UTILIZATION OF OPEN EDUCATIONAL RESOURCES BY STUDENTS OF KWARA STATE POLYTECHNIC, ILORIN, NIGERIA

By

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CERTIFICATION

This is to certify that this project titled **"*Utilization of Open Educational Resources by Students of Kwara State Polytechnic, Ilorin, Nigeria"*** by Abdulwahab Taiye Oladimeji meet the regulations guiding the award in National Diploma in Kwara State Polytechnic Ilorin and is approved.

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DEDICATION

This project is dedicated to God for being my ultimate source of strength and inspiration. In Him, I derived all powers needed to live, weather the storms and become an embodiment of hope to myself and the people around me.

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ABSTRACT

This study explores utilization of open educational resources by students of Kwara State Polytechnic, Ilorin, Nigeria. Descriptive survey design was used in this study. The population of this study are students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin, Nigeria. Sample size of this study is 188. Simple random sampling technique was used to select the students. Questionnaire was used to collect data from the respondents. Data obtained was then presented and analysed by using simple percentage and frequency table. Furthermore, result of findings revealed that students of IICT believed that the use of OERs foster teachers' professional development and students' engagements, boost students' learning processes, foster new form of learning for 21st century and continually improving the quality of educational resources. More so, findings point that poor organisation or maintenance, libraries' nonchalant attitudes towards providing consumers with digital information, inadequate educational models and poor internet connectivity are the major challenges limiting students of IICT from using OERs and CERs. Finally, this study recommends that students of IICT should learn how to use OERs and CERs to support their information needs in various dimensions of their lives. The usage of OERs and CERs are not limited to academic purposes, they can also be used for career progression and development of skills required to survive in the 21st century.

Keywords: Utilisation, OER, Students, Kwara State Polytechnic, Ilorin, Nigeria.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The advent of new technology has made the world become a global village in information dissemination. The developed world has taken the lead in bringing information to the doorsteps of people and the educational systems of developing countries are tapping into it. OERs are becoming a valuable alternative to improve access to high quality educational contact released under open license by outstanding universities worldwide that OERs can be used worldwide. (Navarrete, Lujan- Mora and Penafiel, 2016)

The term OERs was first adopted in 2002 by UNESCO at a forum discussing the Impact of Open Courseware for Higher Education in Developing Countries (Vojtech & Grissett, 2017). OERs are teaching, learning and research materials in any medium, digital or otherwise, that resides in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions (Hewlett Foundation, 2018).

OERs could further be described as the availability of learning resources to students, self - learners and educators, in online modes. They have free access to learning materials without any hindrance, at no cost and with opportunities to compare and contrast educational programmes and course contents. Examples of OERs include full courses, course modules, syllabi, lectures, home- work, assignments, quizzes, lab and classroom activities, pedagogical materials, games, simulations, and others (Hewlett Foundation, 2018).

Higher education is a very large investment for students to undertake both in time and money. This justifies why the developing world and Nigeria in particular, are taking a great advantage of OERs to access learning materials. As the cost of education rises, education may be disproportionately limited to affluent populations, thus perpetuating an inter-generational cycle of poverty that fuels both students' underperformance and their lack of attendance in class. Low-quality education leads to low income, which in turn perpetuates poverty and can affect economic growth through low labor productivity (Verner, 2004 as cited in Vojtech & Grissett, 2017).

The use of OERs can provide significant cost savings for university students as they displace traditional textbooks (Wiley, Hilton, Ellington, & Hall, 2012 as cited in Prakash V Arumugam 2017) . The use of OERs is increasing among higher educational institutions. CNN reports that OERs such as OpenStax are now used by about 140,000 students at more than 850 institutions (Grinberg, 2014). OERs are also increasing in support as broader governmental commitments, such as the European Universities' Charter on Lifelong Learning, pushes for expanding educational access to diverse populations (Lane & Van-Dorp, 2011 as cited in McGreal 2017).

