

**APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY IN
THE TEACHING AND LEARNING PROCESS IN SENIOR SECONDARY
SCHOOL IN EGOR LOCAL GOVERNMENT AREA OF EDO STATE**

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BENIN CITY**

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**A RESEARCH PROJECT SUBMITTED TO THE DEPARTMENT
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CERTIFICATION

This is to certify that this project work was carried out by **SHITTU FAITH**

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DEDICATION

This research is dedicated to my parents, who gave me the gift of dreams and the ability to realize them. To my family and acquaintance for for their provision and resources, morally and enthusiastic support. We value virtue but do not discuss it. For the friends who became family, to the friend who believed in me when I didn't. To those rare, beautiful friendships that change our lives forever.

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Researcher innate appreciation goes to God Almighty who has been the light of his life and joy in uncertainty and special thanks to the beauty of nature, my evergreen source of inspiration.

The Researcher gives accolades to the supervisor, who saw potential in a quiet student and fanned the spark into a flame; a woman of profound knowledge Dr Nkechi Obiweluozor.

The Researcher also want to appreciate his kind and loving parents, for their support, morally and materially throughout my stay in this great institution, to the past that shaped me, the present that nurtures me, and the future that awaits me. Finally, the researcher would like to thank his siblings, for your guidance and witfulness.

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ABSTRACT

This study investigated the Application Of Information Communication Technology In The Teaching And Learning Process In Senior Secondary School In Egor Local Government Area Of Edo State. Four (4) research questions were raised that guided the study.

The study adopted the descriptive survey research design. The population of the study comprised few teachers from SS 1 - SS3 in Egor Local Government Area as at the period of the study. The purposive sampling technique was used to select few teachers teaching information communication technology in senior secondary school in Egor local government area of Edo state as sample for the study. The instrument used for data collection was a structured questionnaire titled "Application Of Information Communication Technology In The Teaching And Learning Process" (QAICTTLP). It

was validated by the researchers' supervisor and two experts. Its reliability was established at 0.7 using Cronbach Alpha method. The data collected for the study was analyzed using frequency tables and simple percentages.

The findings revealed that the information communication technology tools available for teaching and learning were relatively low, they were trained personnel to carry out information communication technology though it was rarely used and are aware of the usefulness of information communication technology and It was recommended that there should be trained personnel to effectively carry out information communication technology and awareness of information communication technology should be encouraged.

CHAPTER ONE

INTRODUCTION

Background of the study

Information Communication Technology is a broader term for Information Technology which refers to all communication technologies including the internet, wireless network, cell phones, computers and all other technological resources to transmit, store and exchange information. Information Communication Technology is a broad and rapidly evolving field that encompasses the use of technology to manage, process, store and communicate information. Information Communication Technology has become a corner stone of modern society, transforming the way people live, work and interact, It covers any product that will store, retrieve, manipulate, transmit, or receive information electronically in a digital form.

Information Communication Technology is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and distance learning. With the help of Information technology the life has been made easier it has improve education, communication, transportation, health services agriculture and manufacturing.

Teaching is a transformational process that involves the transfer of knowledge and skills from a more experienced individual (teacher) to the leaner. Teaching fosters behavioral change in the leaner. Teaching is a set of events designed to initiate, activate

and support learning. It involves all activities that are geared towards the transfer of knowledge. Learning is the process of acquiring new knowledge, behaviour, skills, values and attitude it is the relative change in behaviour of an individual. Learning is about a change, a change brought about by learning a new skill. The teaching and learning process can be defined as transformation process of knowledge from teachers to students. Information Communication Technology has made both teaching and learning easy.

Information Communication Technology plays a crucial role in transforming the teaching and learning process. It provides educators and students with access to a vast amount of information, resources, and interactive tools that enhance educational experiences. Information technology has played a big role in accelerating the movement of learning opportunities to all parts of the world, and learners of all cultures and nationalities

Information Communication Technology has also become integral to the teaching and learning interaction, through such approaches as replacing chalkboards with interactive digital whiteboards, using students own smartphones or other devices for learning during class time, students watch lectures at home on the computer and use classroom time for more interactive exercises. When teachers are digitally literate and trained to use Information Communication Technology, these approaches can lead to higher order thinking skills, provide creative and individualized options for students to

express their understandings, and leave students better prepared to deal with ongoing technological change in society and the workplace.

Information is power with the aid of Information Communication Technology acquisition of knowledge is easy no need for student going to the library before they can get information, with the aid of E- learning at the comfort of their home they can access any information all over the world and learn new ideas and skills

The integration of Information and Communication Technology in education has revolutionized the teaching and learning process in Senior secondary schools it plays a crucial role in preparing students for higher education and the demands of the digital age. Information Communication Technology tools offer innovative ways to enhance student engagement, foster critical thinking, and improve educational outcomes. Information and Communication Technology has significantly transformed various aspects of our lives, including education. In the context of teaching and learning,

Application of Information Communication Technology in education include online educational resources which focuses on the wide range of online educational resources available, such as educational websites, digital libraries, and open educational resources It highlights the benefits of utilizing these resources for enhancing student learning experiences, mobile applications and learning platforms

Which include the use of mobile applications and learning platforms in teaching and learning. It explores the potential benefits of utilizing mobile apps for interactive learning, content creation, and collaboration, Computers are widely used in educational

institutions for a variety of purposes. They allow teachers to create instructional materials, access educational software and resources, and facilitate administrative tasks. Students can use computers for research, writing assignments, creating multimedia projects, and accessing online learning platforms. The internet provides access to a wealth of educational resources, including online libraries, databases, research articles, and educational websites. It enables communication and collaboration through email, online discussion forums, video conferencing, and social media platforms. Mobile Devices such as smartphones and tablets has opened up new possibilities for mobile learning. Mobile devices can be used for accessing educational apps, e-books, online courses, and multimedia content. They enable anytime, anywhere learning and provide flexibility for personalized learning experiences.

