

Impact of e-administration on employee productivity in state-owned tertiary institutions in rivers state

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Abstract

This study investigates the relationship between electronic administration and employee performance in state-owned tertiary institutions in Rivers State, Nigeria. An explanatory survey research design was employed. The study population comprised 5,109 academic and non-academic staff from four state-owned institutions: Ignatius Ajuru University of Education, Rivers State University, Kenule Beeson Saro-Wiwa Polytechnic, and Elechi Amadi Polytechnic. A sample of 370 respondents was determined using Taro Yamane's formula. Data were collected through a structured questionnaire based on a five-point Likert scale. Descriptive statistics, including tables, means, and standard deviations, were used for univariate analysis, while Spearman Rank Order Correlation Coefficient, facilitated by SPSS, was used to test hypotheses. Findings revealed a significant positive relationship between electronic administration and employee performance. The study concludes that the adoption of electronic administration positively influences job performance in state-owned tertiary institutions. It is recommended that institutional management continually upgrade electronic administrative systems to enhance communication efficiency and further improve employee performance.

Keywords: E-administration, Employees, Job performance, Tertiary institution

Introduction

Human resources are the most vital assets of any organization, as they possess the capability to develop, manage, and optimize other organizational resources, including material, financial, and technological resources. Dessler (2015) ^[6] emphasizes that employees represent a valuable form of capital, bringing knowledge, skills, education, and expertise essential for organizational success. However, the effectiveness of organizations largely depends on how well these human resources are utilized, which can determine their survival in today's fast-changing environment. Kerning and Jaeger (1990) ^[12] note that organizational effectiveness is linked to continuous enhancement of employee performance and the development of human potential.

Employee performance is often measured by task completion. For example, administrative staff performance can be assessed by their ability to prepare annual reports, develop filing systems, or procure resources for the organization (Lisa, 2016) ^[14]. In modern workplaces, employee performance can be further enhanced through information and communication technology (ICT), a practice often referred to as electronic administration (e-administration).

In both manufacturing and service sectors, including tertiary institutions, electronic administration facilitates operational efficiency. Otamiri, Wagbara, and Odu (2016) ^[19] note that digital technology enables decentralized teaching and learning, often eliminating the need for physical classroom interactions.

Given these advantages, it is imperative for state-owned tertiary institutions in Rivers State—including Ignatius Ajuru University of Education, Kenule Beeson Saro-Wiwa Polytechnic, Rivers State University, and Elechi Amadi Polytechnic—to fully adopt e-administration in academic and administrative processes.

E-administration encompasses digital systems that reinforce e-governance and facilitate efficient communication and service delivery. While components of electronic administration have been implemented, gaps remain (Eneh, 2015). Many administrative processes, including transcript verification, fee payments, course registration, and examinations, are now conducted online. Recruitment, appraisal, and staff verification increasingly utilize digital platforms, while security measures such as CCTV are being gradually introduced (Otamiri et al., 2016) ^[19].

Despite these advancements, challenges persist. Some employees struggle to adapt to digital workflows, resulting in delays and reduced output quality (Odu, 2018) ^[16]. The low adoption of electronic mail and other digital communication tools further hinders efficiency. Although several studies have examined the relationship between e-administration and employee performance, empirical research in state-owned tertiary institutions in Rivers State remains limited. This study, therefore, aims to examine the impact of electronic administration on employee performance in these institutions.

Literature review

Theoretical foundation

This study is anchored on Rogers' (1962) Diffusion of Innovation Theory, which explains the adoption of new technologies and innovations within organizations. The theory posits that individuals adopt innovations at different rates, and early adopters typically outperform late adopters. Consequently, even with adequate ICT infrastructure and training, disparities in digital literacy and adaptation to e-administration exist among employees in tertiary institutions. Those who quickly embrace digital workflows are likely to achieve higher performance.

Electronic administration

Information and Communication Technology (ICT) represents a major innovation of the 21st century, enabling rapid processing, storage, and transmission of information (Liverpool & Jacinta, 2013) ^[15]. E-administration involves using ICT to manage, communicate, and deliver administrative services efficiently across departments and stakeholders. Scholars define e-administration variously: Ogbonna (2011) ^[17] and Eden (2006) ^[7] describe it as electronic information-based services reinforced with participatory elements, while Dairo (2014) ^[5] defines it as delivering management information and decision-making online. Radu and Polkowski (2014) describe it as transforming paper-based processes into electronic ones to create a paperless environment.

