THE ROLE OF E-GOVERNANCE ON ADMINISTRATIVE EFFICIENCY IN ADAMAWA STATE UNIVERSITY, MUBI

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ABSTRACT

This study examines the effect of e-governance on administrative efficiency in Adamawa State University Mubi, Nigeria. Using a mixed-methods approach that combines both qualitative and quantitative methods. The study collected primary data through semi-structured questionnaires from a sample of 390 academic staff and undergraduate students, as well as secondary data from published sources. The findings show that e-governance implementation has significantly improved administrative efficiency, despite some challenges. The benefits of e-governance include enhanced transparency, reduced bureaucratic delays, improved data management, and better decision-making. However, the study also highlights the need for adequate infrastructure, training, and security measures to fully leverage e-governance in enhancing administrative efficiency.

Keywords: E-governance, Administrative Efficiency, Computer-Based-test Examination system (CBT)

1.1 Background to the study

Universities play a critical role in the development of manpower required for socio-economic and technological advancement. They are the highest level of education institution with a repository of knowledge that impacts students for national and global problem-solving and development. Universities serve as a storehouse of knowledge for nurturing national and global manpower needs for self-actualization, societal transformation, and development. Without education institutions like universities, ignorance will prevail, and the requisite skills and technical manpower to champion the development agenda of countries will be absent.

Universities exist to foster advancement in learning, serve as change agents, and provide the needed manpower to industries (public and private) through imparting knowledge, skills, and competence to students. To effectively carry out their obligation of teaching, learning, research, and community engagement, universities need adequate and quality academic staff. The quality of a university and the knowledge it impacts is predicated on its academic staff. This brings to the front burner, the essence or importance of e-governance and administrative efficiency in the university system.

The purpose of the introduction of E-governance in the educational sector is to enhance the consistency and quality of education, with the support of ICT. "E-governance provides a new way of communicating with students, new ways of organizing, a new way of communication between administrators, and new ways of delivering information and services to students". (Dubey & Ahmad, 2013).

Many different tools can be used for e-governance, such as online portals and websites for accessing information and services, email and text messaging for communication, social media platforms for engagement and feedback, data analytics for monitoring and evaluation, mobile apps for accessing information and services on the go, cloud computing for secure data storage and sharing, and Management Information System (MIS), through the use of ICT.E-governance has supported many of the core principles of the New Public Management (NPM), such as efficiency, effectiveness, and transparency. NPM emphasizes the use of market-based approaches such as privatization, competition, and performance measurement to improve the efficiency and effectiveness of government. The new public management (NPM) theory emerged in the 1980s as a way to improve the efficiency and effectiveness of public sector organizations. NPM emphasizes the use of market-based mechanisms, such as competition and performance-based incentives, to achieve these goals. One of the key tools of NPM is the use of information technology (IT) to support these market-based mechanisms. E-governance is one of the key applications of IT in the public sector. By providing online access to information and services, e-governance can help to improve efficiency and transparency. (Michael O & Linda O, 2008) E-governance supports NPM by making it easier to deliver government services and information to citizens, businesses, and other organizations.

The role of e-governance in university administrative efficiency. E-governance can play a crucial role in improving the efficiency of university administration in several ways. For instance, it can streamline processes and make them more efficient. For example, students can use e-governance to register for courses, pay fees, take examinations and access their grades online. This can save time and resources for both students and staff. Another way e-governance can improve administrative efficiency is by increasing transparency and accountability. With e-governance, information is more accessible and transparent, which can help to reduce corruption and increase trust in the university.

Adamawa State University, Mubi is a renowned institution of higher learning in Nigeria. As with any academic institution, efficient administration plays a vital role in the overall functioning and success of the university. In recent years, there has been a growing emphasis on leveraging digital technologies to improve administrative efficiency, leading to the emergence of electronic governance (e-governance). (Adewale k, & Taiye 2018).

Universities have been using technology to streamline their operations for many years. In recent years, however, the field of e-governance has gained increasing importance as universities have adopted more advanced technology solutions. In particular, Adamawa State University, Mubi (ADSU) has implemented a number of e-governance initiatives in recent years. These initiatives include E-library, CBT examination system, with online portals and databases and an online student portal, which provides a variety of services including registration, course selection, grading, and transcripts. The portal allows students to

make payments and view financial aid information. These initiatives have made it easier for students to manage their academic and financial affairs. However, these initiatives have also presented some challenges for example not all students have access to the technology needed to use the online portal.

Before the advent of ICT (information and communication technology), university administration was largely paper-based. Which requires a lot of manpower this meant that tasks like enrollment, grading, and record-keeping were all done manually. For example, students would need to fill out paper forms and submit them to the appropriate department. Grades would be calculated by hand, and paper records would be kept in filing cabinets. Which slows the entire administrative process. The old way of doing things was not only time-consuming, but it was also prone to errors. ICT has allowed for much greater efficiency and accuracy in university administration.

Despite the potential benefits of e-governance in enhancing administrative efficiency in universities, many institutions still rely on traditional paper-based systems. This has resulted in inefficiencies, delays, and errors in the delivery of services to students and other stakeholders. The lack of e-governance has also hindered effective communication between administrators and students, leading to a breakdown in trust and confidence in the university system.

1.2 RESEARCH QUESTION

i. To what extent does e-governance influence Computer-Based-Test examination in Adamawa State University, Mubi?
ii. To what extent does e-governance influence Result and transcript Computation/processing in Adamawa State University, Mubi?

1.3 OBJECTIVES

i. Examine the impact of e-governance on the administrative efficiency of Computer-Based-Test examination in Adamawa State University, Mubi.
ii. Examine the impact of e-governance on the administrative efficiency of result and transcript computation/processing in Adamawa State University, Mubi.

LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Conceptual Framework of the study

A conceptual review entails building the level of sophistication to define concepts from elementary to comprehensive, explaining the variables of study and their interrelationships. In academic research especially empirical research, a conceptual review is useful because it identifies not only the study variables and relationship but also provide insight by ways of summarizing the nature of the study.

Therefore, the current study provides a conceptual review that describes the nature of the study by providing a summary of the variables and their relationship Figure 2.1 present the conceptual review of the study.
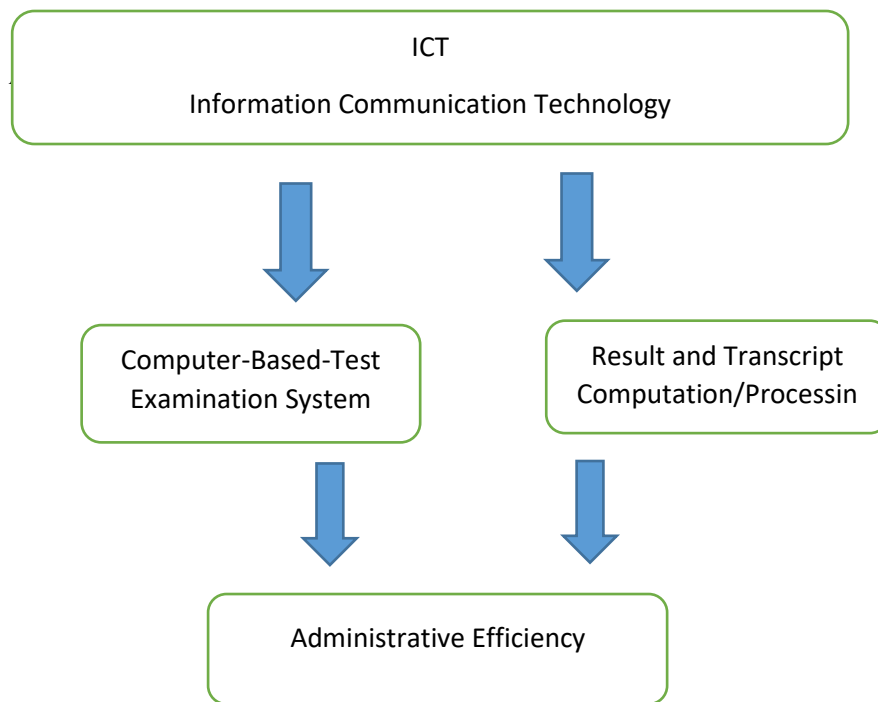
Figure 2.1 Conceptual Framework of the Study.
Source: Researcher's Design

The main objective of this study is to examine the role of e-governance on the administrative efficiency towards the academic staff and students in ADSU, Mubi. Figure 2.1 showed that the study has one (1) main variable: Information Communication Technology (ICT). It is clear from the figure above that the main variable Information Communication Technology (ICT) influences Computer-Based-Test (CBT) Examination System and Result computation/processing and transcript. The Information Communication Technology (ICT) is a significant factor that influence the computer-based-test examination system and the result computation/processing and transcript. Thereby giving an over roll influence on the e-governance administrative efficiency at large

2.1.1 E-Governance: Meaning and Scope

E-governance is a compound term made up of the "e" prefix which stands for electronic and "governance". Electronic here means a medium dealing with automation of activities and processes using technological devices. Governance is subjected to different interpretation but, the definition by Monga (2008) is close to the ideal. Accordingly, governance refers to the complex mechanisms, processes, relationships and institutions through which citizens and groups articulate their interests, exercise their rights and obligations and mediate their differences.\

"The term 'e-Government' was born out of internet boom. However, it is not limited to internet use or publicly accessible systems for direct use by customers or citizens". "E-Governance started as a practitioner field, basically convening practitioners struggling to meet the new challenges of the internet medium by implementing new systems creatively (Gore, 1993; Salem, 2003)". "E-Governance is a broader concept that encompasses all interactions and exchanges between the government and the governed and includes e-voting, e-democracy and e-representation. E-Government relates to the use of ICTs to transform and support services provided to the generality of people concerned". In other words,

"e-Government can be seen as the transformation of internal and external public sector relationships, through ICT in order to optimize service delivery and people's participation".

"E-Government according to European Union is the use of Information and Communication Technologies in public administrations combined with organisational change and new skills in order to improve public services and democratic processes", (EU, 2004). "E-Governance is a process of reform in the way management's work, share information, engage people and deliver services to external and internal clients for the benefit of both the managers and the clients that they serve". 'E-Services such as e-Tax systems, e-Registration, e-Payment system, etc. are e-Government services and their adoption and their process of execution is referred to as e-Governance'.

"Although e-Government is often defined as "online government" or "Internet-based government", many non-Internet "electronic government" technologies such as the telephone, fax, short message service (SMS), multimedia messaging service (MMS), wireless networks, Bluetooth, television and radio-based delivery of government services can be used in the context of e-Government", (Anttiroiko & Malkia, 2006; Heeks, 2004).

2.1.2 Objective of e-Governance

'The strategic objective of e-Governance is to support and simplify governance or administration for government, managers/administrators, people and businesses'. "The use of ICT can connect all parties and support processes and activities. Other objectives are to make administration more transparent, speedy and accountable, while addressing the society's needs and expectations through efficient public services and effective interaction between the people, businesses and government". Akinfenwa (2014) added that, "e-Governance objectives are to cut down on wasted paper and space by converting important documents and files to electronic files, increase efficiency of administrative processes, lessen the administrative burden faced by personnel, reduce labour, time and cost of repetitive task and improve productivity and performance".

