



APPLICATION OF INFORMATION MANAGEMENT SYSTEM FOR QUALITY ASSURANCE IN THE 21ST CENTURY TERTIARY INSTITUTIONS

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ABSTRACT

The study investigated the application of information management system for quality assurance in the 21st century in tertiary institutions in Rivers State, Nigeria. Four objectives guided the study. The study adopted a correlation research design. The population of the study was 2330 lecturers from University of Port Harcourt, Rivers State University Port Harcourt, and Ignatius Ajuru University of Education, Port Harcourt. A sample size of 699 lecturers representing 30% of the population was used. An instrument titled Application of Information Management System for Quality Assurance Scale” (AIMSQAS) was used for data collection. Face and content validities were ensured. The internal consistency reliability coefficient of 0.88 was established for AIMSQAS through Cronbach Alpha. Mean and standard deviation were used to answer the research questions while the hypotheses were tested using z-test and ANOVA set at 0.05 level of significance. It was found that proper application of process control system, human resource system, management report system and decision support system can enhance quality assurance in the tertiary institutions in Rivers State. It was recommended among others that the school administrators should develop the attitude of management report system. Internal supervision and inspection by lecturers who have cognate experience should be employed when the need arises.

Keywords: Application, Information, Management, Quality, Assurance, Information Management System, Quality Assurance, Tertiary Institution.

Reference to this paper should be made as follows:

Anyanugo, M. O. (2019). Application of Information Management System for Quality Assurance in the 21st Century Tertiary Institutions. *International Journal of Institutional Leadership, Policy and Management*, 1(1), 1-26.

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INTRODUCTION

The study was solely derived to investigate the application of information management system for quality assurance in the 21st century in tertiary institutions. With the rise of the industrial revolution brought about more specialization in labor as well as mechanization. With the

introduction of mass production, the need to monitor the quality of components that is produced by numerous workers created the role for quality inspectors. This brought about statistical quality control or statistical process control which utilizes methods to help ensure that the quality of goods and services meet requirement. The simplification and the automation of the process of data collection and its analysis can be made possible with quality control information system. This called for intensified efforts towards information management.

The need for intensive training is necessary to equip higher education quality assurance personnel with the foundation for efficient and effective operations. Pertinent aspects to be covered include internal and external quality assurance such as strategies for developing promoting and sustaining the quality culture, quality assurance policies, manuals and management systems, research quality, curriculum design and review, teaching and learning, effective student assessment, dealing with resistance to quality assurance, preparing for institutional program accreditation.

The designing and use of communication, documentation and data collection tools in quality assurance could aid in monitoring and evaluation of students and staff. From the foregoing, the importance of quality education in the Nigerian university system through information management system cannot be over-emphasized. Our educational systems need to be more vibrant in the quality of its product. The proliferation of university education has made it so competitive that concerted efforts are made by universities to internalize the culture of quality in their production function in order to produce graduates who can compete with the global demand. Part of the internal quality assurance mechanisms adopted by the universities in Rivers State as a medium for improving the overall quality of certification of output is through the information management system. The relevance of universities in the 21st century largely depend on their ability to undertake and improve on her information management system. With the application of IMS, such universities will be able to educate and produce highly educated refined graduates with productive capacity for economic development. We must be conscious that the process of educating across the nation is rapidly changing, due to the role of information technology in universities. Unlike before, exchange programmes and linkages, student's mobility, graduates and their employees, together with learning resources are now more globalized. The essence is to bring about quality in our education.

Statement of the Problem

The quality of output of students in our Nigerian Universities has been an issue of worry. Individual schools have devised means to impact quality into her system. Despite the fact that Information Management System has always formed an aspect through which these institutions bring about quality into her system, it has not been properly managed even if the schools have the medium for it. For this poor management, students do not even know changes in their course outline; lecturers unaware of meetings held and even when to submit results. All these are caused as a result of ineffective communication system. The consequences of this are failure on the part of the lecturers, poor quality delivery, and may even present the school on a bad image. The researcher is envisaging that if there is a proper application of Information management System in our tertiary Institutions it will lead to quality assurance in our schools. Hence, the researcher investigated the application of information management system in the areas of quality control, decision-making, human resource control for quality assurance in our Universities in Rivers State.

Aim and Objectives of the Study

The study was aimed at investigating the application of information management system for quality assurance in the 21st century in tertiary institutions in Rivers State, Nigeria. Specifically, the study sought to:

- Ascertain ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- Determine ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- Find out ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- Establish ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Research Questions

The following research questions were answered:

- What are the ways information process control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?
- What are the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?
- What are the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?
- What are the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?

Hypotheses

The following null hypotheses were tested at 0.05 level of significance:

- There is no significant difference between male and female lecturers on the ways information process control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is no significant difference among lecturers in the three universities on the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is no significant difference between male and female lecturers on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is no significant difference among lecturers in the three universities on the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

CONCEPTUALIZATION

Quality

It could be seen as the standard of something as measured against other things of a similar kind; the degree of excellence of something. Quality is the degree to which a commodity meets the requirement of the customer at the start of its life. The effects of quality are usually experienced by the customer. The product quality perception comes from your design specifications and the manufactured standards achieved. Service quality perception comes from your service process design and standard of delivery.

Quality is often delivered when you achieve the minimum requirement of a specified performance standard. It is a specified performance range. Once you get into the range of required performance and you have quality. Peter F. Druker agrees that “quality in a product or service is not what the supplier puts in; it is what the customer gets out and is willing to pay for” (Cohen, 2011). Quality is virtually what the supplier puts in. It is the designer that sets the quality and the manufacturer who instills quality. They build the quality into the product. The customer only experiences the effect of past quality and actions.

Often, the customers judge quality through their perceptions. We must know that the customer satisfaction is the after effect of quality. Customers cannot clearly specify in measurable standard values what makes them satiated. Different persons perceive the definitions of quality in different ways such as:

- A degree of excellence.
- Conformance to requirements.
- Totality of characteristics which act to satisfy need.
- Fitness for use.
- Fitness for purpose.
- Freedom from defects.
- Delighting customers.