There are numerous educational apps available for various subjects and age groups. These apps offer interactive learning experiences. Video conferencing tools like Zoom, Microsoft Teams, and Google Meet facilitate real-time virtual classrooms and remote learning. They enable live interactions, screen sharing, and recording of lectures. These are just a few examples of the wide range of Information Communication Technology tools available in education.

The specific tools used may vary depending on the educational level, subject area, and individual preferences of educators and institutions. Information Communication Technology has provided so many tools for teaching different subject in Senior Secondary School for example Google Maps With Google Maps, kids can learn to

find the distance between two places and look at 360-degree images of places. This can help your students become familiar with multiple locations across the world, with Google Earth Kids can learn about different regions, landmasses, and water bodies in a fun way, with Microsoft PowerPoint You can use HD images and create slides to be able to give a clearer picture to the students and YouTube for watching videos and getting a better understanding of particular subject.

The application of Information Communication Technology in education offers several benefits which include providing access to a vast amount of information and educational resources from around the world. Students can access up-to-date information, research materials, and educational content to support their learning. Information Communication Technology tools can make learning more interactive and engaging, capturing students' attention and interest. Multimedia content, interactive simulations, and gamified learning experiences can motivate students and enhance their understanding of concepts.

Information Communication Technology allows for personalized learning experiences by providing adaptive learning platforms and intelligent tutoring systems. Information Communication Technology facilitates collaboration and communication among students and between students and teachers. Online discussion forums, collaborative platforms, and video conferencing enable students to interact, share ideas, and work together on projects, regardless of their physical location.

Overall, the application of Information Communication Technology in education has the potential to transform the teaching and learning process, empower students with 21st-century skills, and prepare them for the demands of the digital age. It offers opportunities for innovation, collaboration, and engagement, ultimately leading to improved educational outcomes.

Statement of the problem

Information Communication Technology has been very useful in the process of teaching and learning despite its usefulness most schools do not have Information Communication Technology laboratories, lack of funds to purchase Information Communication Technology equipment for teaching and learning and cost of maintain Information Communication Technology infrastructures. Some teachers are not well trained to use Information Communication Technology equipment in carrying out their duty in the class. In classroom with access to digital devices, students may be prone to distractions and may misuse technology for non- educational purposes, affecting their focus and academic performance.

Research questions

The following research questions were raised to guide the study:

1. Are the Information Communication Technology tools available for teaching and learning?
2. Are they trained personnel to effectively carry out Information Communication Technology in teaching and learning process?

3. How often is Information Communication Technology used in teaching and learning?
4. Are there awareness of the usefulness of Information Communication Technology in teaching and learning process?

Purpose of the study

The main purpose of the study is on the Application of Information Communication Technology in the teaching and learning process in senior secondary school in Egor local Government area of Edo State

Specifically the study ought to:

1. Find out if the Information Communication Technology tools are available for teaching and learning
2. Find out if they are trained personnel to effectively carry out Information Communication Technology in teaching and learning process
3. To ascertain how often is Information Communication Technology used in teaching and learning
4. To ascertain the awareness of the usefulness of Information Communication Technology in teaching and learning process

Significance of the study

The findings of this study will be important to both the student, teachers, school administrators and educational planners therefore the study wants to investigate the

Application of Information Communication Technology in the teaching and learning process in senior secondary school in Egor local Government area of Edo State.

This helps school administrators in effective record keeping, attendance management and resource allocation there by optimizing time. It provides access to a vast amount of information and educational resources from around the world, Students can access up-to-date information, research materials, and educational content to support their learning

Information Communication Technology tools can make learning more interactive and engaging, capturing students' attention and interest. It also facilitates collaboration and communication among students and between students and teachers it enables students to interact, share ideas, and work together on projects, regardless of their physical location.

Scope and delimitation of the study

This study is mainly focused on the Application of Information Communication Technology in the teaching and learning process in senior secondary school in Egor local Government area of Edo State. This study is focused on determining whether Information Communication Technology is important in teaching and learning in senior secondary school, finding out if the Information Communication Technology tools are available, if they are trained personnel to effectively carry out Information

Communication Technology in teaching and learning and the awareness of the usefulness of Information Communication Technology in teaching and learning

Definition of terms

Information Communication Technology: it refers to all technologies and tools used to gather, store, process, retrieve, transmit and communicate information electronically.

Education: the process of teaching and learning to improve knowledge and develop skills of an individual to the society

Teaching: this is the passing of knowledge from an experienced person to an inexperienced person.

Learning: this is the acquisition of knowledge and skills

E- learning (Electronic learning): this is a form of learning that takes place using electronic devices it includes online virtual classes and digital learning platforms

Virtual reality: a computer generated environment with scenes and objects that appears to be real, making the user feel they are immersed in their surroundings.

Computer: an electronic device that accepts raw data, store and process it into meaningful whole

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter present the review of the related literature under the following sub headings:

Theoretical framework

Availability of information communication technologies tools

Trained personnel and information communication technology

Information communication technology and usage

Awareness and information communication technology

Summary of reviewed literature

Theoretical framework

This study is hinged on a theoretical framework on the connectivism by George Siemens(2004) and Stephen Downes (2005) this theory promotes the idea that learning can successfully happen through digital channels, including social media forums and videos. They believed that technology has changed the way we learn, it encourages group interaction and conversation

Connectivism is a learning theory that emphasizes the importance of connections and networks in learning. In the digital age, information communication technology plays a crucial role in facilitating connections and access to information, allowing learners to tap into diverse sources of knowledge and expertise. The connectivism learning theory encourages group interaction and conversation, allowing us to express

various opinions and positions when making choices, solving problems, and understanding data. Connectivism also encourages education through online communities, blogs, and other public spaces.