The importance of E-governance

The Guidelines and Roadmap for Full Deployment of E-governance System in Africa (2019) "highlights the importance of E-governance and presents the actual state of E-governance in Africa. According to the guide, E-governance is an indivisible and integral component of the traditional governance of a country, therefore E-governance is a way to lead or perform using technological tools. The guide also says that digital technologies improve governances and E-governances".

Patel & Vora (2012) "carried out a study about the importance of E-governance in India and the challenge to implement it. In their research, they pointed out five characteristics of the importance of E-governance numbered 1-5 below":

1. Building Strong and Effective Information Chain:

The citizen can get effective information in an easier way through the information chain. The information chain can have an impact on effective E-governance structures. Most information such as

personal information, statistical data, and general information can easily be obtained easily by using the Internet application or accessing a Website. One of the benefits of E-governance is the dissemination or spreading of information to the citizens.

2. Fast and Convenient Service to Citizens

E-governance allows the citizens to have access to information in a very fast and effective way, so that the citizens can do online application, get information via E-mail. Researchers can get documents easily in electronic format. The citizens can benefit from using online services supported by E-governance.

3. Effective Utilisation of Resources

E-governance has a huge benefit over paper-based material because with the utilisation of E-governance one can obtain fast-computerised data and generate this data in a fast way.

Therefore, the source utilisation can be high by using E-governance.

4. Integration of Communities

E-governance allows a company or an organisation to integrate their departments and share information. This kind of integration is in the ERP system and ERP provides many reports to enable companies or organisations to make decisions.

5. Reduction in Delays, Red Tape and Corruption

E-governance offers a variety of tools to improve service delivery to the public. In addition, E-governance generates transformation in different work processes and service delivery. Furthermore, E-governance reduces the transition cost and fosters the improvement of accountability. The promotion of transparency is one of the key areas of E-governance. Lastly, one of E-governance's brand is the reduction of corruption and promote accountability by making budgets and progress reports. E-governance reduces the delay of the processes, fast the procedures, and help to reduce the bureaucracy end to ensure security in transaction processes.

2.1.3   E-Governance in relation to Universities

Adekigbe, (2005) "defined university as a place of enlightenment, a place for exploring the frontiers, and an institution in which people through the process of socialization, are imbued with the ability, not just to discern things but also to apply theories to explain events, values, the knowledge of the natural order for the pursuits of the common good, and the individual well-being". University is also "a place for training high-level manpower and for equipping the individuals to determine their level of performance of future roles".

"It is a clear fact today that it is inevitable for university system to progress and compete without ICT facilities. Universities are in desperate need of e-systems in almost every activity. Staff and Students feel excited with internet facilities because it eases their activities. Administrators found communication and

information retrieval easier, guaranteed and secured through ICT usage. It is due to such benefits that Universities across the globe have been struggling to implement e-Governance system".

2.1.4 E-governance in Adamawa State University, Mubi

"E-Administration and e-Management have been given much attention in recent policy debates of NUC, in particular in the context of the so-called Intel-Institutions with the twin introduction of Universities Program Accreditation Portal (UPAP) and Nigerian University System Management Portal (NUSMAP)". Its aim is to "develop an e-management model that would specify the benefits and the objectives for the user's community, as to (Ogbonna et al, 2011)"; since the inception of higher education in Nigeria and ADSU in particular there has been series of challenges confronting both management, staff and students and all these challenges have implication for educational management. In the word of Okoli (2015), part of the challenges facing Nigerian Universities from the beginning includes 'the issue of admission, accommodation, student unionism, funding, strike and the likes. Going by the challenges listed above, some of them are students bound while others are institutional bound'.

2.1.5 E-governance and computer based test (CBT) examination system

"The paper and pen (manual) method of writing examination, which has been in existence for decades, may not be appealing for use because of the problems usually experienced including examination venue capacity constraints, lack of comfort for examination candidates, delay in the release of results, examination malpractices, cost implication of printing examination materials and human error. This brings about the need for automation of the examination system". Over the years, "there have been various automated examination systems that have been developed with one or more limitations". Some of these limitations include "lack of scalability, near-reliability, lack of robustness, lack of flexible timing functionality to automatically log-off candidates upon expiration of allotted time as a challenge (Ipaye, 2009)". "Technology has helped us in so many ways and one of the ways the technology has helped us is in the assessment of students' learning outcome with the use of Electronic Examination that is used to examine students at some specific levels of the University. It is a more refined means of examination used in place of the usual pen to paper method. Moreover, computer-based test is an assessment of students with the use of computer and the internet or intranet as the case may be as an alternative method to pen to paper". Al-Amri (2009) "conceptualized computer-based testing as the use of computer to administer a conventional (paper-and-pencil) test". "Computer-based examinations are forms of assessment in which the computer is an integral part of question papers' delivery, response storage, making of response or reporting of results from a test or exercise", (Whittington, Bull & Danson, 2000).