All of these gauges of quality are important as much as they contain what elements required for quality for users of products and services. Furthermore, for quality to be embedded in a product or service there must be a set of measurable performance standards, which when achieved will guarantee the derived level of quality. Quality has many implications that flow across your business and through the lifetime of your organization. When you have quality, it brings an immeasurable success to the customer and invariably to the organization.

Quality in management is about making organizations perform for their stakeholders which comprises improving products, services, systems and processes, making sure that the whole institution is fit and effective. Quality means constantly pursuing excellence. For quality to be actualized, the management must be committed to quality. For this to be possible, effective governance that defines the organizations aims and translate them into action, robust systems of assurance to make sure things stay on track, and a culture of improvement to keep getting better must be put in place for a successful quality management (www.quality.org).

Quality could also be seen as how good something is when compared to other similar thing. It is the degree of excellence. When it is used to describe people, it points out the distinctive characteristics or attribute that they possess. It is the compendium of characteristics

and components of a product or services that bears its ability to accomplish stated or implied needs. It is the superiority or non-inferiority of something in terms of pragmatic perception.

Quality could be subjective and perceptual in attribute. It varies differently to different persons. Sometimes consumers focus on the specification quality of a product/service or how it compares to competitors in the marketplace, while producers measure the conformance quality or degree to which the product/service was produced correctly. Quality in higher education can be perceived as investment of excellent inputs and production of exceptional outcomes that are assessed in terms of their internal resources of an institution, such as students' inclination to learning, staff productivity, number of facilities with terminal degrees, number of soft and hard copy volumes in the library, reputation and magnitude of endowment (Kpolovie, 2013).

The concept of quality in the context of university education in the view of Harper Collins (1992) is the degree of excellence and of higher standard. The quality of a product is meaningful only when it is related to function that makes it work or sell. In line to British Standard Institution (British Standard Institution, 1991) quality is defined as the totality of features and characteristics of a product or service that bear on its ability to satisfy stated or implied needs. Hence, quality can be seen as the various attributes and unique features possessed by the output of universities which certify recipients of knowledge fit for a purpose (Akpotu & Ikpesu, 2014). This then means fitness for a purpose. Quality in universities is multi-dimensional and includes all its functions and activities: teaching and academic programmes, research and scholarship, staffing, students, buildings, facilities, equipments, services to the community and the academic environment.

Quality is an ongoing process which provides the parameter for measuring all other achievements within the academic environment. Quality can be seen as a performance that is exceptional, attainable only within limited circumstances. Quality seeks to transform students on a continual basis and as a way of value addition to their knowledge and personal development. The need therefore to create awareness advocacy to provide academic as well as non-academic staff, students and the entire school, the understanding of quality and quality assurance in universities. When the academic and non-academic staff is involved in promoting the culture of quality, it infuses in them the sense of ownership and not only aligns them to the school goals, but also to its achievements.

In the view of Mishra (2006), he agreed that quality should be bottom-up approach and everyone should be conscious of why the need for quality of our teaching programmes and institutions. Some reasons have been postulated by scholars where competition, customer satisfaction, maintaining standards, accountability, improve employee morale and motivation, credibility, prestige and status and image and visibility necessitated the need for quality to be all stakeholders concern within and outside the university (Akpotu & Ikpesu, 2014). Due to mobility of individuals, common markets has greatly influenced universities renewed determination to meet international standards.

It has been emphasized that university education embrace change so as to respond to the increasing impact of technology and globalization in order to deliver education services. This will enable our universities to provide for the many aspects of lifelong education, and as well promote international cooperation through internalization of research, technology, networking and free movement of persons and scientific ideas. For this, universities must seek continuous improvement of their teaching and ensure learning resources in order to attain higher completion rate among students, and will enable our students go in for research and teaching and provided highly specialized training courses adopted to the needs of economic and social life. Hence, the

UNESCO (1996) four pillars of education which are learning to know, learning to do, learning to live together and learning to be will be actualized towards quality education assured in our institutions. Quality is meaningless if there is no designed measurable standard of tool know as quality control.

Quality Control

Quality control is popularly abbreviated as QC. It is a designed software engineering process that is used to ensure quality in a product or service. It examines the quality of the end-products; which is the final outcome. It is geared towards making sure that the products meet the specifications and requirements of the customer. Quality control activities are performed after a product has been created to determine if it meets the quality requirements. Through this process a business seeks to ensure that product quality is maintained or improved. Hayes (2019) perceives quality control as a means through which the business creates an environment in which both management and employees strive for perfection. To actualize this, personnel's have to be trained, benchmarks created for products quality and product tested to check for statistically significant variations. To achieve quality control, the testing of the units becomes primordial to determine if the products are within the specifications for the final product. This testing helps to determine any needs for corrective actions in the manufacturing process. Quality control informs quality assurance.

Quality Assurance

In recent years, quality assurance has gained more attention in educational institutions especially in institution of higher learning. A well-functioning quality assurance system produces evaluations information about results and processes. Quality assurance is a comprehensive term which implies all those planned and systematic actions necessary to provide adequate confidence that a product for service will satisfy given requirements for quality.

It is a positive declaration on product or service, which gives confidence. It usually provides a guarantee that this product will function without any problems. It could also be called QA testing which is an activity to ensure that an organization is providing the best possible products or services to customers. It focuses on improving the processes to deliver quality products to consumers.

It is a systematic way of determining whether a product or service actualizes specific requirements. It does establish, and maintains set requirements for developing or producing reliable products and services. It helps to increase customer confidence and a company's credibility, works process and efficiency which enable the company to favorably compete with others.

The International Organization for Standardization (ISO) has always been a driving force behind quality assurance practices and maps out the processes used for implementation of quality assurance. Quality assurance is often paired with the ISO 9000 international standard. Quality assurance as a formalized practice started in the manufacturing industry and has spread its winds to other industries including the software development.

Quality assurance helps to yield a high-quality product offering that builds trust and loyalty with customers. Due to the standards and procedures defined by a quality assurance

program it helps prevent product defects before they arise. It tracks and resolves deficiencies prior to product release. Quality assurance applies one of these methods to assure products:

- Failure testing that tests products to determine if it breaks or fails
- Statistical Process Control (SPC) which is a methodology based on objective data and analysis to manage and control the production of products.
- Total Quality Management (TQM) which applies quantitative methods as the basis for continuous improvement. The process relies on facts, data and analysis to support product planning and performance reviews (<http://searchsoftwarequality.techtarget.com>).