OERs also provide instructors with flexibility in the materials they are using to teach their students and allow them to customize the course material to match their teaching preferences (VTLibraries, 2016). These materials provide students with easier access to course materials and flexibility in where and when they access them (Cooney, 2016). Although there are benefits to using OERs, their abuses by students makes stakeholders doubt the fulfillment of objectives that necessitated their inventions. For instance, Lane and Van-Dorp (2018) argued that due to the financial and other personal benefits teachers would derive from Close

Educational Resources (CERs), most of them don't accept OERs from students. This makes students continue to raise concerns that the benefits of OERs can only be maximized if the number of teachers adopting it increases.

Bringing down the prices for academic materials may be one factor in addressing the challenges and increasing access to education, but the price for access to quality educational materials would still be paid by those who value education. Hence, the need for Close Educational Resources. Alternative to OERs are Closed Educational Resources (CERs), a term that is synonymously used with Paid/Proprietary Educational Resources. These resources contain educational contents that may be available to the public, but often limited to paid individual or corporate subscribers. This new generation of educational resources, thus, presents opportunities for owners of educational works to determine how their works would be used and control the financial rewards of their works (O'Hanlon & Laynor, 2019).

The CERs are teaching and learning materials that have to be accessed and used at a cost and also require seeking permission of their creators. They are copyrighted resources that have been authored or created by an individual or organization that chooses to retain the ownership rights of educational resources they have created (Open Educational Resources [OER] Commons, 2020). They are the opposites of OERs. Though they are both educational resources, the scopes and conditions of their use differ.

CERs include educational resources such as textbooks, lecture notes, complete courses, multimedia resources, images and artworks, curricula, tests, or other media, and can extend to whole modules, software, and full courses. The aim is that these resources cannot be used,

copied, shared and adapted freely; and their use should conform to adequate form of acknowledgement of their rightful owners.

Maguire (2018) argued that while the CERs might seem to be the opposite of OERs that aim to make content available for free to all, both are part of broader changes in the creation and delivery of education content. CERs, like crowd-sourced study resources and OERs, are part of a shift to more self-directed student learning in every discipline. In the era of flipped classrooms, students have taken on a more active role in finding, utilizing, and even creating study materials. CERs capitalize on this trend.

In the emerging world of information dissemination that is dominated by technologies, it becomes important for authors or owners of intellectual property rights to fully exploit the rewards of their intellectual works, through due financial rewards, enjoy their moral and economic rights. Hence, the need for CERs as a substitute for OERs. With CERs, it is believed that students will attach values to the resources at their disposal for studying, learning and research. This thus justifies why this study is aimed at investigating the utilization of open educational resources by students of Kwara State Polytechnic, Ilorin, Nigeria.

1.2 Statement of the Problem

OERs and CERs have the potential to improve the quality and reduce the costs of educational materials especially in developing countries like Nigeria where access to high quality teaching resources is scarce. Maguire (2018), O'Hanlon and Laynor (2019) stated that the use of OERs and CERs among students in Nigeria is low. This may be as a result of the low level of awareness of OERs and CERS among the students. Other possible reasons for their declining usage could be inadequate information retrieval skills, lack of internet access,

erratic power supply etc. Despite the possible potentials of OERs and CERs to create accessible, high quality educational resources for anyone and everyone to use, their low level of utilization by university students in developing countries like Nigeria is disturbing. To this end, this study intends to investigate the utlisation of OERs by students of Kwara State Polytechnic, Ilorin, Nigeria**.**

1.3 Objectives of the Study

This study aims to investigate the utlisation of OERs by students of Kwara State Polytechnic, Ilorin, Nigeria.

This study specifically sought to:

1. Find out the types of OERs used by students of Kwara State Polytechnic, Ilorin,
2. Determine the level of use of OERs among students of Kwara State Polytechnic, Ilorin,
3. Find out the relationship between OERs USAGE among students of Kwara State Polytechnic, Ilorin,
4. Examine the benefits of using OERs by students of Kwara State Polytechnic, Ilorin, and;
5. Determine the challenges limiting students of Kwara State Polytechnic from using OERs.

1.4 Research Questions

The following research questions were raised to guide the study:

1. What are the types of OERs used by students of Kwara State Polytechnic, Ilorin?
2. What is the level of use of OERs among students of Kwara State Polytechnic, Ilorin?

3. What is the relationship between THE USAGE OF OERs by students of Kwara State Polytechnic, Ilorin?
4. What are the benefits of using OERs by students of Kwara State Polytechnic, Ilorin?
5. What are the challenges limiting students of Kwara State Polytechnic from using OERs?