Daramola (2017) explained that, "computer-based examination requires a system of interconnected computer networks with the Standard Internet Protocol Suite (SIPS) to serve the user. This examination can be delivered online via the internet or using specific computer systems to answer questions presented on the monitor. The test taker submits the answer using keyboard or a mouse. Benefits of CBT have been identified by different researchers". For instance, "Smither, Walker, and Yap (2004) identified enhancement of speed of delivery, administration and scoring efficiency, improved test security, consistency and reliability, faster response rate among others". "CBT provides positive interactions or

communication opportunities and immediate feedback to students", (Daniels & Gierl, 2017).Researchers (Aduwa-Ogiegbaen & Iyamu, 2005; Saad, 2009; Chua & Don, 2013; Abubakar & Abdullahi, 2020) found that, "computers and the internet had improved the proficiency and effectiveness of the evaluation process of education at all levels". Similarly, Bodmann and Robinson, (2004) viewed that, "technology-based assessment provide opportunities to measure complex form of knowledge and reasoning otherwise impossible through traditional methods". Moreover, "the conduct of examination is pivotal to the assessment of students' understanding of the courses of learning at all levels of education from primary to secondary education". The performance of students however determines whether they are promoted to next level or not. "There are various modes of administering examination: oral examination, written or paper based. The most recent addition to mode of conducting examination is computer-based examination", (Daramola, 2017). "The advent of this was a breakthrough experienced in technological advancement globally. Each of this mode of examination however, has it inherent merits and demerits, nevertheless, the succeeding ones come along to correct the errors of the preceding". "Computer-based mode of assessment has also been adopted by several Universities in Nigeria. One of the significant events that culminate the introduction of CBT in our institutions was the outbreak of the COVID-19 pandemic in the year 2020. The restriction of movement compelled the higher institutions of learning across the nation to seek for an alternative and friendlier means of conducting their educational businesses".

2.1.6 Computer Based Testing (CBT) System for GST exams in Adamawa State University, Mubi

'General Studies usually coded as GST' "is a university based core course that equip students with education-oriented skills that cover a broad range of topics, thus prepare them for endless career paths. General Studies is a common nomenclature in most institutions of higher learning. By status, GST is compulsory for all registered students irrespective of course of study or Programme of study at the university. In other words, all General Studies courses must be offered and passed by students to meet graduation requirement of the University". (Adulkareem & Nachandiya, 2018).

"As the name implies, general studies is "general" because it encompasses studies from a wide range of contents from various spheres of human endeavors. The course is tagged with various names in other institutions but it is generally refers to as GST in Adamawa State University, Mubi". "Due to the ever increasing number of students offering GST courses and some observed examination irregularities like delays in processing results; there is a need to employ a method of assessment that can be used to conveniently examine a large number of students at the same time. Computer Based Test is a modern approach to testing and assessment". Used in multi-dimensional ways, "though only very few organisations in Nigeria, including tertiary institutions, have gone beyond word processing and other routine tasks". In many educational sectors, "educational evaluation has moved towards the use of computer-based testing (CBT), which is known as tests or assessments that are administered by use of computer through technological devices linked to the intranet and in certain cases, internet". Computer based Test simply refers to 'tests and assessments conducted through the use of organized systems on computers'. "Computer Based tests have the ability to automate a very time consuming task, marking and monitoring progress. Chalmers sees Computer Based test as a test that can be used in a supervised or non-

supervised environment and can allow students to check their progress through self-assessment. It can also be used for testing lower-order skills (such as knowledge, understanding and application); it can also be used for testing higher-order skills to improve the students' analysis, synthesis and evaluation skills with more complex application software". (Adulkareem & Nachandiya, 2018).

2.1.7 Overview of CBT System

"During the last few decades and especially from 1990 onwards computer-based testing (CBT) has become one of the most conspicuous ways of organizing and delivering the tests. The reason behind this prominence of CBT over the paper and-pencil based testing is its ease of administration, immediate display of results, improved item development, enhanced identification and authentication, and so forth". However, "most of the organisations and institutions are still relying on the examinations where the examinees have face to face exams in an identified place under an administered situation. This may help the organisations to check the authenticity of the examinee by checking his identity using ID card and also reshaped the method of evaluating students". Kuyoro et al. Viewed CBT as "an assessment platform in which a computer is an integral part of question papers' conveyance, response, marking of response or report of results from a test". "The main goal of a computer based testing system is to provide all features that the examination system must have, with a user friendly interfaces that don't terrify its clients". (Taylor, 2015), "a Computer-Based Testing system could be conveyed on a remain solitary PC, inside a disengaged Local Area Network (LAN) or online using technologies such as the web, for example, web pages over the Internet. The two sorts of CBT system are: Linear Test and Adaptive Test".

"Many tertiary institutions are now using the CBT system for conducting Post-UTME examination for screening students into universities. So many universities in Nigeria are fully or partially implementing the use of CBT system for evaluating their students". However, "some institutions like the National Open University of Nigeria (NOUN), has fully implemented the use of CBT system for assessing their students and it was employed through the internet, while other institutions employ through the intranet". Since 2015, "the Joint Admission and Matriculation Board (JAMB) has been using the CBT system fully to conduct exams for admission into the tertiary institutions in Nigeria". 'The use of ICT services can only be appreciated when compared with the manual method where students wait so long before getting their result'.

2.1.8 Influence of Computer-Based Test (CBT) on Examination Malpractice in Public Examinations

Examining someone is the process of determining their level of comprehension, knowledge, and academic aptitude in a predetermined amount of time. "Examinations are arranged to evaluate the academic achievement of students and to know whether they have achieved a standard of academic learning and knowledge", (Suleman, Gul, Ambrin & Kamran (2015). Exam results are a major factor in determining whether or not the goals of the academic process are being fulfilled. Even while exams are extremely important in the academic process, there are a number of problems that have compromised their credibility, one of which is examination misconduct.

