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## CHALLENGES FACING THE UTILIZATION OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR EFFECTIVE CONDUCT AND MANAGEMENT OF EXAMINATIONS IN FEDERAL COLLEGE OF EDUCATION, YOLA

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### Abstract

*The study is to examine the challenges facing the utilization of Information and Communication Technology for effective conduct and management of examinations in the Federal College of Yola, Yola Adamawa State, Nigeria. Three objectives and three research questions were raised to guide the conduct of the study. The study adopted a descriptive survey design. Where a sample of 621 respondents were randomly selected from the study area. These respondents comprised of 378 students and 234 lecturers. 27 items intended to elicit information on the application of Information and Communication Technology in the administration of the Federal College of Education, Yola. The finding of the study revealed that: ICT is applied in the areas of Computer-based test and examination management, Staff and Students record keeping, Admission process, and financial management. Despite the application of ICT in the administration of tertiary institutions, there are certain challenges affecting the application of ICT on school management in Federal College of Education, Yola like: insufficient number of computers and peripherals, inadequate copies of software, lack of technical assistance, inconsistent electric power supply and inconsistent networks. Based on the foregoing review the following recommendations are made:*

*Tertiary institutions should be equipped with the modern and advanced technological infrastructure to enable the effective use of appropriate technologies required for teaching and learning programmes and Schools should be provided with appropriate and adequate software and programmes for the effective application of ICT.*

**Keywords:** *Information and Communication Technology, Effective Management, Federal College of Education, and Sustainable Educational Development*

## Introduction

Organizations and institutions in the modern world where technology is becoming the order of the day are concentrating on the application of information and communication technologies (ICT) in the administration of their organizations and institutions for effectiveness and improved performance (Okpowodu, Unegbu, Atsenokhai & Patani, 2022). According to Adamu (2012), an increasing number of Nigerian organizations and institutions are utilizing ICT-driven systems to improve their efficiency, particularly in the administrative domain. Higher education institutions are also keeping up with this trend.

Technology is also influencing strategy, and in the twenty-first century, one of the key components of strategy is information and communication technology (ICT) based administration, or the use of ICT to enhance internal organizational operations and administrative procedures. Information technology (IT), which includes computer hardware and software, and telecommunications (which includes the internet, mobile phones, and landlines) are collectively referred to as information and communication technologies (ICTs), according to Ajah (2019). They consist of gadgets with processing and data storage capabilities. In general, all types of networks for communication, such as phone, radio, and television, are included in the term ICT. The internet, a global computer network based on communication media, is undoubtedly the engine powering ICT, though.

When one examines Nigeria's tertiary institutions more closely, they reveal that nearly all of their administrative tasks especially the management and administration of examination necessitate the use of information and communication technology (ICT). For this reason, the application of ICT has become essential to the management and administration of examinations in tertiary institutions. This is because ICT offers possibilities for modifying the management requirements of examinations. ICT helps school administrators to increase the system's overall functional effectiveness. ICT generally offers a fresh, more efficient approach to addressing some of the issues a country's educational system is facing. (António and Delfina 2014, Barineme 2015, and Ahsan, Shuvankar, and Mostafa 2017).

Despite technological advancements in tertiary education, a lot of these tertiary institutions are still reliant on manual, paper-based processes of conducting and administering examinations which are characterized by inefficiencies, and busy work. These operations according to Allison, (2010) are difficult, time-consuming, and prone to human mistakes. With manual paper-based processes, the academic staff is overworked and unable to respond quickly to other demands, and people are disappointed by the length of time it takes to communicate and deliver. It is against this background that this paper was designed to examine the challenges facing the utilization of Information and Communication Technology for effective conduct and management of examinations in the Federal College of Yola, Yola Adamawa State, Nigeria.

## Purpose of the study

The main purpose of this study is to examine the challenges facing the utilization of Information and Communication Technology for effective conduct and management of examinations in the Federal College of Yola, Yola Adamawa State, Nigeria. Specifically, the study is designed to:

1. Identify the areas of application of ICT in the conduct and management of paper and pen examinations in the Federal College of Education, Yola.
2. Determine the areas of application of ICT in the conduct and management of computer-based test and examination management.
3. Identify the challenges of applying ICT in the conduct and management of examinations in the Federal College of Education, Yola.