1.5 Significance of the Study

This research work will be of great significance to students and teachers of higher education, most especially those in universities by exposing them to various universal educational resources sharing environments, which students in any country can benefit from. OERs and CERs like textbooks, films, archeological materials, etc., can increase the quality of education because they are available, accessible and can be used either for free or low cost. Through OERs and CERs, students become more active participants in the education process in collaboration with other participants in virtual learning environments.

Also, with the aid of OERs and CERs, teachers have the opportunity to compare their own teaching materials with the teaching materials of other teachers and to use them as a resource. Teachers can learn to publish their work worldwide with an open license and also how to improve the quality of their teaching practices and encourage pedagogical innovations. Finally, OERs can reduce the cost of accessing educational materials (McGreal et al, 2019).

1.6 Scope and Limitation of the Study

This study examines the utlisation of OERs by the students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin, Nigeria. Therefore, students of the Institute will serve as respondents for this study.

1.7 Operational Definition of Term

Utilization: This is the act of using, state of being used or making use of OERs and CERs by students of Kwara State Polytechnic, Ilorin.

Open Education Resources (OERs): These are resources in any format or medium that reside in the public domain or have been released for open access under copyright and permit no-cost access, which are meant used by students of Kwara State Polytechnic for learning and research.

Students: These are students of Kwara State Polytechnic who are expected to be using OERs and CERs as they are studying for their first degree.

Kwara State Polytechnic: This is an institution owns by Kwara State government and awards national and higher national diploma certificate to students that have learned how to use OERs.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter reviewed the existing body of literature relating to this study by citing the works, definitions, revelations, positions, arguments, notions, views, recommendations or submissions of scholars, authorities, and researchers. Hence, this chapter will be arranged in the following order:

2.2 Concept of Open Educational Resources (OERs)

2.3 Concept of Closed Educational Resources (CERs)

2.4 Types of OERs

2.5 Types of CERs

2.6 Level of Utilisation of OERs and CERs by Students

2.7 Relationship between the Usage of OERs and CERs

2.8 Benefits of Using OERs and CERs by Students

2.9 Challenges Limiting Students from Using OERs and CERs

2.10 Appraisal of Literature Review

2.2 Concept of Open Educational Resources

The term OERs is the acronym for Open Educational Resources. It is a fact that its emergence is related to the need to enhance functional open and distance learning (ODL) for the benefit of humanity (Amadi & Igwe, 2015). The emergence of open educational resources (OER) started with the idea of Wayne Hodgins in 1994, when he coined the term 'learning objects'. This was followed by the introduction of 'open content' by David Wiley, a term that was popular as a result of its importance and relevance in the introduction of open publications (Ipaye & Ipaye, 2015).

In 2001, the Massachusetts Institute of Technology (MIT) introduced Open Course Ware (OCW), a web-based publication of virtually all MIT course contents. This was when MIT decided to put its course contents for free public access and use. OCW is free and available to the world through MIT website, educators improve courses and curricular, making their schools more effective; students find additional resources to make them succeed; and independent learners enrich their lives and use the content to tackle some of our world's most difficult challenges associated with sustainable development (Akomolafe & Olajire, 2014).

Arnold (2016) argues that up till now, there is no widely agreed upon definition of the precise meaning of "open educational resources. The term was coined in UNESCO's activities to enhance higher education in developing countries, referring to the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes" (Open Educational Practices and Resources [OEPR], 2017; Amadi & Igwe, 2015). The powerful idea behind open educational resources is that the world's knowledge is a public good and that technology provide[s] an extraordinary opportunity for everyone to share, use, and re-use knowledge (OEPR, 2017).

There are various interpretations for "open" and respectively "free". Generally, these terms are understood as creating as few barriers as possible in accessing the learning material in terms of costs, technology and property rights (Thibault, 2016). According to EDUCAUSE (2018) as cited in Amadi and Igwe (2015), OERs are web-based educational resources that are freely available on the Internet for use by all in the society. These OERs typically refer to online resources, including those in multimedia formats, and such materials are generally released under a creative commons or similar license that supports open use of the contents in

online, e-learning or hybrid environments. They can originate from colleges and universities, libraries, archival organizations, government agencies, commercial organizations such as publishers, or faculty or other individuals who develop educational resources and are willing to share with the public.