"Examination malpractice is an illegal behaviour by a candidate before, during or after the examination in other to achieve undue success easily". Adedojun (2003) defined examination malpractice to include "misconduct or any other act not in consonance with the rules and regulations guiding the examination with a view to obtaining good result by fraudulent means". Wilayat (2009) noted that "examination malpractice is any illegal act committed by a student single handedly or in collaboration with others; like fellow students, parents, teachers, supervisors, invigilators, printers and anybody or group of people before, during or after examination in order to obtain underserved marks or grades. Examination malpractice comes in different forms which includes, coping, sorting, bringing foreign materials into examination halls, impersonation, exchange of scripts, use of electronic devices such as phones, calculators collusion with invigilators, and exam officers smuggling scripts written outside into exam halls".

2.1.9 Challenges Experienced by the Students' During the Conduct of Computer-based Test (CBT) Mode of Examination.

Wordu, Olutimilehin, and Kelechi, (2020) "identified inadequate ICT infrastructure, poor power supply, students' inadequate skills in ICT as challenges experienced by students during the conduct of computer-based mode of examination". Azor and Ogwu, (2019) opined that "weak network connection, poor power supply and computer illiteracy by students as challenges in using computer-based test". Fagbola, Adiguu, and Oke (2013) "identified poor standardized computer-based assessment development model as challenges to the success of e-examination". Fluck, Pullen and Harper (2009) opinioned that "online assessment may not be effective for evaluating creativity, problem solving ability, critical thinking, reflection" or authentic learning; collectively the characteristics of deep and effective learning. Inadequate ICT infrastructure including hardware, software and bandwidth accessibility".

2.1.10 E-governance on Result and transcript computation/processing

The ongoing process of turning data—scores, grade points, credit units, etc.—into concrete and significant information—statement of result, transcripts, etc.—is known as result processing. These outcomes are used to evaluate each student's performance across a range of courses. When these results are processed manually, a number of issues arise, including computation errors, results that are not secure, messy results after adjustments have been made, and an increased workload for the test officer or officers, among other issues. Nonetheless, these issues can be minimized by planning, executing, and computerizing the transcript creation and result processing systems. "Providing password can do this, which grants access to only authorized user(s). Corrections or changes are affected without making the work untidy", (Umar A. B, et al, 2023).

According to Osunade, O.et al., (2018) "the result-processing and transcript generation are two tasks within tertiary institutions that link the academic section with the administrative section. The academic section examines the students, grade the examinations and award scores for each course taught in the semester. The Department approves the scores at a meeting and directs the examination officer to process the overall performance of students in the department for that session and to distribute the scores to departments who have students with scores in a course taught in that department". Examining officers can

process or compute the total performance of every student in the department using a range of tools (e.g., calculators, excel sheets, custom programs). The Faculty Board is presented with the processed results of every academic level from the Departments for approval. The Faculty submits the results to the Senate for approval in collaboration with the Examinations Office on behalf of the Departments. The Senate's approval is final. Students in their last year and those who are not follow the same procedure. Senate clearance is required for all other operations, including transcript production and results statement preparation. The University of Ibadan Act (1962) section 5 part 2c empowers Senate as follows "the organization and control of courses of study at the university and of the examinations held in conjunction with those courses."

In line with the above statement it can be seen that E-governance can be used to facilitate the digitization of results computation/processing and transcript. And this could improve the accuracy, efficiency, and transparency of the processes as well as reduce the risk of errors or corruption. E-governance can also help automate the process of result computation and transcript generation, reducing the workload of staffs and ensuring timely delivery of results to students. Additionally E-governance can enhance the security of the results computation and transcript processes by implementing features like encryption, digital signatures and access control. This could help prevent tampering and unauthorized access to student record. E-governance can facilitate the Integration of results computation and transcript management with other administrative systems in Adamawa State University, Mubi (ADSU). Such as student information systems (SIS), finance systems, or human resources management systems (HRM). This could improve the overall efficiency and effectiveness of the University administrative processes. By integrating E-governance with these systems, University like Adamawa State University, Mubi can create a more efficient and effective administrative ecosystem, where information flows smoothly between different departments and processes are automated and secured.

2.2   Theoretical Framework

The theoretical framework for this study is based on two theories: Decision-Making Theory and the Technology Acceptance Model (TAM). Decision-Making Theory, rooted in the works of Simon (1945, 1960), Weber (1947), Mintzberg (1973), and Iyayi (2002), posits that organizational decisions are rational and essential for achieving enhanced performance. Decision-making is a continuous process triggered by a felt need to solve a problem or take advantage of an opportunity. The success of an organization is largely dependent on the decisions made by its management team.

The Technology Acceptance Model (TAM), proposed by Fred Davies in 1989, emphasizes the acceptability of an information system. TAM suggests that perceived usefulness and perceived ease of use determine an individual's intention to use a system, which in turn affects actual system use. The model is applicable to the adoption of e-governance in Adamawa State University, Mubi, as it explains the role of self-efficacy, perceived cost, technological infrastructure, power supply, and internet facilities in supporting the adoption of e-governance.

3.0   METHODOLOGY

This study employed a mixed-methods approach, combining both primary and secondary data collection methods, Saundars, lewis and thornhills (2012). The primary data collection process involved administering questionnaires to academic staff and undergraduate students in each department, with the assistance of trained research assistants who were staff members of the respective departments. This helped ensure accurate data collection and minimize missing responses and unreturned questionnaires. To further mitigate potential attrition, a 20% buffer was added to the total sample size, following Krejcie,(1970) recommendation. The data collection process took five weeks, from April 8th to May 13th 2024.

To complement the primary data, secondary sources were utilized, including official publications, textbooks, academic journals, articles, and websites of ADSU and ICT. These sources provided valuable information on e-governance, administrative efficiency, and related concepts. The questionnaire served as the primary data collection instrument, designed to gather information on e-governance, administrative efficiency, and related factors. Additionally, the researcher observed the administration of questionnaires and noted relevant observations. By combining both primary and secondary data, this study aimed to provide a comprehensive understanding of the role of e-governance in enhancing administrative efficiency in ADSU.