Quality assurance provides the general guidelines used anywhere. It is a process-driven approach that enhances and defines goals regarding product design, development and production. Bucki (2019) sees quality assurance (QA) as a means to ensure a high level of quality in production during the development of products or services. Stressing further, she opines that management of production involves many detailed steps of planning, fulfilling and monitoring activities.

The American Society for Quality (ASQ) provided the following as the definition for quality assurance. It is the planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled (Bernie, 2018).

Some tools and techniques are necessary and required which forms the basis of the key quality assurance principles. They include: cost of benefit analysis, cost of quality, control charts, benchmarking, design of experiments, statistical sampling, flow charting, quality management, methodologies, cause and effects, diagnosis, histogram, pareto chart, run chart, chart scatter diagram and inspection (McClintock, 2016). In educational institutions of higher learning, quality is assured through:

- Constitutional based and time bound authorization process to assure maintenance of norms and standards while granting recognition.
- Intermittent accreditation of programs in both the levels, specific programs are followed and they are; compliance of institutional and program related profiles validation of profiles by visiting team of experts through on site visit, and evaluation of experts committee Report (Khedkar & Pushpanadham, 2018).

Quality assurance in higher education includes all policies, measures, planned processes and actions maintained, sustained and developed. Quality of higher education can be deduced as the degree to which the education meets the charts, needs and demands and which the clients here are the students and the society. Education has always had some check and balances which are put in place to keep track of quality of standards in education institutions and systems, and try to improve them (Allais, 2009).

In higher institutions, fitness for purpose is understood as the ability of an institution to fulfill its aims (Harvey, 2007). According to Woodhouse (1999), quality assurance could be seen as the policies, attitudes, actions, and procedures necessary to ensure that quality is maintained and enhanced. Quality assurance includes strategic management and the performance of the internal processes. Quality assurance can also be seen as the procedures, processes, and systems which protect and improves the quality of higher education institutions, its education and other activities. It is composed of the assurance organization, the respective responsibilities procedures processes and resources.

There are 2 important viewpoints or ideas for quality assurance which are continuous improvement and management commitment. Management remains an essential aspect of quality assurance. Quality assurance remains the efforts for improving internal working system and processes, such that effectiveness of teaching and learning can be assured to students. This also depends on institutional monitoring and reporting to ensure no significant challenges arising from its operation and structure (researchgate.net). Adegbesan (2011) has posited the following as the major needs of quality assurance in higher education in Nigeria:

- To serve as indispensable component of quality control strategy in education.
- To ensure and maintain high standard of education at all levels.

Following suit, Okebukola (2004) has pointed out that quality assurance in Nigerian Universities is a process of continuous improvement in the pure quality of teaching and learning activities achieved through the pathways of employing mechanisms, internal and external to the universities. This enhances certain provision of the benchmark for minimum academic standards documents attained, maintained and improved.

For our Nigerian universities to attain quality assurance, the qualification of academic staff members, employing and restricting academics in one full-time job and to one institution, appointment and promotion of academic staff based on merit efficient and adequate physical and administrative support services become inevitable in attaining, improving and sustaining the equality of research and teaching to a global level without skipping information management system. Therefore, it becomes paramount that universities across the country should set up workable, realistic and achievable quality assurance mechanisms which enable them to consistently produce high quality and cost effective outputs.

In the opinion of Enaowho (2004), quality assurance begins with the selection of inputs (students) resources into the school set up for processing in order to realize derivable outputs/outcomes. Going further, Peretomode (2008) agrees that developing quality assurance mechanisms aid universities overcome challenges of ineffective input and processes; it improves the credibility of outputs and certificates awarded. Chaffe and Sherr (1992) have acclaimed that if an organization stops working to achieve quality; it begins to move away from having quality assurance. Quality control and assurance are reported through information management system.

Information Management System (IMS)

Information Management system (IMS) can generally be seen as software purposely designed to facilitate the storage, organization and retrieval of information (<https://www.techopedia.com>). Information Management is the collection and management of information from one or more sources for distribution to one or more audiences. Information Management System is used for decision-making, and for the coordination, control, analysis and visualization of information in an organization. It as well examines the people, processes and technology in an organizational context. With the usage of management information system, the value and profits of the business is increased and without proper management tools and facilities, it would apparently nearly impossible for administrators and evaluators to know how efficient the institution department program is performing.

Information Management technology in school Management has increased due to its efficiency and effectiveness. Initially at its early stage of development, it was mainly used to

develop efficiency of school office activities as well as storing students and personal data. Its primary concern then was on data entry and collation, instead of data transfer or analysis. The positive attribute of information management system in higher institution include better accessibility to information, more efficient administration, higher utilization of school resources, reduction in workload, better time management, and improvement in the quality of reports (Shah, 2013). Information Management System can provide institutions, administrators and teachers with the information required for informed planning, policy-making, and evaluation. It has also aided in overhauling school management especially in the aspects of leadership, decision-making, workload, human resource management, communication, responsibility, and planning. The system can also sustain the school management in the ascertaining the aims of the school, formulating strategic plans, distributing resources, and evaluating staff performance as well as organizational success (Shah, 2013).

The fact that computers are there to make a significant contribution to teaching, learning, and administration of schools cannot be over-emphasized. Huge amount of effort have been made in introducing Information and Communication Technology (ICT) into institutions of higher learning in such areas as hardware, software, networking and staffing development. Due to enhanced Information Management System, it has increased efficiency and effectiveness especially in solving complex problems and monitoring the schools operations.

Information Management System (IMS) to a large extent has aided in decentralizing work tasks and their coordination in an interactive network of communication (Castelle, 1996). It allows for greater flexibility and networking that emphasizes interdependence interaction and constant adaptation to an ever changing world. O'Brien (1999) is of the view that this IMS is distinct from other information systems since they are designed to be used to analyze and facilitate strategic and operational activities in institutions. Shah (2013) is of the optimistic view that IMS are being used in institutions of higher learning to improve on varieties of administrative activities in areas of attendance monitoring, assessment records, reporting financial management, and resource and staff allocation.