Okonkwo (2016) describes OERs as teaching, learning, and research resources that reside in the public domain or have been released under the intellectual property right license that permits their free use or re-purposing by others. OERs are digitized materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning and research. OER includes learning content, software tools to develop, use, and distribute content, and implementation resources such as open licenses (Amadi & Igwe, 2015). OERs are materials that may be freely used to support education and may be freely accessed, reused, modified and shared by anyone (Downes, 2015). OERs involve teaching, learning and research materials in any medium that reside in the public domain or have been released under an open license that permits their free use and re-purposing by others (Creative Commons, 2017).

OERs could be offerings from a single institution, such as when a college or university makes available online the resources from its courses, or they can be collections of materials gathered from individuals or departments from a wide range of separate institutions. Instructors and individual learners can download OER and use them in formal or informal learning situations. One of the hallmarks of OER is their flexibility – many are modular in nature, allowing them to be used in novel combinations to suit different learning activities. Also, OER are so malleable, they can be adapted to keep pace not only with new technologies but also with changes to academic disciplines and teaching methods (EDUCAUSE, 2018).

Despite the fact that OERs reside on the Internet, their reliability is sure and ascertained. This is like resources of virtual libraries that also exist on the Internet for human consumption. However, OERs are not specifically for only open and distance learning. They are also used, re-used and applied in conventional learning systems, and all learning environments geared towards human development. OERs include course wares, video clips, e-course materials, e-lecture notes, e-learning resources, e-books, course readings, learning contents, simulations, games, and other learning applications. Others are syllabi, quizzes, assessment tools, and virtually any other material that could be retrieved and used for educational purposes. It should be noted that OERs are unique in several ways. Although there are proliferations of online resources via the Internet, and probably used for teaching, research and learning processes, many are bogus, disorganized and could be misleading (Komolafe, Opadeji & Haliso, 2018).

2.3 Concept of Closed Educational Resources

Closed Educational Resources (CERs) are interchangeably used with Proprietary Educational Resources, Paid Educational Resources, or Fee-based Educational Resources. O'Hanlon and Laynor (2018) simply defined CERs as educational resources that contain curated content and limit access to individual subscribers. These resources include fee-based contents, which only subscribers can have full access to all of their features. CERs provide access to educational contents by specifying for users, the conditions of use of those resources made available to them.

The concept of CERs is the response of educators to the notion that education is not limited to what is being taught in school. Therefore, some educators have exploited this opportunity

to create and develop educational resources that will be available and accessible to users for a fee (Duffy, 2022). CERs are highly available on the Internet and are one of the products of the Internet to respond to educational needs in the form of online learning. Khan (2018) posited that online learning has given birth to sites that enable students to expand their minds and creative spirits.

With CERs made available online, students can learn just about anything, experience new things on a subject, no matter where they are in the world, as long as they have an internet connection. CERs, as the name implied are being run by administrators who make educational resources available to students at a cost. Sometimes, the cost students pay to access CERs varies. Some CERs charge students on either weekly, monthly, quarterly or yearly basis and also the level at which students will enjoy CERs is based on their subscriptions – advanced, premium, etc (Gamlin, 2017; Maguire, 2018).

CERs offer sites that contain books, courses, texts, videos, pictures, graphics, learning objects, etc., where students can learn new skills, become a better manager, study the art of memoir writing, watch a tutorial on how to set up a sewing machine, and listen to a world-renowned master in their field explain how they got to the climax of their field, so far students have paid the fees required to access the resources available on the sites (Khan, 2018; Duffy, 2022).