RESULTS AND DISCUSSION

4.0   E-Governance and Computer-Based-Test Examination System

The use of computer-Based-Test examination System is identified as one factor that could significantly be influence by the E-governance administration of ADSU. Thus the variables was examined in the University under using seven (7) statements. Table 4.1 presents the responses generated and the descriptive statistics.

Table 4.1: Descriptive Statistics on E-Governance and Computer-Based-Test Examination System

Item	SD	D	N	A	SA	Mean	SD
E-governance has enhanced the reliability and efficiency of the CBT examination system	4(1.1)	43(11.3)	46(12.1)	173(45.5)	114(30.0)	3.92	0.982
E-governance has improved the accuracy and transparency of CBT results	33(8.7)	47(12.4)	27(7.1)	185(48.7)	88(23.2)	3.65	1.209
The CBT system is reliable and accessible for student	41(10.8)	71(18.7)	21(5.5)	191(50.3)	56(14.7)	3.39	1.249
CBT helps in conducting a large number of student examination within a time frame	12(3.2)	49(12.9)	11(2.9)	160(42.1)	148(38.9)	4.01	1.105
CBT make examination easier for both academic staff and student	41(10.8)	28(7.4)	33(8.7)	133(35.0)	145(38.2)	3.82	1.307
CBT saves time and manpower for the test/examination administration	20(5.3)	35(9.2)	15(3.9)	145(38.2)	163(42.7)	4.05	1.148
Insufficient CBT centres leading to batching system and inadequate ICT infrastructure facilities	6(1.6)	23(6.1)	5(1.3)	217(57.1)	129(33.9)	4.16	0.845
OVERALL MEAN						**3.85**	**0.623**

Note: (1) Values in parenthesis represent percentage (%). (2) Acceptance ($\bar{X}$ is 3 and above); Rejection ($\bar{X}$ is less than 3)

Source: Field Survey 2024

Table 4.1 reveal that 47 (4 and 43) respondents representing 12.4% (1.1% and 11.3%) disagree with the statement that E-governance has enhanced the reliability and efficiency of the CBT examination system, 287 (173 and 114) respondents representing 75.5% (45.5% and 30.0%) agreed on the matter while 46 respondents representing 12.1% were indifferent. The mean value of 3.92 is above the threshold of 3.00, suggesting that the respondents believed that E-governance has enhanced the reliability and efficiency of the CBT examination system. The standard deviation of 0.982 is less than the mean responses value 3.92, implying that the responses of the respondents were not widely dispersed.

Regarding the statement of whether E-governance has improved the accuracy and transparency of CBT results. Table 4.1 indicates that 80 (33 and 47) respondents representing 21.1% (8.7% and 12.4%) disagree with the statement while 273 (185 and 88) respondents representing 71% (48.7% and 23.2%) held a contrary opinion and 27 respondents representing 7.1% refrained from commenting on the matter. However, the mean value of 3.65 is above the mean threshold of 3.00, meaning that, overall, the respondents held that E-governance has improved the accuracy and transparency of CBT results in the University. The standard deviation of 1.209 is less than the mean response value of 3.65 which is evidence that the responses of the respondents were not widely dispersed.

Table 4.1 indicates that 112 (41 and 71) respondents representing 29.5% (10.8% and 18.7%) disagree that The CBT system is reliable and accessible for student but 247 (191 and 56) respondents representing 65% (50.3% and 14.7%) opined otherwise while 21 respondents representing 5.5% were indifferent. The mean value of 3.39 is above the threshold of 3.00, meaning that the university CBT system is reliable and accessible for student. The standard deviation of 1.249 is less than the mean response value of 3.39 and means that the responses of the respondents were not widely dispersed.

It is also clear from Table 4.1 that 61 (12 and 49) respondents representing 16.1% (3.2% and 12.9%) disagree that CBT helps in conducting a large number of student examination within a time frame whereas 308 (160 and 148) respondents representing 81% (42.1% and 38.9%) stated that CBT helps in conducting a large number of student examination within a time frame while 11 respondents representing 2.9% were either for or against the statement. The mean value of 4.01 exceeds the 3.00 mean benchmark, is indicative that the University CBT system helps to conduct a large number of undergraduate students examination. The standard deviation of 1.105 is low and suggest that the responses of the respondents were not widely dispersed.

Regarding the fifth statement whether CBT make examination easier for both academic staff and student Table 4.1 indicates that 69 (41 and 28) respondents representing 18.2% (10.8% and 7.4%) disagree with the statement while 278 (133 and 145) respondents representing 73.2% (35.0% and 38.2%) 'agreed with the statement and 33 respondents representing 8.7% were neutral'. However the mean value of 3.82 is above the mean threshold of 3.00, meaning that CBT make examination easier for both academic staff

and student. The standard deviation of 1.307 is above the mean value of 3.82 which is evidence that the responses of the respondents were not widely dispersed.

Table 4.1 indicates that 55 (20 and 35) respondents representing 14.5 % (5.3% and 9.2%) disagree that CBT saves time and manpower for the test/examination administration but 308 (145 and 163) respondents representing 80.9% (38.2% and 42.7%) opined otherwise while 15 respondents representing 3.9% were indifferent. The mean value of 4.05 is above the mean benchmark of 3.00, meaning that CBT saves time and manpower for the test/examination administration. The standard deviation of 1.148 is less than the mean response value of 4.05 and means that the responses of the respondents were not widely dispersed.