IMS has been perceived by Waston, Caroll and Mann (1987) as an organizational method of providing past, present and projected information related to internal operations and external intelligence. In the views of Telem (1999), Information Management System is so designed to match the structure, management task, instructional processes, and special needs of the institution. Consequently, IMS is seen as a system that uses the information required by the organizations management at all instance and stages in making operational, tactical, and strategic decision which its main aim is to design and implement procedures, processes, and routines that provide suitably detailed accounts in an accurate, consistent, and timely manner (Shah, 2013).

Information Management System performs an important role in the area of decision making since it can monitor on its own disturbances in a system, determine a course of action and take action to get the system in control. Obi (2003) perceives that IMS is also pertinent in non-programmed decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making. Visscher (1996) is of the opinion as well that IMS can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation. For Gurr (2000) IMS have over hauled school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility, and planning.

Efficient and faster decisions could be taken when school managers get accurate and up-to-date information through Information Management System as agreed by Christopher (2013).

In most institutions of higher learning in Nigeria, the integration of ICT into learning, teaching, and management process is growing. The rate at which computers and other technologies are increased have aided most schools to achieve the baseline targets for computer-to student ratios especially, in private owned Universities. North, Serain and Abbott (2000) have looked on the impact of IMS usage on school management abilities. They peeped into the role of support in bringing about such processes as well as their implication for the future.

Notwithstanding, Visscher, Wild and Fung (2001) also focused on a series of studies from a range of countries that highlighted important aspects of computerized school information and management systems, their implementation in a range of schools, the outcomes of their implementation, and implications for the future as regards further research. Their work is very vast in regard to IMS. Though, they emphasized that most schools were concerned on data entering and collation, rather than data transfer or analysis.

In a research work carried out by Zain, Atam and Idris (2004) revealed some positive changes which include the enrichment of ICT culture in schools, better accessibility to information, more and efficient administration and a higher utilization of school resources. Other major impacts of IMS are reduction in workload, beneficial impact on time management, and improvement in the quality of reports on school management and administration. This can be seen in the way staff of institutions have acquired and developed ICT skills and confidence in using the technologies which have aided them in the reduction of their workload. Cunningham, Kerr, McEume, Smith and Harris (2004) accepted that ICT usage was of value to senior management in developing school systems for administration and easing management tasks. Also Granville, Russell and Bell (2005) discovered that staff of some selected schools accepted that the use of technologies have made administrative work easier with regard to accounts, attendance data, and the sharing of confidential information, thereby saving time, increasing effectiveness and efficiency and facilitating development of solutions to difficult problems.

Information Management System has had an important contribution to school management as such school managers should be encouraged to use information systems since data are valuable sources for decision making and that the IMS back up the implementation of educational reforms. Other positive factors that can aid in the quality assurance of schools through IMS are communality among computer-using staff, availability of technical support, resources for school development, smaller class sizes, and more formal computer training (Muntaz 2000). The most recurring themes in this aspect are technical support and senior management commitment. In another study carried out by Dawan, Ahmad, Jusoff, Tajuddian, Elias and Mansor (2009) viewed the extent of ICT utilization in public and private higher institution of higher learning in Northern Malaysia. They focused on identifying the extent of ICT resources that is provided by university authorities, the type and extent of ICT usage in daily activities, the ICT proficiency level among faculty members and the level of ICT integration in teaching activities. In their findings, they indicated that the facilities that are provided in public universities were not in any way commensurable to that in the private institutions even though the level of their usage was quite encouraging. Passey (2002) also agreed to the fact that ICT Management in Institutions to a great extent, support school management in improving quality assurance.

Types of Management Information System

There are types of information management systems that could be used to create reports, extract data and assist in the decision making process. Management Information Systems do employ information technology to collect and communicate all the information an institution uses to operate. Hence, the different methods of information management applied depend on the department or functions in an organization. There are few specific systems that irrespective of the institution needs for the whole entity to operate smoothly.

Management Reporting System

This is a data base that is designed to report on the finances and operations of all levels of management in an organization. This is commonly used by middle managers to generate regular reports, comparing current and past financial performance to determine financial growth as well as to track how the managers are performing their duties. From the upper management chamber, the data generated is used by them to compare the company's current financial position and its efficiency of operations against its predetermined goals of the institution.

Hamanth (2017) states that a management reporting system is a part of a management control system that provides business information which can be in the form of reports or statements or both. The system is geared towards assisting members of the institution by providing timely pertinent information. It aids in capturing data that is needed by managers to run an effective business. It could come in the form of financial data, employee headcount, client accounts, products, clients assets in custody, investment, performance, etc (<https://www.acuvate.com>).

Management reporting system could improve quality assurance in education through constant need of reports for decision making and analysis of trends, high value resources, lack of visibility and a single holistic view of enterprise performance, reports being unavailable with the right stakeholders at the right time, changing a global report to fit local needs and data redundancy, duplication of data leading to data management and quality issues leading to error prone reports.

An effective management reporting system could lead to quality assurance in schools by improving decision making, improving management effectiveness, improving responsiveness to issues, improving efficiency of resources in the delivery of organizational services. Through this system, the traditional bookkeeping activities can now be automated. The system also helps institutions for quality assurance to identifying problem; evaluate alternate solutions, implementing the best solution and review implementation.

Management report can be perceived as a complex, multistage activity that takes place in the context of other business processes and makes use of the dynamic information systems that may have been provided for other purpose, general documentation, project management, financial control, email communication and business presentation (esc.Soton.ac.uk). Management reporting system provides routine, detailed, and voluminous information reports that is specific to each manager's area of responsibility. It is typically used by first – level supervisors, and focuses on past and present activities rather than projecting future performance.

In the view of Knutson (2018), he sees a good reporting system as a foundation for successful strategy execution. Furthermore, he perceives it as a structured and scheduled set of

reports designed for specific stakeholder that enables the managers to track performance, identify trends, analyze data and align performance to overall goals.