2.4 Types of Open Educational Resources

OERs are of different types because they are mostly designed to suit institutional education needs (Orr, Rimini & Van Damme, 2015; McGreal, 2016). Methodist College Library (2022) as well as Amadi and Igwe (2015) listed the following types of OERs:

1. **The Community College Consortium for Open Educational Resources (CCCOER):** CCCOER is a growing consortium of community and technical colleges committed to expanding access to education and increasing student success through adoption of open educational policy, practices, and resources. We provide a community and resources to learn about the evolving practice of open education.
2. **Lumen Learning:** This OER-focused company provides open courses with "zero textbook cost." Their curriculum comes with all the OER students will require.
3. **MERLOT II (Multimedia Educational Resources for Learning and Online Teaching):** MERLOT is a free and open online community of resources designed primarily for faculty, staff and students of higher education from around the world to share their learning materials and pedagogy. The Health Sciences section provides access to more than 3,000 multimedia items from topics ranging from cancer to nutrition to veterinary medicine in formats such as animations, presentations and tutorials and much more.
4. **MIT Open Course Ware:** MIT Open Course Ware (OCW) is a web-based publication of virtually all MIT course content. OCW is open and available to the world and is a permanent MIT activity.
5. **OER by Discipline Guide by McMaster University:** The OER by Discipline Guide: McMaster University is an in-progress (open creation) that lists a broad range of open educational resources organized by disciplines at McMaster University.
6. **OER Commons:** OER Commons is a public digital library of open educational resources. Explore, create, and collaborate with educators around the world to improve curriculum.
7. **OER Nursing (Northeast WI Tech College):** A list of OER resources for nursing from NWTC Library.

8. **Open Course Library:** This is a collection of high quality, free-to-use courses that you can download and use for teaching. All content is stored in Google docs making it easy to access, browse and download.
9. **Open Education Resource Course Initiative at Carl Sandburg College:** The purpose of OERCI is to provide support and opportunities for Carl Sandburg College faculty to use OER's in their courses and save students money by reducing textbook requirements and increasing the number of textbook free courses.
10. **Open Illinois:** Open Illinois facilitates the use of Open Educational Resources (OER) and supports training, advocacy, and coordination of cooperative effort for the benefit of members of Consortium of Academic and Research Libraries in Illinois (CARLI) and other Illinois stakeholders. This centralized repository provides materials helpful to academic and research institutions in developing OER and advocating for adoption of OER on their campuses to reduce student costs.
11. **Open Learning Initiative:** OLI provides dozens of college-level courses, and a platform that enables research and experimentation with any aspect of the learning experience. From Carnegie Mellon University.
12. **Open RN:** The OER Nursing textbooks are written based on the State Nursing curriculum established by the Wisconsin Technical College System, and include: Pharmacology, Skills, Nursing Fundamentals, Mental Health & Community Concepts, and Management & Professional Concepts.
13. **OpenStax:** OpenStax is a nonprofit based at Rice University, and it's our mission to improve student access to education. Our first open source college textbook was published in 2012 and has since scaled to more than 20 books used by hundreds of thousands of students across the globe.

14. **Open Textbook Network:** Open textbooks are textbooks that have been funded, published, and licensed to be freely used, adapted, and distributed. These books have been reviewed by faculty from a variety of colleges and universities to assess their quality. These books can be downloaded for no cost, or printed at low cost. All textbooks are either used at multiple higher education institutions; or affiliated with an institution, scholarly society, or professional organization. The library currently includes 697 textbooks, with more being added all the time.
15. **Wiki Educator:** The Wiki Educator is an evolving community intended for the collaborative: planning of education projects linked with the development of free content development of free content on Wiki educator for e-learning work on building open education resources (OERs) on how to create OERs networking on funding proposals developed as free content.
16. **World Digital Library:** The World Digital Library (WDL) is a project of the U.S. Library of Congress, carried out with the support of the United Nations Educational, Cultural and Scientific Organization (UNESCO), and in cooperation with libraries, archives, museums, educational institutions, and international organizations from around the world. Methodist College Library (2022).

2.5 Types of Closed Educational Resources

The massive advancement in technology has created opportunities for educators to be earning online, by designing different platforms for students to learn desired skills for a fee. Some of these CERs, according to Khan (2018) and Duffy (2022) include:

1. **MasterClass:** This is for anyone who has a curiosity and desire to learn, from teenagers on up. It's for people who want insight into a chosen field, as well as those open to learning what they can from the highest achievers in other fields. Whether

you're passionate about standup comedy, filmmaking, leadership, baking, music, or scholarship, you can find wonderful insight from MasterClass by paying a certain amount to have access to its contents.