## Research Questions

Three research Questions were raised to guide the conduct of the study, these research questions are:

1. What are the areas of application of ICT in the conduct and management of paper and pen examinations in the Federal College of Education, Yola?
2. What are areas of application of ICT in the conduct and management of computer-based test and examination management?
3. What are the challenges of applying ICT in the conduct and management of examinations in the Federal College of Education, Yola?

## Review of Related Literature

Tertiary education is the optional stage of education where students pursue foundational or advanced degrees after high school or secondary school (Wikipedia, 2012 as cited by Bright and Odunayo, 2015). Stated differently, universities, colleges of education, polytechnics, and mono-technics are all considered tertiary institutions. For a society to develop, postsecondary education is thought to be essential. Because of its fundamental function as a knowledge provider, higher education can be a potent tool for building a more sustainable future (Abanyam & Agbo, 2019 & Elsayed, 2019). The goals of tertiary institutions are to develop, train, and draw the best talent; to support business and industry currently in operation; to enhance education from pre-school through graduate school; to play significant and visible roles in regional initiatives; to disseminate research; and to employ a diverse workforce (Miyamoto, 2010).

Information and Communication Technology, in its broadest sense, refers to all technological tools that are used to produce, store, process, and utilize information in a variety of ways (voice, data, multimedia presentations, and other formats that haven't been thought of yet), as well as tools that enable, facilitate, and support communication (Ejehoms, 2002). ICT is an umbrella term that encompasses all technologies encompassing mediums for

recording information, according to Fagbanmi and Ogunjobi (2009), these include Magnetic disks, tape, optical disks (CD/DVD) flash and paper recording, technology for broadcasting, information, radio, television and technology for communicating through voice and sound or image microphone camera, loudspeaker, telephone to cellular phones. It also includes a wide variety of computing hardware, desktop computers, laptops, storage devices, etc.

Barakabitze et al (2019) see ICT as another name for computers, software, networks, satellite links, and related systems that allow people to access, analyze, create, exchange, and use data, information, and knowledge in ways that were formally unimaginable. For Imhonopi & Urim (2012), ICTs also encompass technologies that can process different kinds of information (voice, video, audio, text, and data) and facilitate different forms of communication among human agents, among humans and information systems, and information systems.

The art and process of getting things done by others to achieve predetermined goals and objectives is typically implied by the word "management" (Keller, Parameswaran, & Jacob, 2011). To strategically reap the benefits of business, management entails putting business objectives into action (Wheelen & Hunger, 2011). ICT, according to Poor (2008), offers educational administrators several tools and opportunities to carry out their duties. This is because information and communication technologies (ICTs) have altered the fundamental structure of higher education, increasing management effectiveness and efficiency. The heads of faculties use ICT and ICT-related devices for administrative, financial, and academic affairs planning and evaluation. According to OECS (2001), ICT is used in the maintenance of students' and staff records and for communication and document management. It was indicated that ICT is used for: Students' admission and records, Examination results, and transcripts.

While Matovu (2009) found that ICT is used for record-keeping, exam scheduling and marking, viewing results, and registration, Tongkaw (2013) found that the majority of higher education institutions are starting to integrate the use of ICTs in several activities, including administration, teaching, learning, and research. The conduct and management of examinations can be hindered by several factors, as stated by Gbadamosi (2006) and Nwankwo (2013). These factors include a lack of computers, difficulty integrating ICT into instruction, scheduling computer time, inadequate peripherals, and inadequate copies of software, a lack of teacher time, insufficient simultaneous access, a lack of supervision staff, and a lack of technical assistance. Other common problems associated with the effective implementation of ICT are lack of qualified ICT personnel, cost of equipment, management attitudes, inconsistent electric power supply, and inadequate telephone lines and networks, particularly in rural areas.

## Methodology

The study adopted a descriptive survey design. The study sought the opinion of students, and lecturers of Federal College of Education, Yola on the challenges facing the utilization of Information and Communication Technology for effective conduct

and management of examinations in Federal College of Yola, Adamawa State, Nigeria. A descriptive survey design was considered most appropriate for this study because it sought the opinions of the respondents (as recommended by Nancy (2004).

The study was carried out in the Federal College of Education, Yola. The population of the study consisted of all the 7,036 students, and 346 staff totaling 7,382. The reason for choosing the students and staff of the college was that they were in the best position to give the required information on the challenges facing the utilization of Information and Communication Technology for effective conduct and management of examinations in the Federal College of Yola, Yola Adamawa State, Nigeria. A total of 564 respondents were randomly selected from the study area. These respondents comprised of 378 students, and 186 staff respectively.