Management reporting system has their benefits as was suggested by Knutson (2018). It increases communication, improves productivity, accuracy and timeliness, improves decision-making and efficiency within organization, identifying potential problems early, when you still have time to act on them, cost efficiency and customer focus.

Human Resources System (HRS)

Human resources information management system supports the daily management and tracking of employees and recruiting. The system tracks some financial elements of human resources that overlap the accounting and finance system such as payroll benefits and retirement. It can also streamline communication between employees and Human Resource by such providing an electronic hub for human resource policies, legal compliance notices and mandatory training events. It can also automate, calculate available and used leave and let employees request vacation or sick leaves, even when the manager is not physically involved (Williams, 2018). Also carried out by this process, is the recruiting process which is also automated through the human resources management system.

Human Resource System is an information technology system that captures, stores and shares information related to the practices, policies and management of human resources in an institution to achieve a thorough quality assurance. It is also known as a Human Resources Management System (HRMS), Human Resource Information System (HRIS), Human Capital Management System (HCMS) and Human Resource Information Technology (HRIT) (Chinn, 2017). It helps an organization manage all the complex and interconnected aspects of human resources.

Human performance in organizations reflects on the knowledge skills, behaviors and values. These abilities will always assist the organization to better performance and productivity in terms of skills. Any expenditure on education and development is always a long term investment as long as the organization can benefit from it. In a work carried out by Shahkarani, and Hedayat (2012), at Harvard University concluded that the staff of the Institution use 20 to 30 percent of their ability to learn that if the staff are trained and encouraged, will show 80 to 90 percent of their ability.

The result of the research carried out by Nafiseh and Fereshte (2015) showed that trained staff than untrained employees have more knowledge and they usually embrace change and innovation, and have job satisfaction and more confidence which enhances quality in an education institution and thus enhances quality.

Process Control System

The process control system monitors a business physical or industrial process. It does this by collecting data and is programmed to generate regular reports on system performance. The manager through the process control system give an accurate account of the uptimes and the downtimes of the company over the course of a set of period of time. The information gathered is a key to tracking the overall efficiency of production and the safety of machinery and employees (Williams, 2018).

Decision Support System (DSS)

This aspect of Management Information System is used by senior management to make non-native decisions. It is an input from internal systems (transaction processing systems and management information systems) and external system. Its main purpose is to support systems to provide solutions to problems that are unique and change frequently.

Decision support systems use sophisticated mathematical models and statistical techniques (probability, predictive, modeling, etc.) to provide solutions. A decision support system is an interactive computer based information system that serves at the management level of an organization. It processes information to support the decision making process of managers. It aids the middle managers to make intelligent decisions. DSS have non analytical power when compared to other information systems.

Academic decision-making remain a vital part of school and university administration. Precise, appropriate and timely information is of great importance for informed decision making. For quality education to be achieved, educationists need to carefully analyze the different facts involved in the dissemination of decision. Educational institutions need to meet up with the challenges of the current era as they meet the competitive edge and demands of their candidates. With the upsurge of technological software, devices and systems have made a significant paradigm shift in education schools that still maintain the traditional approaches will not sustain the learning of the 21st century. Hence, such schools need to be flexible.

For quality assurance in our schools, Ahmed and Al-Nakib (2016) have agreed that decision support system has aided decision makers to handle, ample amount of information especially where exactness and correctness are of importance. It also assists individuals in their cognitive deficiencies by incorporating information from different sources, provides quick access to appropriate information and aids in taking structured decisions (Bhamani, Rahab & Aqil, 2014). Decision making tools if properly applied in the schools increases efficiency, effectiveness and productivity since it allows the system to make the best choices for technical processes planning routine tasks, etc. For quality assurance to be achieved in our institutions, decision support systems have 3 fundamental components to achieve this:

- Data Base Management System (DBMS) which stores huge amount of data particular to the problem for which the DSS was designed for and provides a platform for logical data structure which enables users to interact.
- Model Base Management System (MBMS) which converts data from database into information that facilitates decision.
- Dialogue Generation and Management System (DGMS) which is responsible to boost the user experience while apply decision support system and assists them to utilize it as much as possible and provide user friendly interface.

Apparently, Collins (2009) has it that with the increasing demands of quality assurance in our schools, parents and accreditation board, educational institutions are asked to provide reports pertinent to education activities, processes of organizational development, data on students achievement and progress, teaching quality report, parental satisfaction reports and engagement in community work. With this, demand for quality control has paved way to educational institutions and mounted pressure for them to introduce and improvise data decision making support systems in their settings (Sherkey & Muraanc, 2013). Thorn (2002) insists that decision

support system in the educational setting has an imperative role in organizational and quality development. Decision support system enables schools to transform the raw data at their disposal into meaningful information and boosts quality assurance. Herman and Gribbon (2001) sustain that data decision supports facilitates students management in various ways.

For quality assurance in our institutions, decision making system allows educational institutions to file records of student's environment, drop-out and passing out ratios, keep a check on student's progression, student satisfaction, their attendance and their extra-curriculum achievement (Connolly & Begg, 2002).

Other studies by Nake (2001), Burkers and Kendell, (2005), Chen, 2000; Collins (2009), Lauden and Lauden (2002) in Bhamani, Rahab and Aqil (2014) agree that decision making system support systems for reporting key features of the school standards and goals. This tool helps to monitor and improve teaching quality by incorporating student, parent and peer evaluation of teachers and quality of curriculum delivery. They also opined that for quality assurance standard, this system provides facilitation to the institute to make data accessible to the key stakeholders and maintain a data repositioning chronological to inform the state level wise statistics.

The system also support as it offers ease for students and parents to access curriculum and syllabi and it's horizontal and vertical progression over the years; orient themselves with the faculty and their profile; be aware of the key requirements of the institutions, evaluate the performance of the institution just with a click (Wild, Smith & Walker, 2001). This system helps in comparing and evaluating the consumption of various resources over short time intervals in less than full duration of an activity and hence, allocate resources very efficiently (James, 1987).