2. **Khan Academy**: This focuses on learning materials for students in kindergarten through early college. That doesn't mean other people can't use it or find immense value in it. When you look at the available courses, however, you will notice that many of them closely map to the US education system. So for example, there are courses under the heading High School Physics. Khan Academy is especially adept at teaching math, science, computing, economics, history, and personal finance, among a few other subjects. You get sequential material, too, so you can work through one lesson at a time in order until you've learned what you need to know.
3. **Coursera:** This is for people who want access to real university classes and have the self-discipline to follow through on all the assignments, which can often take weeks or months to complete. You mostly learn through videos, readings, quizzes, and assignments. If you use Coursera for free, you may be able to get feedback on your assignments from other learners, but not the instructor. Coursera is best for learners who can handle college-level course material.
4. **Kahoot!:** This is an ideal platform for businesses that need to teach something, as well as educational instructors who want to make their content more engaging. Once you have an account, you'll see other fun ways to use the platform to create, for example, trivia for family gatherings or activities at conferences.
5. **Skillshare:** This shares videos that teach students skills to lead a creative life. It covers everything from creative hobbies to tips for running a creative online business. This site offers short videos, sometimes as part of a much longer series, where students learn and practice mostly hands-on skills. Students get additional materials,

such as PDF handouts, and sometimes community forums where you can upload examples of your work to get feedback from other learners. While its pricing has jumped around over the years, Skillshare now has a reasonable annual cost

6. **Udacity:** This is clearly for job seekers who want to work in a specific technical field and perhaps for a specific employer. How specific? There's a course called Self-Driving Car Engineer, developed in partnership with Mercedes-Benz, Nvidia, Uber, and other companies. Udacity does offer some more general business courses on topics such as marketing. That said, Udacity is best for people who are willing to pay a few hundred dollars per month to complete one of its highly targeted Nanodegrees.
7. **Wondrium:** The best way to describe Wondrium is to call it couch-side edutainment. It's not geared toward teaching you hands-on skills or helping you achieve a specific learning goal (though it does have some skills-focused classes). Instead, Wondrium feeds your curiosity with videos that explore ideas that perhaps you know nothing about. In that sense, it's wonderful for beginners or people who don't have any prior knowledge of the subjects it covers.
8. **LinkedIn Learning:** This is for people who want to develop business skills, both hard skills (how to use Tableau, for example) and soft skills (management, leadership, etc.). Really, it's for people who have a paid LinkedIn membership, because access to LinkedIn Learning is included. If you wouldn't get much out of the other benefits for a paid LinkedIn subscription, then we don't recommend paying nearly $40 per month just for LinkedIn Learning.
9. **Udemy**: This is for three kinds of people: 1) those with a business subscription to the site who can simply explore what it has to offer, 2) people who are interested in a specific course offered on the site, and 3) instructors who want to host and sell their

courses on Udemy. For the third use case, we didn't do detailed testing or analysis, instead focusing on Udemy from the learner's perspective.

10. **Alison:** This education platform creates space for students to be a part of a burgeoning community of more than 11 million learners, and learn from some of the best experts in the industry. Choose from a wide range of disciplines, including business, technology, marketing, health, humanities, mathematics, and science. For those who are interested in exploring the topic in detail, Alison offers comprehensive diplomas that cover each topic in detail and help make you an expert in that particular domain.
11. **Lynda:** Lynda.com is mostly a paid platform for learners, which might prove to be a deal breaker for some as they will have to settle for a few free courses. Probably the oldest and most popular resource on this list is Lynda. Founded in 1995, Lynda.com features thousands of online courses related to business, technology, design etc. You can also browse through their video tutorials taught by industry experts. What sets Lynda.com a notch up other online learning resources is their hands-on approach to learning, which not only makes it easier to learn anything but also makes it a breeze to implement what you are learning. One department where Lynda.com lags behind its competitors is its mobile app (Khan, 2018).
12. **edX:** Akin to Coursera, edX also offers some great courses from the best universities around the globe, but they are not self-paced, entailing you to keep an eye on the timeline of your course. To facilitate students from different parts of the world, it incorporates a brilliant translation feature. You can choose from a wide range of subjects, such as biology, business, computer sciences, finance, economics, medicine, music, philosophy, and physics to name a few. You can easily access all the learning material and prepare for the exams (Khan, 2018).