This theory promotes the idea that learning can successfully happen through digital channels, including social media, forums, videos, and blogs.

Within connectivism, learning occurs when peers are connected and share opinions, viewpoints, and ideas through a collaborative process. Connectivism allows a community of people to legitimize what they're doing, so knowledge can be spread more quickly through multiple communities. It empowers students and teachers.

Connectivism is a theory for understanding learning in a digital age. It emphasizes how internet technologies such as web browsers, search engines, wikis, online discussion forums, and social networks contributed to new avenues of teaching and learning in senior secondary school. This study is relevant to this study because it allows learners to tap diverse sources of knowledge and expertise and it allows us to express various opinions and positions when making choices, it also helps in solving problems and understanding data, it also helps encourages education through online platforms

Availability of information communication technologies tools

Availability of information communication technology facilities refers to provision made in this regard to the secondary schools for effective teaching and learning. One other important factor necessary for achieving the objective of teaching and

learning is the extent to which available information communication technology facilities are utilized (Ainley. J. (2014)

Information and Communication Technology tools in education encompass a wide range of digital technologies and software applications that enhance the teaching and learning process. These tools facilitate access to information, collaboration, communication, and engagement, offering new opportunities for educators and students. Some common information communication technology tools and resources used in education for teaching and learning includes computers, laptops, printers, scanners, software programs, data projectors, and interactive teaching box among others

According to Arbaugh, J.B. & Benbunan- fich Information communication technology tools also includes Google Classroom, as the name suggests, is a virtual classroom that makes learning easy and fun. Teachers can integrate educational apps or websites and create interactive assignments. You can include a slideshow, a small game, or an entertaining YouTube video full of information. This way, kids learn better and enjoy their learning experience.

Also, Google Classroom allows you to go paperless. You can easily create paperless assignments and grade students within a few minutes. This way, you can save time and focus more on improving the learning experience. Furthermore, you can create a separate drive folder for assignments, grade sheets, attendance sheets, etc. And you can access all this on the go, even from your mobile or laptop. Google Classroom allows virtual meetings. You can host parent-teacher meeting sessions online from your home. It's

beneficial both for you and the parents, especially during the lockdowns. In all, Google Classroom offers a complete solution for online teaching. (Associate of college and research libraries)

Various educational software and applications offer interactive learning experiences. These include educational games, multimedia presentations, and virtual labs designed to reinforce concepts and engage students in active learning. Educational software is a term used for any computer software which is made for an educational purpose. It encompasses different ranges from language learning software to classroom management software to reference software. The purpose of all this software is to make some part of education more effective and efficient. Information technology included with educational software is an important learning tool in teaching initial reading and writing, for many reasons, such as appealing visually and audibly to students in teaching initial reading and writing, making the classroom environments more fun, increasing attention, and enabling.

Information communication technology included with educational software is an important learning tool in teaching initial reading and writing, for many reasons, such as appealing visually and audibly to students in teaching initial reading and writing, making the classroom environments more fun, increasing attention, and enabling.

Online learning platforms tools host a wide range of courses and educational resources accessible to learners globally. These platforms offer opportunities for self-paced learning, allowing students to access educational content at their convenience. An online learning platform allows students to access and absorb educational content in

either groups or individual settings. Online learning can take place live at set times, or it can entail pre-recorded lessons for students to complete on their own time.

Online teaching is the process of educating others via the internet. Various methods can be used, such as one-on-one video calls, group video calls, and webinars. You can start teaching from any location (home, coffee shop, co-working space) and enroll students from various backgrounds and geographical areas. An online learning platform is a space or portal filled with educational content and/or live instruction on a particular subject or many different topics. Such platforms - also referred to as e-learning - are typically membership-based, but there are other options where users can jump in and learn immediately without registering

Advantages of online learning platforms include Immediacy which students can learn pretty much whenever they want, students can find opportunity in most any subject/topic, online courses can be free and often less expensive, students can typically move and learn at their own pace, students can learn in whatever environment they prefer it also provide access to wide range of programmes

Its disadvantage includes lack of face-to-face interaction, difficulty staying motivated and technical difficulties

Virtual Reality tool is a computer-generated environment with scenes and objects that appear to be real, making the user feel they are immersed in their surroundings with virtual reality technology, you are part of a scene rather than merely watching it on a screen. Teachers use Virtual Reality technologies create immersive and interactive

learning experiences for their students. They allow students to explore virtual environments, interact with three-dimensional objects, and participate in realistic simulations that enhance understanding and retention, it also creates a better understanding of the subjects. Virtual reality is a simulated experience that employs pose tracking and 3D near-eye displays to give the user an immersive feel of a virtual world. Applications of virtual reality include entertainment (particularly video games),

Video conferencing tools enable real-time communication and collaboration among students and educators, regardless of geographical locations. Video conferencing in education allows teachers to connect with students no matter where they are. This lets teachers and students engage in real-time both audibly and visually. It is a live video-based meeting between two or more people in different locations using video-enabled devices. Video conferencing allows multiple people to meet and collaborate face to face long distance by transmitting audio, video, text and presentations in real time through the internet. (Godwin J.G. (2002)

With schools at all levels moving to online-only instruction in 2020 due to the novel coronavirus pandemic, teachers who previously only taught in person in the classroom now find themselves seeking ways to make their lectures and lessons capture and keep the attention of their students. There are various technologies instructors can use from simply pre-recording or livestreaming their lessons to interactive video conferencing software. There are several potential advantages of video conferencing in education which includes content sharing, rather than simply emailing files to students or posting

them on a classroom portal online, video conferencing gives teachers and students the ability to share documents and files in real time, Social distancing and distance learning can lead to feelings of isolation. Video conferencing applications facilitate interaction by bringing people together. This tool can also connect participants from all over the world, making it possible to engage local students as well as international students, Another benefit of video conferencing is that it allows participants to record the lecture or lesson for future reference. It can be beneficial for secondary school students who are using online learning tools. This gives students another means to help with studying and exam preparation. In addition to uniting students and teachers, video conferencing may be employed to bring in guest lecturers and other subject matter experts. Whether an expert is physically located in the same town or is halfway across the globe, video conferencing can bring everyone to the same (virtual) table.