In the thoughts of Manuel, Fen, Jorge and Mahesh (2017), they have sustained that the provision of high quality educational services is a mandatory objective for higher education institutions in the present day. For this institutions implement quality management system process framework whose core managerial activity is decision making which in a long run impacts the overall quality of the provided higher education institutions educational services for quality assurance. Khalid (2015) supports the view of the fact that decision support systems in higher education system enhances quality assurance for manifold reasons, for instance it aids to conjugate data and intelligence to pull off the unsurpassed and likely elucidations and to fine-tune decisions under hesitation.

In a work carried out by Poria and Chen (2014), they have examined the effect on students functioning of integrating an information system into the school management's decision-making process in planning the teaching and learning system. The result indicates a significant improvement in student's achievement, particularly in difficult subjects such as mathematics and English to bring about quality assurance. The improvement is not only in terms of the statistical significance, but also in the dimensions and in a positive change in distribution, with rise in the achievement and a significant decrease in the number of failures. The findings indicate reduced mobility of students from one level of study to another and a reduction in the dropout rate.

In collaboration for quality assurance in universities, Mitri (2016) sustained that for this to be achieved, decision support system technology can be used as a pedagogical tool for guiding students at various levels of abilities through a technique called candidate evaluation and its implementation in Decision support system authoring tool called CEVED and a consultation environment called CEVAL. CEVED is used to codify knowledge combining multi-attribute and rule – based reasoning. CEVAL allows students to apply the model and knowledge based in

evaluating real-world companies and products. With this steps used in learning, the students cognitive ability is enhanced.

Again, Svetlana and Marc (2011) proposed a methodology for assessing educational capacity and planning and its distribution and utilization in Universities. This approach is the decision support system which allows simulation and evaluation of various proposals and scenarios. They agreed that Decision Support System aids in resources allocation, performance assessment, course scheduling, admission policy, advising, student profile evolution and strategic planning. It enables data warehouse approaches, which enable collection across decentralized applications and facilitates solving of complex administrative problems. Decision Support System targets to support the administrative task of planning the University’s educational capacity especially the number of students its courses can harbor under specified resource constraints.

Haven reviewed the work, no work covered on the application of information management system for quality assurance in the 21st century in tertiary institutions in Rivers State. Therefore, this work covered the application of information management system for quality assurance in the 21st century in tertiary institutions in Rivers State.

METHODOLOGY

The study adopted a correlation research design. The population of the study consists of all the 2330 lecturers in the 3 public universities in Rivers State. As at the time of this study, there are three (3) public universities in River State Nigeria. They are: University of Port Harcourt (UNIPORT), Rivers State University of Science and Technology (RSU) and Ignatius Ajuru University of Education (IAUE). Uniport 1,500, RSU 274, IAUE 556 making a total of 2330 lecturers from the three universities in Rivers State. A sample size of 699 lecturers was used. The proportionate stratified sampling technique was used in three universities in Rivers State. In the RSU, 30% of 274 gave 82. In UPH, 30% of 1500 gave 450 lectures. Finally, in IGUOE, 30% of 556 gave 167 lecturers. An instrument titled Application of Information Management System for Quality Assurance Scale” (AIMSQAS) was used for data collection. Face and content validities were ensured. The internal consistency reliability coefficient of 0.88 was established for AIMSQAS through Cronbach Alpha. Mean and standard deviation were used to answer the research question while the null hypotheses were tested using z-test at 0.05 level of significance.

RESULTS

Research Question 1: What are the ways information process control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?

Table 1: Mean, standard deviation and rank order on the ways information process control can be managed for quality assurance in tertiary institutions in Rivers State

s/n	Ways information process control can be managed	Mean	SD	Rank	Decision
1	It helps to give feedbacks on the performance of university vehicles	3.06	.48	5 th	Agreed
2	This system monitors university filling stations for quality assurance	3.09	.46	4 th	Agreed
3	Process monitoring system provides information of the quality of agricultural products for quality assurance	3.23	.49	1 st	Agreed
4	It monitors differences in the production level of educational products	3.10	.46	3 rd	Agreed
5	Process information system monitors the safety of the teachers	3.12	.38	2 nd	Agreed

Table 1 revealed that items 1, 2, 3, 4 and 5 have their various mean values above the criterion mean value of 2.50 and was agreed by the respondents as the ways information process control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria. In the various ways information process control can be managed, item with serial number 3 was the highest and was ranked 1st while item with serial number 1 was the least and was ranked 5th. The various ways information process control can be managed for quality assurance in the universities are that: it helps to give feedbacks on the performance of university vehicles; system monitors university filling stations for quality assurance; it provides information of the quality of agricultural products for quality assurance; it monitors differences in the production level of educational products and that the process information system monitors the safety of the teachers.

Research Question 2: What are the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?

Table 2: Mean, Standard Deviation and rank order on the ways human resource information system can be managed for quality assurance in tertiary institutions in Rivers State

s/n	Human resources information system management	Mean	SD	Rank	Decision
6	This information management system monitors the relationship existing between lecturers	3.28	.41	5 th	Agreed
7	It monitors the level of collaboration among lecturers	3.31	.40	3 rd	Agreed
8	This system checkmates effectiveness of mentoring in the school system	3.29	.39	4 th	Agreed
9	It assess knowledge synergy management among lecturers	3.43	.32	1 st	Agreed
10	It monitors the level of compliance of lecturers on technology	3.42	.33	2 nd	Agreed
11	This system provides information on lecturers intellectual property management	3.15	.43	6 th	Agreed

Table 2 revealed that items 6, 7, 8, 9, 10 and 11 have their various mean values above the criterion mean value of 2.50 and was agreed by the respondents as the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria. In the various ways human resource information can be managed, item with serial number 9 was the highest and was ranked 1st while item with serial number 11 was the least and was ranked 5th.

Research Question 3: What are the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?