13. **Udacity:** Udacity offers a variety of paid courses to help learners work toward their career goals. The platform also provides Nano degrees, which are paid programs in the fields of technology and business. A Nano degree comprises three to four single courses, which learners complete over a recommended number of weeks. The program culminates with a project that allows students to demonstrate their mastery of a subject. Nano degree programs serve all levels of learners, from beginner to advanced. Advanced courses require prerequisite knowledge and skill in a subject (Galarita, 2022).
14. **DataCamp:** DataCamp is an online learning platform that teaches students new technical skills or helps them brush up on their current skill set. DataCamp is a self-paced, non-proctored approach to learning, similar to competing providers like Codeacademy and CodeCamp. DataCamp teaches data science, machine learning and skills like business intelligence and SQL tools. When people learn with DataCamp, they will experience a hands-on approach to learning that includes regular skill assessments to track their progress. Courses include challenges and projects featuring real-world elements to help you figure out how to apply learners' new skills in the workplace. Through a series of courses or career paths, DataCamp helps people learn coding languages like Python, R, SQL and Scala, along with products like Tableau, Power BI, Oracle SQL and Excel (Perry, 2022).
15. **CBT Nuggets:** CBT Nuggets was founded by Dan Charbonneau in 1999. It is an online platform that provides a diverse range of on-demand video training services for IT pros, system administrators, network engineers, DevOps, developers, and more. Their courses cover technology put on by vendors such as Cisco, Microsoft, VMware, and CompTIA (Galarita, 2022).

16. **Pluralsight:** Pluralsight is the technology skills platform that build in-demand tech skills with access to thousands of expert-led videos courses, downloadable content, certification prep, and more. Explore online courses in software development, cloud computing, AI and machine learning, information security and cyber security, data, IT operations, etc (Khan, 2018).

2.6 Level of Utilization of OERs and CERs

OERs and CERs are products of e-learning strategy which refers to a comprehensive set of goals and directives, elaborated and endorsed by university management, for the sustainable implementation of ICT support for learning and teaching (Arnold, 2016). With e-learning strategies, universities try to streamline existing projects and initiatives and embed them in a comprehensive master concept in order to bring e-learning within the organization onto another level for the students.

OERs and CERs are learning-oriented and purposefully-developed digital materials and objects that are available on the Internet via open access licenses, paid access for use and re-use in the teaching, learning and research processes (Amadi & Igwe, 2015). Both contain vital educational information which are too difficult for students to ignore. Kanwar, Kondharaman and Umar (2017) noted that OERs and CERs are key emerging issues in contemporary educational discourse with the possibility of enriching teaching, learning and research activities particularly among students in developing countries like Nigeria.

Maguire (2018) asserted that the quest for academic excellence is tempting many students to be sourcing and finding study resources that work for their learning styles and study habits.

This makes more than sixty percent of them embrace OERs that aim to make content available for free to them and also willing to pay for CERs.

Gamlin (2017) reported that the high level of OERs among students have encouraged the shift to a more self-directed student learning in all dimensions of education. He further stressed that the era of flipped classrooms has made students take on a more active role in finding, utilizing, and even creating study materials. Mulder (2015), Orr, Rimini and Van Damme (2015) corroborated this by asserting that the dynamism of learning offered by OERs has made more than average students of universities to be widely accepted by learners. With the emergence of OERs, learners now have the freedom to choose the formats that are most suitable for their learning pattern.

Arnold (2016) noted that with the emergence of OERs, eighty-five percent of learners now have the freedom to choose the formats that are most suitable for their learning pattern. He cited an example by noting that if learners are interested in the whole course contents, they can read the whole material or watch videos, while those who are just interested in knowing what the entail will just read the transcript of a video. This process has simplified learning for majority students.

On the other hand, proprietary study resources have created a different opportunity for students to learn. The availability of CERS have turned more than seventy percent of students to become independent learners and logical thinkers and made them develop the capacities to question ideas and constructs and proffer solutions to problems around them and beyond (Maguire, 2018). Orr, Rimini and Van Damme (2015) contrasted the point of Mulder (2015) that the level of use of CERs is gradually growing in Africa.