The questionnaire was the instrument used for data gathering from the respondents. The questionnaire items were developed through the review of related literature for the study. The questionnaire has two sections. Section A was used to collect general information about the respondents. Section B has 15 items intended to elicit information on the challenges facing the utilization of Information and Communication Technology for effective conduct and management of examinations in the Federal College of Yola, Adamawa State, Nigeria. The items were structured on a Modified four-point Likert rating scale with response categories of: Strongly agree, agree, disagree, and strongly disagree.

The instrument (questionnaire) was face-validated by two experts, from the Department of Computer Science and Statistics of a university in Adamawa state of Nigeria. The validators were required to examine the questionnaire items for clarity and suitability for use in collecting data for the study. The observations and suggestions from these experts were used to improve the instrument to fine-tune the questionnaire for the study. The reliability of the instrument was determined by a pilot test for the instrument administered on 30 respondents made up of 20 students, and 10 lecturers, randomly selected from Adamawa State College of Education Hong. Cronbach Alpha reliability was computed from the responses using the Statistical Package for Social Science (SPSS). A reliability coefficient of 0.84 was obtained, which indicates that the internal consistency of the instrument was very high, and was reliable to be used for empirical purposes. The questionnaires were administered personally by the researchers and were retrieved immediately upon completion by the respondents.

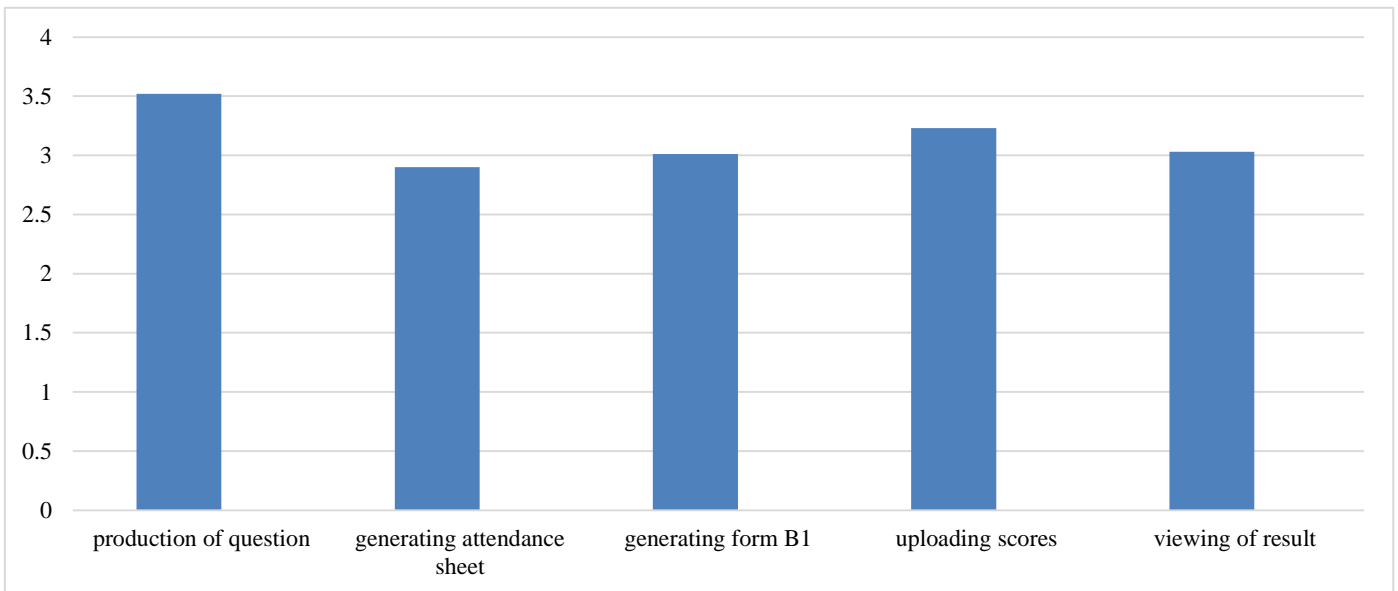
The data collected for the study were analyzed using mean statistics to answer the research questions.