Table 3: Mean, standard deviation and rank order on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State

s/n	Ways management report system can enhance quality assurance	Mean	SD	Rank	Decision
12	This process monitors transparency on financial transaction in the universities	2.79	.84	3 rd	Agreed
13	It brings about accountability of administrative practices	2.51	.85	5 th	Agreed
14	It helps managers to evaluate their performance	2.62	.80	4 th	Agreed
15	It provides information on the recruitment process	2.92	.57	2 nd	Agreed
16	Admission procedures are reviewed under this information management system for quality assurance	3.24	.53	1 st	Agreed

Table 3 revealed that items 12, 13, 14, 15 and 16 have their various mean values above the criterion mean value of 2.50 and was agreed by the respondents as the ways management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria. In the various ways information on management report system can be managed, item with serial number 16 was the highest and was ranked 1st while item with serial number 13 was the least and was ranked 5th.

Research Question 4: What are the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria?

Table 4: Mean, standard deviation and rank order on the ways decision information support system can be managed for quality assurance in tertiary institutions in Rivers State

s/n	Decision information support system	Mean	std	Rank	Decision
17	This system creates avenue for the principal officers to gather external information for the smooth functioning of the school	3.36	.52	1 st	Agreed
18	Decision information system is effective based on the internal information for the smooth functioning of the school	3.12	.58	4 th	Agreed
19	It helps the school managers to decide on the number of students that will be taken based on existing infrastructure	3.23	.43	3 rd	Agreed
20	It provides information on the profit level of the institutions	3.31	.51	2 nd	Agreed
21	Information on lecturers welfare are captured in order to ensure quality system	3.09	.59	5 th	Agreed

Table 4 revealed that items 17, 18, 19, 20 and 21 have their various mean values above the criterion mean value of 2.50 and was agreed by the respondents as the ways decision information support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria. In the various ways decision information support system can be managed, item with serial number 17 was the highest and was ranked 1st while item with serial number 21 was the least and was ranked 5th.

Hypothesis 1: There is no significant difference between male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Table 5: z-test of male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria

Gender	N	Mean	SD	df	z-cal.	p-value	Alpha	Decision
Male lecturers	398	3.05	0.45	697	5.80	0.01	0.05	Rejected
Female lecturers	301	2.76	0.72					

Table 5 revealed that male lecturers have mean and standard deviation scores of 3.05 and 0.45 while female lecturers have mean and standard deviation scores of 2.76 and 0.72 respectively. With a degree of freedom of 697, the calculated z-value of 5.80 is significant because the

probability value of 0.01 is less than the alpha level of 0.05. Therefore, the hypothesis is rejected. By implication, there is a significant difference between male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Hypothesis 2: There is no significant difference among lecturers in the three universities on the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Table 6: ANOVA of female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria

	Sum of Squares	Df	Mean Square	F	p-value	Alpha level	Decision
Between Groups	2.801	3	.934	.869	.091	0.05	Accepted
Within Groups	746.187	695	1.074				
Total	748.988	698					

Table 6 revealed that the sum of squares for between and within groups is 2.801 and 746.187 while mean squares for between groups and within groups are .934 and 1.074 respectively. With degrees of freedom of 3 and 695, the F ratio value of .869 is not significant because the probability value of 0.91 is greater than the alpha level of 0.05. Therefore, the hypothesis is rejected. By implication, there is no significant difference among lecturers in the three universities on the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Hypothesis 3: There is no significant difference between male and female lecturers on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Table 7: z-test of male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria

Gender	N	Mean	SD	Df	z-cal.	p-value	Alpha	Decision
Male lecturers	398	2.84	0.73	697	1.80	0.03	0.05	Rejected
Female lecturers	301	2.93	0.66					

Table 7 revealed that male lecturers have mean and standard deviation scores of 2.84 and 0.73 while female lecturers have mean and standard deviation scores of 2.93 and 0.66 respectively. With a degree of freedom of 697, the calculated z-value of 1.80 is significant because the probability value of 0.03 is less than the alpha level of 0.05. Therefore, the hypothesis is rejected. By implication, there is a significant difference between male and female lecturers on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Hypothesis 4: There is no significant difference among lecturers in the three universities on the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Table 8: ANOVA on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria

	Sum of Squares	Df	Mean Square	F	p-value	Alpha level	Decision
Between Groups	5.430	3	1.810	1.469	.532	0.05	Accepted
Within Groups	856.091	695	1.232				
Total	861.521	698					

Table 8 revealed that the sum of squares for between and within groups is 5.430 and 856.091 while mean squares for between groups and within groups are 1.810 and 1.232 respectively. With degrees of freedom of 3 and 695, the F ration value of 1.469 is not significant because the probability value of 0.532 is greater than the alpha level of 0.05. Therefore, the hypothesis is rejected. By implication, there is no significant difference among lecturers in the three universities on the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Summary of Findings

The findings of this study are summarized as shown below:

- The various ways information process control can be managed for quality assurance in the universities are that: it helps to give feedbacks on the performance of university vehicles; system monitors university filling stations for quality assurance; it provides information of the quality of agricultural products for quality assurance; it monitors differences in the production level of educational products and that the process information system monitors the safety of the teachers.
- The various ways human resource information can be managed for quality assurance in the universities are that: information management system monitors the relationship existing between lecturers; It monitors the level of collaboration among lecturers; the system checkmates effectiveness of mentoring in the school system; it assess knowledge synergy management among lecturers; it monitors the level of compliance of lecturers on technology and the system provides information on lecturers intellectual property management.
- The various ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State are that: the process monitors transparency on financial transaction in the universities; it brings about accountability of administrative practices; it helps managers to evaluate their performance; it provides information on the recruitment process and admission procedures are reviewed under this information management system for quality assurance.
- The ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria are that: the system creates avenue for the principal officers to gather external information for the smooth functioning of the school; decision information system is effective based on the internal information for the smooth functioning of the school; it helps the school managers to decide on the number of students that will be taken based on existing infrastructure; it provides information on the

profit level of the institutions; Information on lecturers welfare are captured in order to ensure quality system.