Perhaps the biggest benefit of video conferencing in education is the fact that it encourages interaction and collaboration between students and teachers. Unlike in the past where a school had to physically send its teachers to other schools to learn new teaching and management techniques, interaction today is made easier through video conferencing. Nowadays, schools can organize teaching training, academic conferences and online education webinars and deliver them via live audio and video streaming.

Another important information communication technology tool is E-books and Digital Libraries, Electronic-books offer digital versions of textbooks and reading materials, often with interactive features. Digital libraries provide extensive collections of

academic resources and research materials accessible online. A digital library, also known as an electronic-library, is a collection of documents in an organized digital form, available on the internet or on disks. The purpose of an electronic-library is to store, access, and manage magazine articles, books, audio files, images, and video files. A digital library is a collection of digital objects, such as books, magazines, audio recordings, video recordings and other documents that are accessible electronically.

An electronic-library or digital library is a collection of digital resources that are accessible to users via the internet. These resources can include books, articles, journals, research papers, multimedia materials, and other types of content. The purpose of an electronic-library is to provide users, including students looking for the best primary school, with easy and convenient access to a vast array of information from anywhere and at any time.

Electronic-libraries also provide benefits such as cost-effectiveness, space-saving, and the ability to search and retrieve information quickly and efficiently. They are particularly useful for students, researchers, and professionals who need access to up-to-date information and resources for their work. Importance of a digital library for students provides the reader with access to up-to-date information on various topics. With digital resources updated regularly, students can stay informed with the latest research and developments in their field of interest, digital libraries have no fixed or rigid time limit, allowing users to access resources at any time and from any location. (Ebner, M & Schon.S. 2013)This flexibility makes it easy for users to study or conduct research at

their own pace and convenience, digital libraries play a crucial role in preserving resources and knowledge for future generations, digital libraries ensure that these resources are available to researchers and students worldwide, thus contributing to the preservation of cultural heritage and intellectual property, digital libraries are easily accessible to users, as they can access resources remotely using their personal devices. This accessibility eliminates the need for students to visit physical libraries, saving them time and effort while ensuring that they have access to a vast array of digital resources from anywhere and at any time, also digital libraries are available to users 24/7, eliminating the need to worry about library opening hours. Students can access digital resources at any time and from any location, making it convenient for them to study, conduct research, or access information whenever they need it, digital libraries also facilitate collaboration among students by allowing them to share resources, discuss ideas, and work together on projects.

Mobile applications tools offer educational content and tools accessible on smartphones and tablets. These applications cover a wide range of subjects and learning objectives, making learning more portable and personalized. The use of educational mobile applications allows students to gather a fair bit of technical skills to use applications, and also prepare them for the use of similar gadgets such as tablets. It provides familiarization with technology. The primary goal of mobile learning is to make learning more convenient and accessible, allowing learners to gain new skills and

knowledge even with busy schedules. It helps bridge the gap for those facing geographical, financial, or time constraints to access education.

In these changing times, students are more driven towards using a mobile phone for every purpose. The world is at the fingertips and a student can get access to any information from anywhere. This reduces the chance of visiting a library and searching for the data. A mobile phone hence can be used for a number of such purposes. What makes the information easily available is mobile applications. Every mobile applications has a unique feature which offers its own set of services. (Price J. Macfarlane 2022)

The advantages of applying mobile apps to the teaching and learning process includes the introduction of applications in the education sector has led to the introduction of new learning methods, there are fun games available on mobile applications that indulge the students into a healthy thought process and help them understand things from a different perspective, it also enhanced parent teacher communication which help in building parent-teacher relations beyond the walls of educational institutes. This facilitates teachers responding to the queries from the parents regarding the development of their ward. It also helps in maintaining the transparency in the education sector, various other student-related activities, such as online school payments and payments for other purposes, can be made through mobile applications. It saves the effort to stand in a queue and pay the fees for various purposes at school. Also, attendance-management apps maintain the attendance of students, so that teachers can have a keen eye on the students. It makes it easy for both teachers and parents to keep a

track of the attendance of students, it also decreased communication gap between students and teachers: It can be said that, following traditional methods, institutes can not pay equal attention to all students. Now, however, it is possible to reach out to all of them. School communication apps make it possible to impart information to every student they can inform them about new schedules, different forums, various conferences, and social school activities. (Mishra .P. & Koehler .M. J (2006)

The disadvantages of mobile apps include difficulty to create, the cost to create them, the cost to make them available to people, and the need for updates and support.

The integration of these information communication technology tools and resources into teaching and learning can transform the educational experience, providing learners with greater flexibility, interactivity, and opportunities for personalized learning. Effective use of information communication technology tools requires thoughtful planning, professional development for educators for equitable access to technology for all students.

Trained personnel and information communication technology

Professional development of teachers sits at the heart of any successful technology and education program. Teachers professional development is a key factor to the successful integration of computers into classroom teaching many school leaders perceive the lack of information communication technology related knowledge of teachers as one of the main problem to the realisation of their information communication

technology related goals. Training plays a major role to teachers rediness to use computers it means teachers training is very important for the teachers to using information communication technology in classrooms. (UNESCO 2015)

When teachers are insufficiently trained they will not be confident enough to carry out full integration of information communication technology in the classrooms. With proper training on how to implement information communication technology teachers can offer crucial advice on how to select, integrate and evaluate computers tools to support teaching and learning also many teachers who do not consider themselves to be well skilled in using information communication technology feel anxious about using it in front of a class of students who perhaps know more than they do.