## Result and Discussion

This section deals with the presentation of the result and discussion of the analyzed information, the information analyzed was obtained through the research questionnaire. Information was analyzed using mean scores and chi-square techniques.

**Research Question One:** what are areas of application of ICT in the conduct and management of paper and pen examinations in Federal College of Education, Yola?

**Fig 1:** the areas of application of ICT on the conduct and management of paper and pen examination in Federal College of Education, Yola

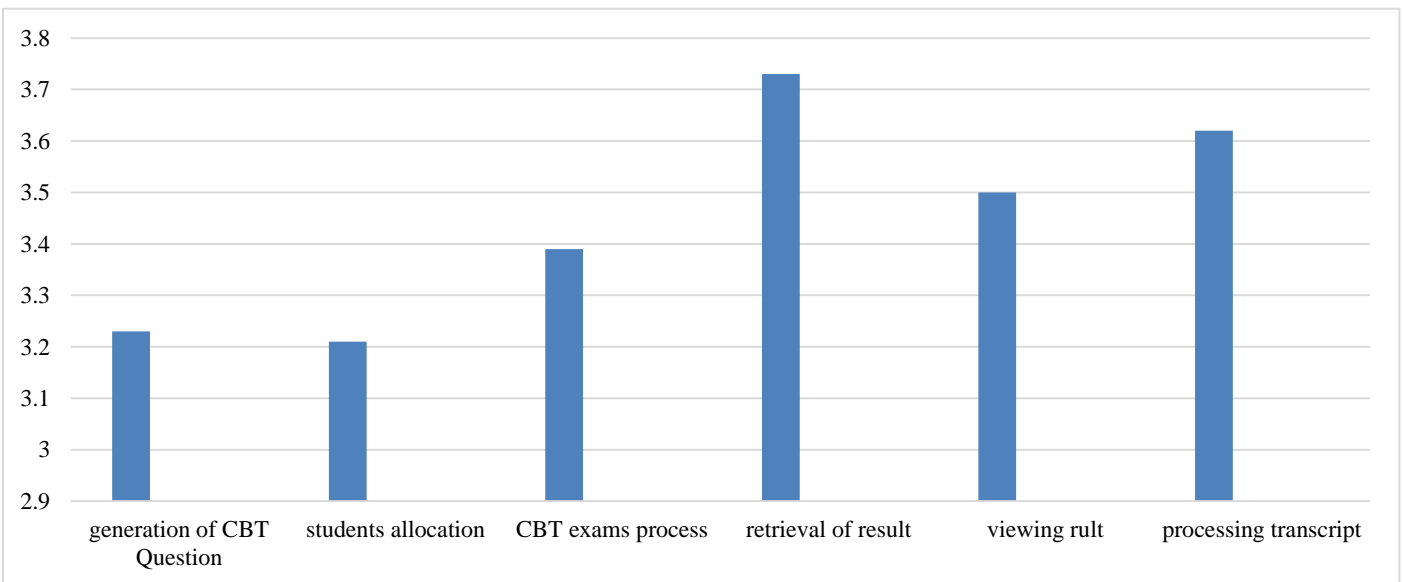


**Source:** Research Survey, 2024

In Figure 1 above, the result indicates that ICT is applied in the conduct and management of paper and pen examinations in the Federal College of Education, Yola. The major areas in the examination conduct and management are the Productions of examination question papers represented with a calculated mean score of 3.52, generating an attendance sheet online for students to fill out during examination with calculated mean score of 2.90, generating form for result entries represented by calculated mean score of 3.01, uploading students scores (CA and Exams scores) as indicated with calculated mean score of 3.23 and the possibilities of viewing the uploaded result by all stakeholders in the college ) as indicated with calculated mean score of 3.03. All the calculated means are above the 2.50 mean for the decision rule and so all the items are accepted.

**Research Question Two:** what are areas of application of ICT in the conduct of computer-based tests and examination management?