Lastly Table 4.1 shows 29 (6 and 23) respondents representing 7.7% (1.6% and 6.1%) disagree that Insufficient CBT centres leading to batching system and inadequate ICT infrastructure facilities in the University, 346 (217 and 129) respondents representing 91% (57.1% and 33.9) agreed on this statement while 5 respondents representing 1.3% were neutral. The mean value of 4.16 exceeds the mean threshold of 3.00, meaning that there is insufficient CBT centres leading to batching when students are writing exams and inadequate ICT infrastructure facilities in the University this may be due to inadequate funding or poor administrative management on CBT. The standard deviation of 0.845 is less than the mean response value of 4.16 which suggest that the responses of the respondents were not widely dispersed.

The overall computed mean value of 3.85 is suggestive that the University to a large extent have E-governance administration on the CBT examination System in other words, it is lacking some attention in terms of the CBT infrastructure and facilities.

E-Governance and Result and Transcript Computation/processing
Result computation/processing is one of the academics connection the academics staff have with the undergraduate students. According to Osunade, O.et al., (2018) the result-processing and transcript generation are two tasks with in tertiary institutions that link the academic section with the administrative section. To generate data on this variables, seven (7) statement were included on the questionnaire administered to the respondents. These statements essentially provide insights into the perception of E-governance on the administrative efficiency of result computation/processing and transcript in the University. The responses generated and descriptive statistics are presented in Table 4.2.

Table 4.2: Descriptive Statistics on E-Governance and Result Computation/processing and Transcript

Item	SD	D	N	A	SA	Mean	SD
The current result computation/processing system is efficient	45(11.8)	49(12.9)	53(13.9)	183(48.2)	50(13.2)	3.38	1.213
I am satisfied with the current examination result computation/processing process	49(12.9)	85(22.4)	52(13.7)	125(32.9)	69(18.2)	3.21	1.325
E-governance has streamline the process of computing/processing student result making it more accurate and timely	50(13.2)	46(12.1)	9(2.4)	165(43.4)	110(28.9)	3.63	1.360
E-governance has improved the accuracy and accessibility of students transcript	52(13.7)	25(6.6)	61(16.1)	140(36.8)	102(26.8)	3.57	1.319
I agree that spreadsheets, statistical software, database software are helpful for computing/processing of results	28(7.4)	14(3.7)	15(3.9)	224(58.9)	99(26.1)	3.93	1.053
I agree that e-governance is useful in improving the efficiency of result computation/processing	15(3.9)	48(12.6)	33(8.7)	203(53.4)	81(21.3)	3.76	1.050
I agree that e-governance will reduce the workload of staff involved in result computation/processin g	10(2.6)	34(8.9)	13(3.4)	139(36.6)	184(48.4)	4.19	1.039

g and transcript

OVERALL MEAN	**3.66**	**0.757**

Note: (1) Values in parenthesis represent percentage (%). (2) Acceptance ($\overline{x}$ is 3 and above); Rejection ($\overline{x}$ is less than 3)

Source: Field Survey 2024

Table 4.2 indicates that 94 (45 and 49) respondents representing 24.7% (11.8% and 12.9%) disagree that he current result computation/processing system is efficient in the University, 233 (183 and 50) respondents representing 61.4% (48.2% and 13.2%) agreed with the statement that the current result computation/processing system is efficient in the University, 53 respondents representing 13.9% were either or against the statement. The mean value of 3.38 is a confirmation that most of the respondents are satisfied that the current result computation/processing system is efficient in the University. The standard deviation of 1.213 is low and suggests that the responses of the respondents were not widely dispersed.

A total of 134 (49 and 85) respondents representing 35.3% (12.9% and 22.4%) disagree that they are satisfied with the current examination result computation/processing and transcript process in the University, 194 (125 and 69) respondents representing 51% (32.9% and 18.2%) agreed that they are satisfied with the current examination result computation/processing process while 52 respondents representing 13.7% were indifferent. The mean value of 3.21 is above the threshold value of 3.00 which means that majority of the respondents are satisfied with the current examination result computation/processing in respect to the E-governance administration of the

University. The standard deviation of 1.325 is low, implying that the responses of the respondents were not widely dispersed.

Table 4.2 reveals that 96 (50 and 46) respondents representing 25% (13.2% and 12.1%) disagree that E-governance has help streamline the process of computing/processing student result making it more accurate and timely, 275 (165 and 110) respondents representing 72.3% (43.4% and 28.9%) agreed to the statement E-governance has streamline the process of computing/processing student result making it more accurate and timely while 9 respondents representing 2.4% were indifferent. The mean value of 3.63 is instructive that E-governance has streamline the process of computing/processing student result making it more accurate and timely. The standard deviation of 1.360 is low and indicative that the responses of the respondents were not widely dispersed.

The responses with respect to the fourth statement in Table 4.10 shows that 77 (52 and 25) respondents representing 20.3% (13.7% and 6.6%) disagree with the statement that E-governance has improved the accuracy and accessibility of students transcript in the University, 242 (140 and 102) respondents representing 63.6% (36.8% and 26.8%) agreed with the statement while 61 respondents representing 16.1% were neutral on the issue. The mean value of 3.57 is evidence enough that E-governance has

improved the accuracy and accessibility of student's transcript. The standard deviation of 1.319 is less than the mean value of 3.57 which mean that the responses of the respondents were not widely dispersed.

Table 4.2 indicate that 42 (28 and 14) respondents representing 11.1% (7.4% and 3.7%) disagree with the statement that spreadsheets, statistical software, database software are helpful for computing/processing of results, 323 (224 and 99) respondents representing 85% (58.9% and 26.1%) agreed that spreadsheets, statistical software, database software are helpful for computing/processing of results in the University while 15 respondents representing 3.9% were neither or for the statement. The mean value of 3.93 is above the mean threshold and is instructive that spreadsheets, statistical software, database software are helpful for computing/processing of results in the University. The standard deviation of 1.053 is less than the mean value therefore indicates that the responses of the respondents were not widely dispersed.