Griffein, J.G (2002) Training teachers to effectively integrate information communication technology in education is crucial for ensuring successful implementation and maximizing the benefits of technology in the classroom some key strategies for training teachers to use information communication technology effectively includes encouraging teachers to form collaborative learning communities where they can share ideas, resources, and experiences related to information communication technology integration. Peer support and collaboration can foster continuous learning and improvement, ensure that teachers have access to the necessary information communication technology tools, resources, and technical support. Lack of access or support can hinder successful integration efforts focusing on student-centered learning Teachers should understand how technology can cater to diverse learning needs and by

showing teachers how information communication technology integration aligns with curriculum standards and learning objectives. Demonstrating the relevance and benefits of technology integration within the existing curriculum can motivate teachers to embrace information communication technology also by acknowledging and addressing teachers' concerns and challenges related to information communication technology integration. Understanding and addressing their apprehensions can foster a more positive attitude toward using technology in the classroom.

Examples of trained information communication technology personnel in senior secondary school includes Educational content developer who designs and create digital educational content such as electronic book, interactive learning materials e.t.c, Information communication technology trainer who conduct workshop and training session for teachers, student and staff to improve their digital literacy and effective use of technology in education, Mobile app developers who create educational apps and tools for senior secondary students to access learning materials and practice resources on their mobile device, Online assessment specialist who designs and manage online assessment platforms, enabling teachers to conduct exams digitally, Information security manager who ensures the school information communication technology infrastructures is protected against cyber security threats and implements security protocols to safeguard sensitive data.

By investing in effective teacher training and support, educational institutions can empower teachers to harness the full potential of information communication technology

in education, ultimately benefiting students by providing them with innovative and engaging learning experiences.

Information communication technology and usage

Ainley. J. (2014) Information and Communications Technology can impact student learning when teachers are digitally literate and understand how to integrate it into curriculum. Schools use a diverse set of information communication technology tools to communicate, create, disseminate, store, and manage information.

Benefits of using information communication technology in education, it has been proven that the use of information communication technology in the classroom increases the motivation of the students, showing more interest and becoming more involved in the areas they study. Information communication technology enables the use of innovative educational resources and the renewal of learning methods, establishing a more active collaboration of students and the simultaneous acquisition of technological knowledge.

Godwin J. G. (2002) Students interest in learning grows the use of resources as varied as videos, websites, graphics, and games make traditional subjects more interesting. Multimedia content is a very useful tool to bring different subjects closer to students in a complete and entertaining way. The use of information communication technology in the classroom promotes the student's active and participatory attitude, Collaboration between students is clearly enhanced thanks to various digital tools. It is much easier for them to create team projects, cooperate and learn from each other. Close

communication between students and teachers is encouraged through various channels, in a more spontaneous and less formal way.

Yildirium .Z. (2019) Information communication technology allows students to monitor and manage their own learning, think critically and creatively, solve simulated real-world problems, work collaboratively, engage in ethical decision-making, and adopt a global perspective towards issues and ideas. It is used to draw, calculate, play games, to design, compose, edit, download, save images, and audio-video materials.

When information communication technology is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways. The educational sector must assume the responsibility of gradually implementing all the technologies that may favor student learning in some way, and ensure that they learn to use them in a world where they are already part of professional life and their social environment.

Voogt .J. & Knezek .G. (2008) The Importance and Role of information communication technology in Education allows accessibility to all types of learners. All students can learn through the material provided. Even the special needs students can maximize the benefits through the usage of it, it also promotes high order thinking and reasoning skills. These skills enabled the process of evaluation, planning, monitoring, controlling, reflecting, etc. To use information communication technology tools effectively, one must be able to explain and justify the solutions to the problems. For

using information communication technology the students should be able to discuss, test, and evaluate the strategies and methods they use the key roles of information communication technology is to enhance subject learning and acquire skills. It promotes key learning in areas of literacy and numeracy information communication technology fosters collaboration as children work collectively. It also enhances communication skills as they discuss, talk, and learn together. All you need is a laptop, tablet, or desktop computer to understand it's working. Information communication technology tools open up the doors for developing language through fostering communication.(Downes .S. 2005)

Information communication technology motivates children towards learning. students learn better through the usage of technology. They get mesmerized with technology tools and get motivated to learn effectively in the classroom or at home, with the inclusion of information communication technology in education and its tools, students get more engaged and show greater participation in learning. It is all because of technology. It has made learning fun-filled with creativity and games. It enhances learning in multiple ways. Because of it, the students learn better, leading to knowledge retention, as per the latest curriculum, information communication technology plays an important part in the education system. So, many governments across the globe have started using information communication technology as a major part of education and the curriculum, iinformation communication technology tools also stimulate the development of the imagination, as well as the initiative of all class members, information

communication technology also provides access to a vast amount of information through the internet and digital resources. Students can explore diverse perspectives, research topics, and access educational content beyond traditional textbooks

Overall, the integration of information communication technology in education has the potential to significantly enhance students' learning outcomes by providing engaging, personalized, and empowering learning experiences. However, successful implementation requires careful planning, professional development for educators, equitable access to technology, and alignment with pedagogical principles that leverage the full potential of information communication technology to support student learning and success.

The integration of Information and Communication Technology in teaching and learning comes with its fair share of challenges and limitations. Educators and educational institutions need to be aware of these obstacles to effectively address and overcome them. Some of the key challenges and limitations of information communication technology in teaching and learning include lack of funds to purchase information communication technology equipment for teaching and learning economics, inadequate information communication technology infrastructure, slow internet connectivity, and power outages can disrupt the seamless integration of technology in educational settings. Technical issues can lead to interruptions in learning activities and frustrations among both educators and students, many educators may not be adequately trained to use information communication technology effectively in the classroom. The

lack of digital literacy and proper training can limit their ability to harness technology's full potential for enhancing teaching practices and student learning outcomes.