**Fig 2:** Areas of application of ICT in the conduct of computer-based test and examination management.



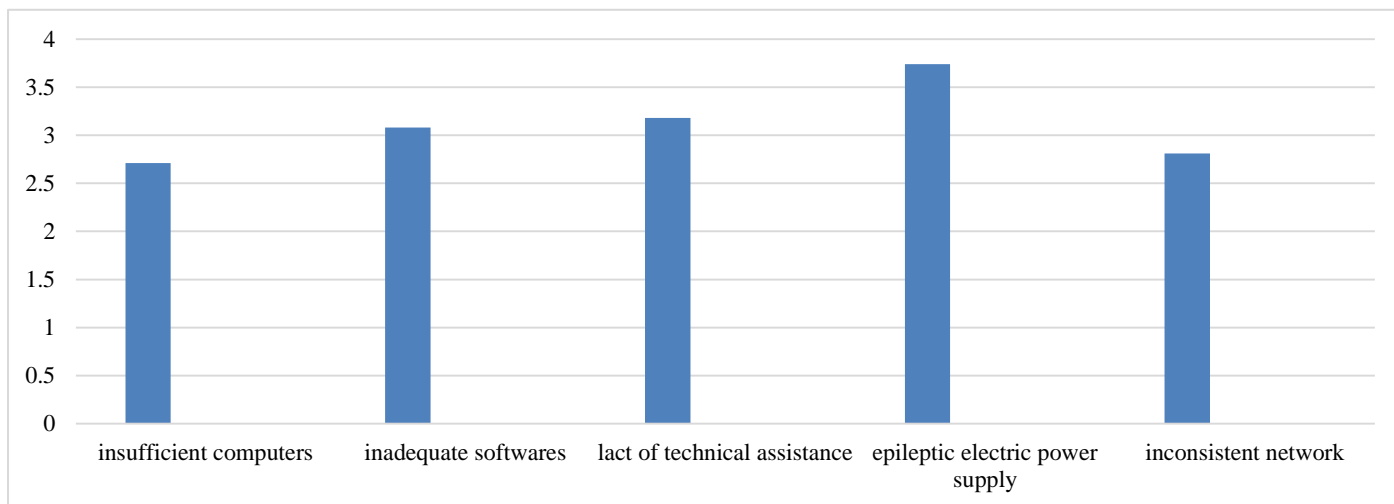
**Source:** Research Survey, 2024

Fig 2 revealed that ICT and ICT devices are applied in the area of computer-based test and examination management through the generation of CBT questions, Allocation of students to batch numbers and computer numbers, the actual CBT examination process, Retrieval of Students' CBT results, for viewing result and for processing transcripts. This is supported by calculated mean scores of 3.23, 3.21, 3.39, 3.73, 3.50, and 3.62 respectively.

**Research Question Three:** What are the challenges of applying ICT in the conduct and management of examinations in the Federal College of Education, Yola?



**Fig 3:** the challenges of using ICT in the conduct and management of examinations in Federal College of Education, Yola



**Source:** Research Survey, 2024

Information in Fig 3 shows that the major challenges affecting the application of ICT on effective administration in Federal College of Education, Yola include: insufficient number of computers and computer peripherals, inadequate copies of software, lack of technical assistance, inconsistent electric power supply, and inconsistent networks. This is supported by calculated mean scores of 2.71, 3.08, 3.18, 3.74, and 2.81 respectively.

### Conclusion and Recommendations

Globally, educational systems are being redesigned with a greater reliance on ICT for daily operations. There is no tertiary institution that can effectively handle the increasing demand for record keeping, examination administration, and examinations. Information and communication technology is a potent tool for managing and conducting exams in higher education institutions in an efficient manner. This study has sought to examine the challenges facing the application of Information and Communication Technology in the conduct and management of examinations in the Federal College of Education, Yola Adamawa State, Nigeria. The findings indicated that ICT is applied in the areas of Computer-based test and examination management. Despite the application of ICT in the administration of tertiary institutions, there are certain challenges affecting the application of ICT in Computer-based test and examination management in Federal College of Education, Yola like: insufficient number of computers and peripherals, inadequate copies of software, lack of technical assistance, inconsistent electric power supply and inconsistent networks?

Based on the foregoing review the following recommendations are made:

1. Tertiary institutions should be equipped with the modern and advanced technological infrastructure to enable the effective use of appropriate technologies required for teaching and learning programs.
2. Schools should be provided with appropriate and adequate software and programs for effective application of ICT
3. Given the uniqueness of ICT, staff of tertiary institutions should measure up to the demands of new technology for knowledge creation.

4. The government should ensure the constant supply of power to tertiary institutions to aid the use of ICT-associated facilities.
5. Institutions should improve on their current ICT infrastructure and strategy, particularly as regards the accessibility of websites and internet.

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