It is also clear from Table 4.2 that 63 (15 and 48) respondents representing 16.5 % (3.9% and 12.6%) disagree that the e-governance administrative management is useful in improving the efficiency of result computation/processing whereas 284 (203 and 81) respondents representing 74.7% (53.4% and 21.3%) stated that e-governance is useful in improving the efficiency of result computation/processing in the University. About 33 respondents representing 8.7% were either for or against the statement. The mean value of 3.76 which is above the mean threshold of 3.00, is indicative that the University e-governance administrative is useful in terms of improving the efficiency of results computation/processing. The standard deviation of 1.050 is low and suggest that the responses of the respondents were not widely dispersed.

Lastly, Table 4.2 reveals that 44 (10 and 34) respondents representing 11.5% (2.6% and 8.9%) disagree with the statement that e-governance will reduce the workload of staff involved in result computation/processing and transcript, 323 (139 and 184) respondents representing 85% (36.6% and 48.4%) agreed with the statement while 13 respondents representing 3.4% were different. The mean value of 4.19 is enough evidence that e-governance will reduce the workload of staff involved in result computation/processing and transcript. The standard deviation of 1.039 is less than the mean value hence indicates that the responses of the respondents were not widely dispersed.

On the basis of the computed overall mean of 3.66 there is evidence to conclude on the variable result computation/processing and transcript that e-governance administrative efficiency of the University on result computation/processing and transcript is efficient and effective. In other words, the University e-governance administrative is currently efficient on the issue of result computation/processing and transcript.

Table 4.3 Summary Descriptive Statistics of Study Variables

Variable	Min.	Max.	Mean	Std. Dev.
CBT	1	5	3.85	0.695
RCPT	1	5	3.66	0.757

Note: CBT= Computer-Based-Test Examination System, RCPT= Result Computation/Processing and Transcript

Table 4.4 Summary Statistics of the Hypotheses Testing Results

H	Variable	SD	N	SL (α)	T	p-
H1	Computer-Based Test	0.695	380	0.05	19.32	< 0.001
H2	Result and transcript Computation/Processing	0.757	380	0.05	15.74	< 0.001

Source: Field Survey 2024

Table 4.4 indicates a significant influence of various variables on e-governance administrative efficiency in Adamawa State University, Mubi. For Hypothesis 1 (Computer-Based Test) shows a T-Statistic of 19.32 with a p-value of < 0.001, highlighting a notable effect of CBT on efficiency, with a standard deviation of 0.695. Secondly, for Hypothesis 2 (Result Computation/Processing), the T-Statistic is 15.74 with a p-value of < 0.001, indicating a significant influence on administrative efficiency, accompanied by a standard deviation of 0.757.

The statistical analysis robustly demonstrates that all two variables— Computer-Based Test, and Result Computation/Processing-significantly influence e-governance administrative efficiency at Adamawa State University, Mubi. The p-values for all hypotheses are less than 0.001, which is well below the significance level of 0.05, leading to the rejection of all null hypotheses. This implies that enhancing these systems can substantially improve the efficiency of administrative processes. Therefore, it is recommended that the university continues to invest in and upgrade these e-governance tools to maintain and further improve administrative efficiency.

Findings of the study

The study's data analysis from table 4.4 revealed that the implementation and the use of Computer-Based-Test (CBT) examination systems positively influences the administrative efficiency of e-governance in universities, promoting accuracy and speed in assessment processes. Furthermore, the automation of result computation, processing, and transcript generation significantly enhances the efficiency of e-governance in university administration, reducing errors and increasing productivity. 'These findings underscore the importance of leveraging technology to improve the administrative efficiency of e-governance in higher education institutions, ultimately leading to enhanced productivity and better service delivery'.

The study's findings highlight the positive impact of e-governance on administrative efficiency in higher education institutions, specifically at Adamawa State University, Mubi, Nigeria. The implementation of Computer-Based-Test (CBT) examination systems, and automation of result computation and transcript generation significantly enhance administrative efficiency, productivity, and accuracy.

Conclusion

In conclusion, the implementation of e-governance in Adamawa State University, Mubi has a profound impact on enhancing administrative efficiency, as evident in the two research objectives. The study reveals that the adoption of The Computer-Based-Test (CBT) examination system significantly influences e-governance administration, promoting accurate and efficient assessment processes. Also, the automation of Result Computation/Processing and Transcript generation significantly enhances administrative efficiency, reducing errors and increasing productivity. These findings underscore the importance of e-governance in enhancing administrative efficiency in higher education institutions, highlighting the need for continued investment in these technologies to foster improved service delivery and productivity. By embracing e-governance, Adamawa State University, Mubi can further enhance its administrative processes, creating a more efficient and effective learning environment.

Recommendations

Based on the findings and conclusions of this study, several recommendations are made to enhance the effectiveness of e-governance in higher education institutions. Firstly, to improve the conduct of Computer-Based-Test (CBT) examinations, the University management should enhance the security features of the system, address environmental and internal challenges, employ more ICT staff, and establish additional CBT centers. Moreover, investing in a comprehensive student information system can automate results computation, processing, and transcript generation, reducing manual errors and processing time. Establishing standard protocols for transcript formats and content can ensure consistency and clarity, facilitating the recognition and evaluation of academic achievements. By implementing these recommendations, higher education institutions can enhance their administrative processes, leading to improved productivity and efficiency.

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