Excessive screen time can have negative effects on students' health, including eye strain, sleep disruption, and potential impacts on physical and mental well-being, implementing and maintaining information communication technology infrastructure can be expensive for educational institutions, especially in resource-constrained settings. Sustaining technology initiatives over time may be challenging due to budget constraints, students and educators may encounter technical difficulties while using information communication technology tools and resources. Lack of technical skills and troubleshooting knowledge can hinder the learning process and create frustration, overreliance on online communication and virtual interactions may reduce opportunities for face-to-face interaction and socialization, which are essential aspects of the learning experience, the internet provides vast amounts of information, but not all of it is accurate and reliable. Students need guidance on evaluating online sources and discerning credible information from misinformation.

Addressing these challenges and limitations requires careful planning, ongoing professional development, strategic budget allocation, and thoughtful consideration of how technology aligns with pedagogical goals. By proactively addressing these issues, educators and educational institutions can maximize the benefits of information communication technology integration and create more inclusive and effective learning environments.

Overall, the usefulness of information communication technology in teaching and learning lies in its ability to enrich educational experiences, promote active and personalized learning, foster collaboration, and prepare students for success in the digital age. When used effectively, information communication technology empowers educators and students alike, enhancing the educational journey and equipping learners with essential skills for the future.

Awareness and information communication technology

This refers to the understanding and utilization of digital technologies to enhance teaching, learning and overall educational experiences. Awareness and information communication technology involves recognizing the importance and potentials of information communication technology in transforming the learning process. Educators needs to be aware of the various information communication technology tools available to support their teaching practices and optimize student outcome.

Educational sector has been considered as one among the major beneficiaries of information communication technology ,most secondary school in Egor local government area of Edo state have realized the importance of adopting information communication technology and are now investing in building information communication technology infrastructure to help both teachers and student in teaching as well as learning process. It has become inevitable for both teachers and student to adopt information communication technology for their academic purpose and knowledge betterment despite this most

educational institutions are not aware of the impact of information communication technology in teaching and learning process and to be able to meet the needs of the present educational society information communication technology is needed.

With the introduction of information communication technology into secondary school there is urgent need to examine the teachers and school awareness of the extent of utilization of the various information communication technology tools which provides newer, better, quicker ways for people to interact, network, seek help, gain access to information and learn. (OECD (2019)

Summary of reviewed literature

From the study it was revealed that the application of information communication technology to the teaching and learning process in senior secondary school is very important for effective teaching to take place it offers several benefits which includes vast amount of information and educational resources from around the world, student can access up to date material and even learn from the comfort of their home and it also makes learning more interesting

Information communication technology facilitates collaboration among students and teachers, its tools include educational apps, mobile devices, online learning platform, digital library e.t.c. Hence teachers need to be effectively trained to be able to effectively carry out information communication technology in teaching and learning. Information and Communications Technology can impact student learning when teachers are digitally literate and understand how to integrate it into curriculum. It has been proven that the use

of information communication technology in the classroom increases the motivation of the students, showing more interest and becoming more involved in the areas they study. When information communication technology is integrated into lessons, students become more engaged in their work. This is because technology provides different opportunities to make it more fun and enjoyable in terms of teaching the same things in different ways.

In conclusion the application of information communication technology in teaching and learning process offers opportunity for innovation, collaboration and engagement, ultimately leading to improved educational outcome

CHAPTER THREE

METHODOLOGY

This chapter presents the method that was used in the study under the following sub headings research design, population of the study, sample and sampling procedure, research instrument, validity of the instrument, reliability of the instrument, method of data collection and method of data analysis.

Research design

The descriptive survey research designs method was used in carrying out the study. The study was design to investigate the application of information communication technology in the teaching and learning process in senior secondary school in Egor local government area of Edo state.

Population of the study

The population of the study comprises of all teachers teaching information communication technology in the twelve (12) senior secondary schools in Egor local Government Area of Edo State . These schools are Uwelu Senior secondary school, Uselu secondary school, Edo Boys High School, Iyoba Girls College, Benin Technical College, Ohonre Grammer School, Use Senior Secondary School, Evbakere Secondary School, Okhokhugbo Secondary School, Federal Government Girls college, Evbuotubu Senior Secondary School and Eweka Secondary School

Sample and sampling procedures

The study utilized all the teachers because they are few teachers teaching information communication technology in senior secondary school in Egor Local Government Area of Edo State, which form the sample size

Research instrument

The instrument used for data collection for this study was the questionnaire titled “ Application Of Information Communication Technology In the Teaching And Learning Process (QAICTTLP) generating data for this study was the questionnaire. the questionnaire which was designed by the researcher was made up of two sections (A and B) SECTION “A” was drawn to cover the demographic information of the respondent , while Section “B” covered the research question raised for the study

Validity of the instrument

The validation of the questionnaire was carried out by the researchers supervisor and three other experts in the Department Of Educational Management, Faculty of Education, University of Benin, Benin City. Their corrections and suggestions made by them were effected in the final draft of the instrument, before the final copies were produced for data collection

Reliability of the instrument

In order to ascertain the reliability of the instrument the questionnaire were administered to a group of ten (10) respondents which were not part of the study. Data

collected were analyzed using the Cronbach's Alpha method and a reliability of 0.7 was obtained. This means that the instrument was reliable

Method of data collection

The questionnaire was administered by the researcher. This is to ensure that all respondent are well guided a brief introduction explaining the purpose of the study was explained to the respondent and the questionnaire were collected to ensure accuracy.

Method of data analysis

Data collected were analyzed using the descriptive statistical method such as frequency table and percentage

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF FINDINGS

This chapter is concerned with the presentation of data analysis, interpretation of results and discussion of findings.