E-administration improves productivity and transparency (Brezoianu & Oprican, 2010) ^[3], reduces dependence on individuals, and introduces efficient, transparent workflows. It encompasses both intra-office and inter-office communication and facilitates administrative functions with minimal human effort. In Rivers State tertiary institutions, e-administration has reduced paper usage significantly, with online course registration, results checking, submissions, and exams simplifying administrative work. Standard ICT infrastructure—computers, high-speed internet, printers, scanners—supports these processes.

Bellamy (2005) ^[2] notes that e-administration enables new information flows that challenge traditional norms. Fountain (2005) highlights that it reduces bureaucracy and accelerates service delivery. It can also lower costs, increase transparency, and reduce corruption (Kumar et al., 2007). E-administration enhances organizational objectives by integrating electronic tools into daily operations (Schuppan, 2008). While developed countries such as the US and Canada have advanced e-administration systems supported by substantial government investments, Nigeria's educational sector has low digitalization levels and limited budgetary support (Ngulube, 2018).

Electronic personnel management systems track staff and student performance indicators, such as absenteeism and productivity. E-administration simplifies the management of the "4Ms" (men, money, machines, and materials), enabling efficient instruction delivery, office automation, and decision support through software tools (Contel, 2011). These systems do not replace decision-making but provide managers with data-driven options to enhance operational efficiency.

Electronic administration

Information and Communication Technology (ICT) has transformed organizational operations in the 21st century, enabling rapid processing, storage, and transmission of information (Liverpool & Jacinta, 2013). In tertiary institutions, ICT underpins electronic administration (e-administration), which digitizes administrative and managerial processes to enhance efficiency, transparency, and productivity. E-administration facilitates both intra-office and inter-office communication, enabling institutions to manage academic and administrative tasks with minimal manual intervention.

Scholars have defined e-administration in various ways. Ogbonna (2011) and Eden (2006) ^[7] describe it as electronic information-based services reinforced with participatory elements to achieve administrative objectives. Dairo (2014) ^[5] defines it as the online delivery of management information and decision-making, while Radu and Polkowski (2014) emphasize the transition from paper-based to electronic processes to create a paperless environment. In essence, e-administration integrates digital tools to streamline workflows, reduce dependence on individuals, and improve service delivery.

In Rivers State, tertiary institutions have implemented several e-administration processes. Students now register for courses, pay fees, submit assignments, and access results online. Certain examinations are conducted via Computer-Based Tests (CBTs), reducing manual workloads and enhancing efficiency. Administrative staff utilize ICT tools such as computers, high-speed internet, printers, scanners, and email systems to execute their tasks effectively. These technologies facilitate faster communication, reduce paperwork, and enable managers to monitor and evaluate staff performance, including absenteeism, task completion, and productivity metrics (Otamiri et al., 2016) ^[19].

E-administration also enhances governance and accountability. Bellamy (2005) ^[2] notes that it introduces new information flows that challenge traditional norms, while Fountain (2005) highlights its role in reducing bureaucracy and accelerating service delivery. Kumar, Mukerji, Irfan, and Ajax (2007) argue that e-administration reduces operational costs, enhances transparency, and minimizes corruption in service delivery. Similarly, Schuppan (2008) identifies e-administration as an effective mechanism for achieving organizational objectives through digital process management.

Globally, developed countries such as the US and Canada have advanced e-administration systems supported by significant government investments, ensuring seamless integration of administrative processes with service delivery (Kumar et al., 2007). In contrast, the Nigerian educational sector faces challenges, including low digitalization levels, inadequate ICT infrastructure, and limited budget allocation (Ngulube, 2018). Despite these challenges, certain measures such as biometric verification, online salary payments, and database-driven personnel management are gradually improving administrative efficiency and reducing anomalies such as ghost workers.

In managing the “4Ms” of administration—men, money, machines, and materials—e-administration facilitates faster and less stressful communication between superiors and subordinates. Office automation tools, including Decision Support Systems (Contel, 2011), support management in decision-making by providing data-driven options while ensuring transparency and accountability. Collectively, these systems improve task execution, information flow, and organizational performance.

In conclusion, e-administration is a transformative tool for tertiary institutions, enabling improved operational efficiency, better resource management, and enhanced employee performance. Its adoption, however, requires adequate ICT infrastructure, training, and cultural adaptation among staff to maximize its potential.

