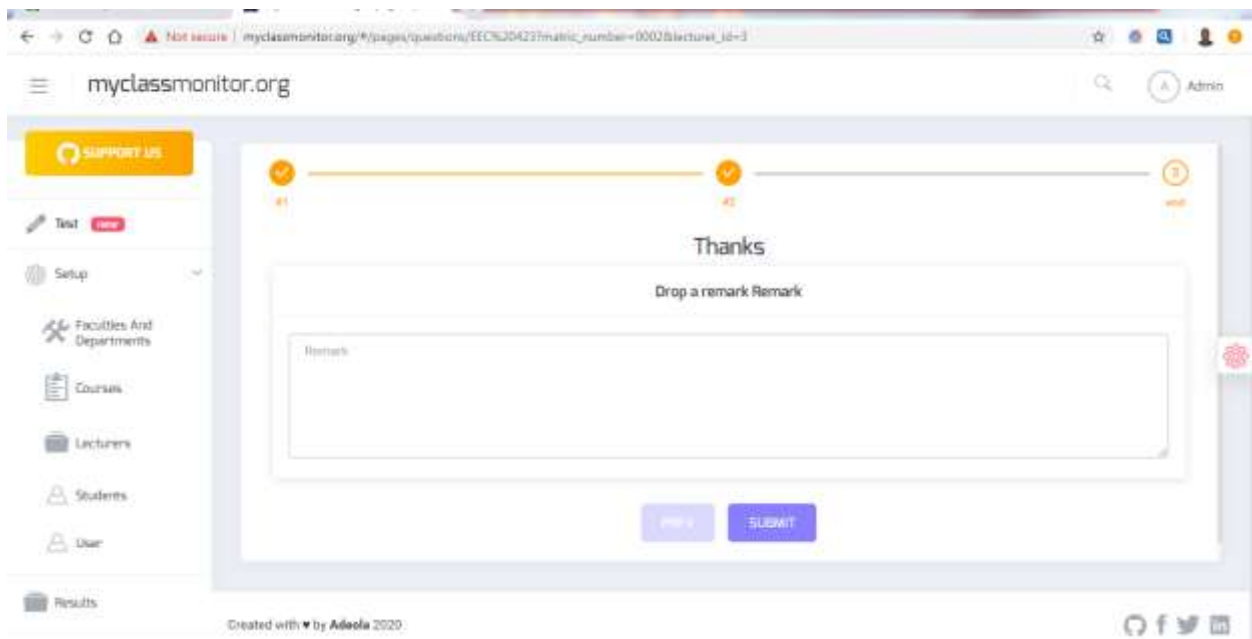


Figure 7: Submission Screen

The application was hosted for about 10 months on URL www.myclassmonitor.org. Some selected classes were used to test the implementation. In ensuring this, students from those classes were enlisted as students-users while five selected lecturers were also engaged taken these classes 7 courses altogether. The test was done for a semester of about 15 weeks with one week of registration, 12 weeks of lectures and 2 weeks of lectures with 12 weeks only considered.

The system was monitored on weekly basis and evaluation reports were generated for each of the weeks (see Appendix). The overall report at the end of the twelfth week is presented on Table 1.

The system takes averagely 12 minutes to complete and an average response time of 0.0008 milliseconds (time in between time of submission and display of evaluation result). It was also observed that was improvement in service among the lecturers used as the awareness increases.

Table 1: Evaluation table for 5 Staff after 12 Weeks of Lectures

Staff Name	Evaluation (%)
Lect 1	73.26
Lect 2	74.29
Lect 3	70.59
Lect 4	69.02
Lect 5	72.13

5.0 Conclusions

Any society not given desired attention to education of her citizen is a society going into extinction. The best a national can give is a quality education and ensuring this, a system of this nature must be put in place. This system allows students to anonymously evaluate the service of their lecturers at every lecture and the report of evaluation is communicated to relevant Management Committee of the Institution that will take appropriate action towards ensuring quality delivery of service at our tertiary Institutions.

This system is not enough to ensure quality of education, if managers of our Institutions do not put in place necessary equipment and facilities that will make the teaching and learning process possible. This system simply ensures that the lecturers do what is expected of them using appropriate teaching approach and provided facilities for learning process.

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7.0 Appendix

Results from the system over a period of twelve weeks

week 1	
staff Name	Evalauation (%)
Lect 1	54.02
Lect 2	51.04
Lect 3	33.24
Lect 4	45.44
Lect 5	49.09

week 5	
staff Name	Evalauation (%)
Lect 1	75.02
Lect 2	83.71
Lect 3	86.31
Lect 4	75.03
Lect 5	73.01

week 2	
staff Name	Evalauation (%)
Lect 1	66.41
Lect 2	72.4
Lect 3	64.03
Lect 4	58.96
Lect 5	69.1

week 6	
staff Name	Evalauation (%)
Lect 1	77.11
Lect 2	73.09
Lect 3	73.53
Lect 4	83.23
Lect 5	73.12

week 3	
staff Name	Evalauation (%)
Lect 1	71.34
Lect 2	70.01
Lect 3	67.81
Lect 4	69.44
Lect 5	70.12

week 7	
staff Name	Evalauation (%)
Lect 1	65.12
Lect 2	77.01
Lect 3	72.59
Lect 4	59.01
Lect 5	79.33

week 4	
staff Name	Evalauation (%)
Lect 1	69.41
Lect 2	73.5
Lect 3	81.08
Lect 4	57.09
Lect 5	87.11

week 8	
staff Name	Evalauation (%)
Lect 1	81.71
Lect 2	75.06
Lect 3	76.99
Lect 4	79.17
Lect 5	72.8

week 9	
staff Name	Evalauation (%)
Lect 1	82.01
Lect 2	88.5
Lect 3	61.67
Lect 4	78.34
Lect 5	69.91

week 10	
staff Name	Evalauation (%)
Lect 1	78.9
Lect 2	77.01
Lect 3	79.56
Lect 4	79.9
Lect 5	67.9

week 11	
staff Name	Evalauation (%)
Lect 1	81
Lect 2	71.11
Lect 3	80.31
Lect 4	71.18
Lect 5	77.1

week 12	
staff Name	Evalauation (%)
Lect 1	77.01
Lect 2	79.01
Lect 3	69.9
Lect 4	71.41
Lect 5	77.01