Research Question 1: Are the information communication technology tools available for teaching and learning

Table 1: Frequency responses on Availability of Information Communication Technology Tools

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Available	5	41.7	41.7	41.7
	Non Available	7	58.3	58.3	58.3
Total		12	100	100.0	
Missing	System	0	0		
Total		12	100.0		

The result in Table 1 indicated the availability of Information Communication Technology tools for teaching and learning. The results revealed that out of the 12 respondents, 5 (41.7%) reported that Information Communication Technology tools are available for teaching and learning. In contrast, 7 (58.3%) respondents indicated that these tools are not available. This distribution highlights that a substantial proportion of the surveyed population, lacks access to Information Communication Technology tools

for educational purposes. Therefore in Senior Secondary School in Egor Local Government area of Edo state Information Communication Technology tools are not available

Research Questions 2: Are there trained personnel to effectively carry out information communication technology in teaching and learning process

Table 2: Frequency response on Availability of Trained Personnel

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Strongly Agree	5	41.7	41.7	87.0
	Agree	5	41.7	41.7	12.5
	Disagree	1	8.3	8.3	8.3
	Strongly Disagree	1	8.3	8.3	8.3
	Total	12	100.0	100.0	
Missing	System	0	0		
Total		12	100.0		

The result in table 2 indicated the availability of trained personnel to effectively implement Information Communication Technology Information Communication Technology in the teaching and learning process. Among the respondents, 5 (41.7%) strongly agreed that there are trained personnel capable of effectively utilizing Information Communication Technology in teaching and learning. Another 5 (41.7%) agreed to this statement, indicating a similar level of confidence in the presence of qualified personnel. In contrast, 1 respondent (8.3%) disagreed and another 1 (8.3%)

strongly disagreed with the statement, expressing skepticism about the availability of trained individuals. This implies that there is a substantial number of trained personnel in Senior Secondary School in Egor Local Government area of Edo state

Research Questions 3: How often is information communication technology used in teaching and learning?

Table 3: Frequency responses on the usage of technology in teaching and Learning

		Frequency	Percentage	Valid Percentage	Cumulative Percentage
Valid	Often	2	16.7	16.7	16.7
	Very Often	3	25.0	25.0	25.0
	Rarely use	2	16.7	16.7	16.7
	Rare	5	41.7	41.7	41.7
	Total	12	100	100.0	
Missing	System	0	0		
Total		12	100.0		

The result in table 3 indicated the frequency of Information Communication Technology usage in teaching and learning. According to the survey results, 2 respondents (16.7%) reported that Information Communication Technology is often used in teaching and learning. A slightly larger group of 3 respondents (25.0%) stated that Information Communication Technology is very often utilized in educational contexts. Additionally, 2 respondents (16.7%) mentioned that Information Communication Technology is rarely used, while the majority of respondents, 5 (41.7%), indicated that Information Communication Technology is used rarely. Therefore in Senior Secondary

School in Egor Local Government area of Edo state Information Communication Technology tools are rarely use

Research Questions 4: Are there awareness of the usefulness of information communication technology in teaching and learning process

Table 4: Frequency responses on Awareness of the usefulness of information communication technology in teaching and learning process.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	11	91.7	91.7	91.7
	No	1	8.3	8.3	8.3
	Total	12	100.0	100.0	
Missing	System	0	0.0		
Total		12	100.0		

The result in table 4 indicated the awareness of the usefulness of Information Communication Technology in the teaching and learning process. According to the survey findings, the overwhelming majority of respondents, specifically 11 individuals (91.7%), reported that they are aware of the usefulness of Information Communication Technology in the teaching and learning process. In contrast, only 1 respondent (8.3%) indicated that they are not aware of this usefulness. Therefore in Senior Secondary School in Egor Local Government area of Edo state there is awareness of the usefulness of Information Communication Technology.

Discussion of Findings

The study investigated the application of information communication technology in the teaching and learning process in Senior Secondary School in Egor local Government area of Edo State

Information communication technology available for teaching and learning

Based on the responses in Table 1 the results revealed that (41.7%) reported that Information Communication Technology tools are available for teaching and learning. In contrast, (58.3%) respondents indicated that these tools are not available. This distribution highlights that a substantial proportion of the surveyed population, lacks access to Information Communication Technology tools for educational purposes. Therefore in Senior Secondary School in Egor Local Government area of Edo state Information Communication Technology tools are not available

Trained Personnel

The result in table 2 indicated that among the respondents, (41.7%) strongly agreed that there are trained personnel capable of effectively utilizing Information Communication Technology in teaching and learning. Another (41.7%) agreed to this statement, indicating a similar level of confidence in the presence of qualified personnel. In contrast, (8.3%) disagreed and another (8.3%) strongly disagreed with the statement.

Utilization of Information Communication Technology

Based on the response in table 3 The result revealed that notable proportion of respondents reported frequent use of Information Communication Technology, a

significant number (41.7%) indicated rare usage. Therefore in Senior Secondary School in Egor Local Government area of Edo state Information Communication Technology tools are rarely use

Awareness of Information Communication Technology

According to the survey findings, the overwhelming majority of respondents (91.7%) reported that they are aware of the usefulness of Information Communication Technology in the teaching and learning process. In contrast, only (8.3%) respondent indicated that they are not aware of this usefulness. Therefore in Senior Secondary School in Egor Local Government area of Edo state there is awareness of the usefulness of Information Communication Technology.