Advantages of electronic administration in tertiary institutions

Electronic administration (e-administration) offers numerous benefits to tertiary institutions, enhancing accessibility, inclusivity, and flexibility in service delivery. Ssweanyana and Busier (2007) observe that institutions investing in ICT enjoy increased efficiency, cost savings, improved service delivery, and higher overall performance. Similarly, Danda (2004) notes that e-administration enables institutions to streamline processes, reduce operational costs, and improve both formal and routine services.

Administrators play a key role in planning, initiating, storing, and retrieving institutional policies and past decisions to guide boards or committees. To perform these functions effectively, administrators must possess electronic literacy—the ability to efficiently utilize computers, access internet facilities, and process, store, and retrieve information to optimize institutional systems.

E-administration facilitates fast access to data, minimizes storage requirements, allows simultaneous multi-user access, and ensures better security. Data can be centralized and shared across departments—such as employee records, financial records, or inventory systems—enhancing planning, decision-making, and interdepartmental collaboration. Furthermore, e-administration reduces manpower requirements and ensures data integrity by minimizing manual handling and potential errors.

Concept of employee performance

Performance is defined as the accomplishment of tasks measured against predetermined standards of accuracy, completeness, cost, and speed (Cole, 2012). Employee performance may manifest as improved productivity, ease in adopting new technologies, or heightened motivation. Human resource management practices, including training, teamwork development, and skill specialization, have consistently been linked to enhanced employee performance.

Decenzo and Robbins (2010) define performance as the totality of work produced by a worker. Underperforming employees often experience limited career development opportunities, whereas organizations seeking commitment may employ

strategies such as competitive compensation, contract retention, and effective HR planning (Robbins, 2013). Studies, including the Hawthorne experiments, reveal that job satisfaction positively correlates with higher performance, job retention, and motivation (Landy, 2005).

Employee performance encompasses the capacity of individuals to achieve organizational goals efficiently (Hellriegel, Jackson & Slocum, 2010; Ilgen & Pulakos, 2014). Task performance, a key dimension, involves cognitive ability, technical skills, and work habits that enable employees to execute responsibilities effectively (Conway, 2009). In a digitally driven environment, employees proficient in ICT are more likely to excel, especially within tertiary institutions, highlighting the importance of fostering digital literacy for high performance.

Dimensions of employee job performance

- a) **Timely completion of tasks:** Timely task performance refers to the ability of employees to complete assigned tasks within set deadlines. For lecturers, this may involve covering the curriculum on schedule, while for administrative staff, it entails completing assignments promptly (Otamiri et al., 2016) ^[19]. Employees who consistently meet deadlines are considered high performers.
- b) **Work quality:** Work quality assesses the value and accuracy of outputs, interactions, and deliverables (Simplicable, 2017). Timely completion is insufficient if tasks are substandard; therefore, employees are encouraged to prioritize quality to meet organizational standards and client expectations.
- c) **Customer satisfaction:** Customer satisfaction measures how well products and services meet or exceed expectations (My Accounting Course, 2017). In the educational context, customers include students, organizations, and the general public. High satisfaction reflects quality service and contributes to organizational reputation and performance.
- d) **Employee output:** Employee output represents the quantity of goods or services produced within a given period. Employees who meet or exceed production expectations are considered productive, while those with lower output perform below standard. Enhanced output directly affects institutional efficiency and profitability.
- e) **Concurrent performance:** Concurrent performance involves handling multiple tasks simultaneously, including responsibilities outside formal job descriptions (Ferdinand, 2018). Employees willing to assist colleagues and contribute beyond assigned duties demonstrate higher engagement and overall performance, reflecting adaptability and commitment.

Relationship between e-administration and employee performance

Fountain (2005) asserts that e-administration, when implemented alongside the redesign of organizational processes, reduces bureaucratic bottlenecks and accelerates

service delivery in tertiary institutions. This suggests that the adoption of e-administration enhances the timely completion of tasks and overall efficiency. For instance, tertiary institutions equipped with standard ICT infrastructure—such as high-speed computers, internet connections, scanners, printers, and fax machines—enable students, lecturers, and administrative staff to resolve queries swiftly. Secretaries, in particular, handle minimal or no paper files, performing the majority of tasks electronically, which improves the speed and accuracy of administrative operations.

E-administration also contributes to improved work quality. The digitization of administrative processes reduces errors, repetition, and unnecessary manual interventions, ensuring that tasks meet organizational standards and regulatory requirements. In Nigerian tertiary institutions, particularly in Rivers State, administrative personnel achieve higher quality output when e-administration is fully implemented. Empirical evidence supports this assertion; Osakede et al. (2017) found that e-administration significantly enhances service delivery quality at Adekunle Ajasin University. This indicates a positive relationship between e-administration and the quality of work output.