- The hypothesis showed that there is a significant difference between male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is no significant difference among lecturers in the three universities on the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is a significant difference between male and female lecturers on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.
- There is no significant difference among lecturers in the three universities on the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

DISCUSSION

Information Process Control and Quality Assurance

The various ways information process control management can lead to quality assurance in the universities are that: it helps to give feedbacks on the performance of university vehicles; system monitors university filling stations for quality assurance; it provides information of the quality of agricultural products for quality assurance; it monitors differences in the production level of educational products and that the process information system monitors the safety of the teachers. Information is very vital at every stage of administration. The information gathered is a key to tracking the overall efficiency of production and the safety of machinery and employees (Williams, 2018). The positive attribute of information management system in higher institution include better accessibility to information, more efficient administration, higher utilization of school resources, reduction in workload, better time management, and improvement in the quality of reports (Shah, 2013). The study showed that Information Management System can provide institutions, administrators and teachers with the information required for informed planning, policy-making, and evaluation. The hypothesis showed that there is a significant difference between male and female lecturers on the ways process information control can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Human Resource Information Management and Quality Assurance

The various ways human resource information management can lead to quality assurance in the universities are that: information management system monitors the relationship existing between lecturers; it monitors the level of collaboration among lecturers; the system checkmates effectiveness of mentoring in the school system; it assess knowledge synergy management among lecturers; it monitors the level of compliance of lecturers on technology and the system provides information on lecturers intellectual property management. The finding of this study is in agreement with Shah (2013) who reported that IMS are being used in institutions of higher learning to improve on varieties of administrative activities in areas of attendance monitoring, assessment records, reporting financial management, and resource and staff allocation. It can

also streamline communication between employees and Human Resource by such providing an electronic hub for human resource policies, legal compliance notices and mandatory training events. Similarly, it was found that information management system necessary to automate, calculate available and used leave and let employees request vacation or sick leaves, even when the manager is not physically involved (Williams, 2018). The system can also aid the school management in the ascertaining the aims of the school, formulating strategic plans, distributing resources, and evaluating staff performance as well as organizational success (Shah, 2013). There is no significant difference among lecturers in the three universities on the ways human resource information can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Management Report System and Quality Assurance

The various ways information on management report system can lead to quality assurance in tertiary institutions in Rivers State are that: the process monitors transparency on financial transaction in the universities; it brings about accountability of administrative practices; it helps managers to evaluate their performance; it provides information on the recruitment process and admission procedures are reviewed under this information management system for quality assurance. The findings of this study is in tandem with Shah (2013) who found that IMS are being used in institutions of higher learning to improve on varieties of administrative activities in areas of attendance monitoring, assessment records, reporting financial management, and resource and staff allocation. There is a significant difference between male and female lecturers on the ways information on management report system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

Decision Support System and Quality Assurance

The ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria are that: the system creates avenue for the principal officers to gather external information for the smooth functioning of the school; decision information system is effective based on the internal information for the smooth functioning of the school; it helps the school managers to decide on the number of students that will be taken based on existing infrastructure; it provides information on the profit level of the institutions; Information on lecturers welfare are captured in order to ensure quality system. Ahmed and Al-Nakib (2016) has agreed that decision support system has aided decision makers to handle, ample amount of information especially where exactness and correctness are of importance. It also assists individuals in their cognitive deficiencies by incorporating information from different sources, provides quick access to appropriate information and aids in taking structured decisions (Bhamani, Rahab & Aqil, 2014). Collins (2009) has it that with the increasing demands of quality assurance in our schools, parents and accreditation board, educational institutions are asked to provide reports pertinent to education activities, processes of organizational development, data on students achievement and progress, teaching quality report, parental satisfaction reports and engagement in community work. With this demand for quality control has paved way to educational institutions and mounted pressure for them to introduce and improvise data decision making support systems in their settings (Sherkey & Muraanc, 2013). Thorn (2002) insists that decision support system in the educational setting has an imperative

role in organizational and quality development. Decision support system enables schools to transform the raw data at their disposal into meaningful information and boosts quality assurance. Obi (2003) perceives that IMS is also pertinent in non-programmed decisions as it provides support by supplying information for the search, the analysis, the evaluation and the choice and implementation process of decision making. Visscher (1996) is of the opinion as well that IMS can provide administrators and teachers with the information required for informed planning, policy-making, and evaluation. For Gurr (2000), IMS have over hauled school management in the areas of leadership, decision making, workload, human resource management, communication, responsibility, and planning. Khalid (2015) supports the view of the fact that decision support systems in higher education system enhances quality assurance for manifold reasons, for instance, it aids to conjugate data and intelligence to pull off the unsurpassed and likely elucidations and to fine-tune decisions under hesitation. Efficient and faster decisions could be taken when school managers get accurate and up-to-date information through Information Management System as agreed by Christopher (2013). There is no significant difference among lecturers in the three universities on the ways decision support system can be managed for quality assurance in tertiary institutions in Rivers State, Nigeria.

CONCLUSION

Based on the findings of this study, it was concluded that effective and efficient application of information management in the areas of process control, human resource, management report system and decision support system can promote quality assurance in the tertiary institutions.

Recommendations

Based on the findings and conclusion of this study, the following recommendations were made:

- It was recommended that the school administrators should develop the attitude of management report system.
- Internal supervision and inspection by lecturers who have cognate experience should be employed when the need arises.
- Workshop on information management system should be organized for lecturers by their employers.
- Basic facilities that can enhance information and its management such as internet connectivity and technological appliances should be provided in all the faculties and department by the school administrators.

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KEYTERMS AND DEFINITIONS

Application: This is the act of directing, addressing, referring, conducting, prescribing or assigning something to a particular case or purpose. It is an act of turning something towards its appointed or intended goal.

Information: It is a provided fact about something or someone. Knowledge obtained from investigation or research.

Management: It is a process of dealing, supervising, overseeing or controlling things or people.

Quality: It is the standard, paradigm, pattern, archetype, benchmark, criterion or gauge of something as measured against other things of a similar kind. It is the degree of excellence of something. A means of determining what a thing should be.

Assurance: It is a positive declaration intended to give confidence. It is a guarantee, pledge, warrant.

Quality Assurance: It is the maintenance or sustenance of a desired level of quality expected by consumers in a product or service as it regards paying attention to every stage of the process of delivery or production.

Tertiary Institutions: It is Colleges of Education, Polytechnics, Universities or other tertiary education provider recognized and approved by the government which offers degrees diplomas and other certificates after due years of studies.

Information Management System: It is an information system that is used for decision-making, and for the coordination, control, analysis, and visualization of information in an organization.