CHAPTER FIVE

SUMMARY, CONCLUSION, AND RECOMMENDATIONS

Summary

This study investigated the application of information communication technology in the teaching and learning process in senior secondary school in Egor Local Government area of Edo State. Specifically the study found out that Information Communication Technology tools are not available to effectively carry out teaching and learning even thou there is awareness of the usefulness of Information Communication Technology and available trained personnel but they are rarely used

Purpose of study

The purpose of the study were:

1. Find out if the Information Communication Technology tools are available for teaching and learning
2. Find out if they are trained personnel to effectively carry out Information Communication Technology in teaching and learning process
3. To ascertain how often is Information Communication Technology used in teaching and learning
4. To ascertain the awareness of the usefulness of Information Communication Technology in teaching and learning process

Research Questions

1. Are the Information Communication Technology tools available for teaching and learning?
2. Are they trained personnel to effectively carry out Information Communication Technology in teaching and learning process?
3. How often is Information Communication Technology used in teaching and learning?
4. Are there awareness of the usefulness of Information Communication Technology in teaching and learning process?

The study adopted descriptive survey research design methods and the population comprises of (12) senior secondary schools in Egor local Government Area of Edo State . These schools are Uwelu Senior secondary school, Uselu secondary school, Edo Boys High School, Iyoba Girls College, Benin Technical College, Ohonre Grammer School, Use Senior Secondary School, Evbakere Secondary School, Okhokhugbo Secondary School, Federal Government Girls college, Evbuotubu Senior Secondary School and Eweka Secondary School.

Findings

The findings of the study revealed that Information Communication Technology tools are available but not adequate as only 41.7% were available but 58.3% respondent claimed that they are not available. It therefore means that Information Communication Technology tools are available but not adequate. This study was in line with according to

Prince .J. Macfarlane (2022) whose study reported that Information Communication Technology tools are available but not adequate

The findings of the study revealed that there is a substantial number of trained personnel in Senior Secondary in Egor Local government area of Edo state as they are 41.7% to effectively carry out Information Communication Technology. This study was in line with according to Griffiein (2002) whose study reported that Information Communication Technology personnels should be trained to effectively carry out teaching and learning.

The findings of the study revealed that they are trained personnel to carry out Information Communication Technology but 41.7% respondent claimed that they are rarely used. It therefore means that Information Communication Technology are rarely used. This study was in line with according to Downes .S. 2005 whose study reported that Information Communication Technology are rarely used.

The findings of the study revealed that Information Communication Technology tools may not be available but 91.7% respondent claimed that there is awareness of the usefulness of Information Communication Technology in teaching and learning. It therefore means there is awareness of the usefulness of Information Communication Technology in teaching and learning process but the tools are not available This study was in line with according to OECD (2019) whose study reported that there is awareness of the usefulness of Information Communication Technology

Conclusion

The conclusion of the study revealed that Information Communication Technology tools are available but not adequate to effectively carry out teaching and learning. The findings of the study revealed that there is a substantial number of trained personnel in Senior Secondary in Egor Local government area of Edo state as they are 41.7% to effectively carry out Information Communication Technology. This study reported that Information Communication Technology personnels should be trained to effectively carry out teaching and learning.

The findings of the study revealed that they are trained personnel to carry out Information Communication Technology but 41.7% respondent claimed that they are rarely used. It therefore means that Information Communication Technology are rarely used. The findings of the study revealed that that Information Communication Technology tools may not be available but 91.7% respondent claimed that there is awareness of the usefulness of Information Communication Technology in teaching and learning. It therefore means there is awareness of the usefulness of Information Communication Technology in teaching and learning process but the tools are not available.

Recommendations

From the findings of the study the following recommendations were made: Information Communication Technology tools should be provided so they can be utilized. They should also be trained personnel to effectively carry out Information

Communication Technology in order to effectively carry teaching and learning also Information Communication Technology should be used often in teaching and learning as it increase students interest in learning and makes learning easy, while they should be awareness of the usefulness of Information Communication Technology to both students and teachers

Implications for Educational Planning

Information Communication Technology has a very significant implication on educational planning as Information Communication Technology is a very important tools to ensure effective educational planning. Information Communication Technology has provided wide access to vast array of digital learning resources including online courses and e-book hence educational planners must ensure that students and teachers has access to these resources

Contribution to Knowledge

This study investigated the application of information communication technology in the teaching and learning process in senior secondary school in Egor local Government area of Edo State, however many study have been carried on application of information communication technology in the teaching and learning process in senior secondary school in other local government area and State in Egor local government area of Edo State hence this study has been able to add , feel the gap and add to exisiting body of knowledge

Suggestions for Further Study

Another similar study can be carried out on usefulness of information communication technology in senior secondary school in another local government area and sta

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APPENDICES

APPENDIX 1

QUESTIONNAIRE

DEPARTMENT OF EDUCATIONAL MANAGEMENT

FACULTY OF EDUCATION

UNIVERSITY OF BENIN, BENIN CITY

APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY IN THE TEACHING AND LEARNING PROCESS

Dear Respondents,

The purpose of this questionnaire is purely designed on “APPLICATION OF INFORMATION COMMUNICATION TECHNOLOGY IN THE TEACHING AND LEARNING PROCESS” (QAICTTLP). I humbly appeal for your maximum co-operation in responding honestly to the questions where necessary. All information given will be treated with utmost confidentiality.

Yours faithfully,

.....
Odili Magdalene Okukwe

SECTION A

Socio -demographic Data of the Respondents

Instruction: Please tick (✓) the appropriate option.

Gender: Male (), Female ()

SECTION B:

Instruction: To each statement, indicate your choice by ticking (✓) the preferred column

Are the information communication technology tools available for teaching and learning	Available	Non Available

Are there trained personnel to effectively carry out information communication technology in teaching and learning process	Strongly Agree	Agree	Disagree

How often is information communication technology used in teaching and learning?	Often	Very Often	Rarely Use

Are there awareness of the usefulness of information communication technology in teaching and learning process	Yes	No

APPENDIX 11

Reliability Result

Case processing summary

	N	%
Cases Valid	10	100.0
Excluded^a	0	.0
Total	10	100.0

a. Listwise deletion based on all variable in the procedure.

Reliability Statistics

Cronbach Alpha	Cronbach's Alpha Based on Standardized items	N of items
.702	.726	3