Furthermore, e-administration positively influences employee output and concurrent performance. Administrative staff and lecturers are able to handle a higher volume of tasks and perform multiple assignments simultaneously, which is more

challenging in a manual or traditional administrative system. The use of electronic systems reduces job-related stress, enabling employees to take on additional responsibilities beyond their formal job descriptions, thereby contributing more effectively to institutional goals.

Methodology

The study adopted an explanatory survey research design. The research covered four state-owned tertiary institutions in Rivers State: Ignatius Ajuru University of Education, Rivers State University, Kenule Beeson Saro-Wiwa Polytechnic, and Elechi Amadi Polytechnic. The population consisted of 5,109 academic and non-academic staff across these institutions. Using Taro Yamane's formula, a sample of 370 respondents was determined for the study.

Data were collected using a structured questionnaire designed on a five-point Likert scale, ranging from Very High Extent (VHE = 5) to No Extent (NE = 1). The reliability of the instrument was assessed using Cronbach's alpha, with the lowest obtained coefficient being 0.72, indicating high reliability. Univariate analysis was conducted using tables, means, and standard deviations. The relationship between e-administration and employee performance was tested using the Spearman Rank Order Correlation Coefficient with the aid of the Statistical Package for Social Sciences (SPSS).

Table 1: Population distribution of the study

S/No	Selected Tertiary Institutions	Population per Institution
1	Ignatius Ajuru University	1,650
2	Rivers State University	2,150
3	Kenule Beeson Saro-Wiwa Polytechnic	702
4	Elechi Polytechnics	607
Total		5,109

Source: Personnel departments of the selected Tertiary Institutions in 2019.

Data analysis and results

Out of the 370 copies of questionnaire administered, 342 were retrieved, 28 copies were not filled and returned. Therefore, the

analysis in this section is done based on 342 useable copies of the instrument.

Table 2: Items and scores on e-administration

S/N	E-Admin istration	VHE	HE	ME	LE	NE	TOTAL
		5	4	3	2	1	
1.	Computer systems are used to process, store, share, and print official documents in all administrative offices in tertiary institutions.	150	110	50	20	12	342
2.	Most of the institutions around us adopt online administration and registration.	162	90	46	24	20	342
3.	Results computation is generally done using spreadsheet and electronic result management system.	178	80	40	29	15	342
4.	Most of the offices do not have printers, photocopy machines, and external storage devices to store data/information.	143	94	50	30	25	342
5.	Students' data are stored and accessed from database management system.	151	95	45	31	20	342

Source: Fieldwork, 2020.

Table 4.1 showed the response frequency for each of the response options. For instance, on measurement item 3, the respondents were required to indicate their view on the extent to which spreadsheet and electronic result management

systems are used in the computation of students' results in their institutions. Majority (178) of the respondents indicated to a very high extent; 80 of the respondents indicated to a high extent; 40 of the respondents indicated to a moderate extent; 29

of the respondents indicated to a low extent; while 15 of them indicated to no extent. Furthermore, a general look at the response frequencies shows that the responses are generally clustered around very high extent and high extent. Therefore, the overriding view is that tertiary institutions in Rivers State run electronic administration (e-administration) to a very high extent. The responses are summarized in the SPSS table shown overleaf.

Discussion of findings

The analysis of the research hypothesis (Table 4.5) revealed a Spearman correlation coefficient (r) of 0.713 at a significance level of 0.00, indicating a strong positive relationship between e-administration and employee job performance in tertiary institutions in Rivers State, Nigeria. This finding suggests that the adoption of electronic administration significantly enhances the job performance of employees in these institutions.

Tertiary institutions in Rivers State have made substantial progress in computerizing their administrative systems. Today, most offices and units are equipped with functional ICT infrastructure, which facilitates efficient administrative operations. The findings show that the utilization of computer resources in institutional administrative activities improves employees' ability to perform assigned tasks effectively. This aligns with the study by Bede, Termit, Fong, and Onwuagboke (2014), which found that internet usage positively impacts the job performance of academic staff in Colleges of Education in South-Eastern Nigeria.

Fountain (2005) emphasizes that e-administration, when implemented alongside the redesign of organizational processes, reduces bureaucratic red tape and accelerates service delivery. In tertiary institutions, this translates to timely completion of tasks and efficient handling of administrative queries. Offices are now equipped with laptops, smart PCs, printers, scanners, and internet connectivity, enabling staff to perform tasks more conveniently and efficiently.

Additionally, e-administration improves the quality of work output. By reducing the reliance on paper and minimizing human errors and repetitions, administrative tasks are performed with higher accuracy and adherence to organizational standards. This ensures that service delivery meets both regulatory requirements and customer expectations. Evidence from Osakede et al. (2017) supports this conclusion, demonstrating a significant positive impact of e-administration on the quality of service delivery at Adekunle Ajasin University. Overall, the findings confirm that e-administration is a critical tool for enhancing employee performance in tertiary institutions.

Conclusion and recommendation

Based on the study findings, it can be concluded that electronic administration is positively associated with improvements in employee job performance in tertiary institutions in Rivers State, Nigeria. Employees in institutions that have adopted e-administration demonstrate enhanced efficiency, improved work quality, and greater capacity for multitasking.

In view of these findings, it is recommended that the management of tertiary institutions in Rivers State should continuously upgrade and maintain their electronic administrative infrastructure. By doing so, institutions will ensure enhanced communication, streamlined administrative processes, and sustained improvements in employee job performance. Furthermore, regular training programs should be instituted to equip staff with the skills required to maximize the benefits of e-administration.

References

1. Bede BCO, Termit KRS, Fong SF, Onwuagboke JN. Internet use among faculty members of college of Education in South-Eastern Nigeria. *Eur Sci J*. 2014;10(31):88–102.
2. Bellamy C. Information and communication age. Buckingham: Open University Press, 2005.
3. Brezoianu D, Oprican M. The development of electronic administration. London: Mark Press, 2010.
4. Cole GA. Personnel and human resource management. 5th ed. London: York Publishers, 2012.
5. Dairo R. Impact of technology on workplace productivity. *The Punch Newspaper*. 2014 Apr 16;(34):37.
6. Dessler G. Human resources management. 14th ed. New Jersey: Pearson Education Inc, 2015.
7. Eden DA. Introduction to educational administration in Nigeria. Ibadan: A Spectrum Book Ltd, 2006.
8. Ferdinand H. What is concurrent performance? [Internet]. 2018 [cited 2019 Dec 12]. Available from: <https://concurrent.com/what-is-concurrent-performance>
9. Fountain JE. Better public service for growth and jobs: Analysis of the public employees' perceptions in South Korea. *Int J Public Adm*. 2005;31(14):1548–1568.
10. Hellriegel D, Jackson SE, Slocum JW. Management. 8th ed. Cincinnati, Ohio: South-Western College, 2010.
11. Ilgen DR, Pulakos ED. Employee performance in today's organizations. *Int J Sel Assess*. 2014;4(2):21–55.
12. Kerning J, Jaeger R. Management in developing countries. New York: Routledge, 1990.
13. Kumar V, Mukerji B, Irfan B, Ajax P. Factors for successful e-government adoption: A conceptual framework. *Electron J E-Government*. 2007;5(1):63–77.
14. Lisa O. Practice of office and information management. Lagos: GTI Prints, 2016.
15. Liverpool EO, Jacinta AO. Information and communication technology (ICT): A panacea to achieving effective goals in institution administration. *Middle Task J Sci Res*. 2013;15(2):200–207.
16. Odu S. Technostress and effectiveness of office and information managers in tertiary institutions in Rivers State. Unpublished M.Sc. dissertation. Port Harcourt: Ignatius Ajuru University of Education, 2018.
17. Ogbonna B. E-government: The challenges of modern ICT in developing nation. Enugu: Garricks' Press, 2011.
18. Osakede KO, Ijimakinwa SO, Arijeniwa W, Adesanya T, Ojo B. The impact of e-administration on service delivery in Adekunle Ajasin University Akungba-Akoko (AAUA)

- Ondo State, Nigeria. *J Manag Stud Econ Syst.* 2017;3(3):173–182.
19. Otamiri S, Wagbara SO, Odu S. Digital work system and business educators' performance in post oil boom: A study of selected tertiary institution in Rivers State. Paper presented to the Association of Technical Education of Nigeria, 2016.
 20. Radu A, Polkowski Z. Theoretical, technical and practical aspects of e-administration. *J Digit Admin.* 2014;1(7):187–210.
 21. Simplicable. 16 types of work quality [Internet], 2017 [cited 2019 Dec 12]. Available from: <https://simplicable.com/new/work-quality>
 22. Ssweanyana J, Busier M. Adoption and usage of ICT in developing countries: Case of Ugandan Firms. *Int J Educ Dev Using ICT.* 2007;3(3):49–59.