Hilton et al. (2016) stressed that the evidence available has shown that students are embracing CERs more than ever, with more than sixty percent in Europe and America, fifty percent in Asia and thirty percent or more in Africa. Hilton et al. (2016) reported that CERs have become highly used by students who have access to strong internet facilities and that has transformed them personally and contributed to their excellent academic performance. Mulder (2015), Hilton et al. (2016) contested that if the current level of use of OERs and CERs by students continues, there is a high tendency that the necessary skills for workplace performance and individual improvement would also be cultivated by students.

2.7 Relationship between OERs and CERs

Scholars Gamlin (2017), Khan (2018) and Maguire (2018) have established that both OERs and CERs shared many commonalities and differences. The major commonality between the two is that they are both educational resources. Abayomi (2020) sees educational resources as materials used in learning environments to help and assist with students' development and learning. They're designed to reinforce learning and, in some cases, allow students to put their knowledge to test. Educational resources are crucial and important learning tools that provide content for students to learn at their own pace and comfort.

Virtual Campus for Public Health [VCPH] (2019) posited that educational resources are highly required for students in the contemporary learning space. They said 21st century have necessitated the creation of standardized educational contents for use in the different modes of learning such as face-to-face, blended and/or virtual, which has also given birth to different learning objects. Learning objects embedded in OERs and CERs are any entity, digital or

non-digital, that may be used for learning, education or training, and may also be reused or referenced in a learning context supported by technologies.

On the differences between OERs and CERs, Babcock University (2021) argued that OERs include unpublished resources such as unpublished, conference papers, hand-outs, supervised projects that can be re-visited, re-purposed, re-used, commercialized, derivable, and are under open licenses which are internationally recognized. However, CERs are also commercialized educational resources, but they are published, copyright materials that can only be accessed by paying a fee (Khan, 2018).

Maguire (2018) argued that aside that both OERs and CERs are educational resources, the fact that students have to pay before they can access CERs gives CERs edges over OERs, when it comes to quality and reliable information. Since the creators of CERs know that they are charging fees from students to make use of their resources, it is therefore imperative for them to always ensure that reliable information is provided to students or else they will lose students to their competitors.

Amadi and Igwe (2015) justified why OERs have gained prominence over CERs in the academic environment. Reusability of OERs, sharing of OERs and use of OERs give it a wider acceptance among students. These qualities are lacking in CERs. Though, both OERs and CERs have the qualities of flexibility, interoperability and accessibility. But CERs are accessible to only the users who have met the required financial obligations. In some cases, students may find it difficult to re-access CERs, maybe when they have finished their programme or migrated to a different mode of usage (Khan, 2018).

University of Pittsburgh (2022) highlights reusability, making of impacts, democratizing learning, time and money saving as the benefits of OERs. Among these benefits, there are some that are lacking in CERs. For example, CERs don't save money because one of the major determinants to access them is paying a fee, maybe for registration or subscription. Also, CERs don't democratize learning because the freedom granted to users to share and reuse educational resources are not totally ensured. Hence, this limitation hampers students' exploitation of CERs.

2.8 Benefits of Using of OERs and CERs by Students

OERs and CERs emerged in response to inadequacy of information materials for teaching and learning in all fields of study. The impact of OERs and CERs is enormous in the teaching and learning of all branches of knowledge in the society. OERs and CERs have largely contributed to modifying the existing approaches to teaching and learning. For instance, the previous teaching style in tertiary institutions is mostly that of a sage on the stage.

With the use of OERs and CERs, students could become active participants in the educational processes thus, boosting their learning by doing and creating, rather than passively reading and absorbing (Ipaye & Ipaye, 2015). This projects the constructivist learning theory, in which learners are positioned to take charge of their learning process by which students construct meanings from educational materials (Amadi & Igwe, 2015). With OERs and CERs, there is continuous availability of up-to-date information resources for teaching and learning.

Lawrence and Lester (2018) argued that to date, evidence has suggested that OERs and CERs are generally acceptable to faculty and students alike, with both groups rating open and fee-

based contents used in their courses as being at least of equal quality and value as traditional commercial resources, with some exceptions. For example, Bliss et al. (2017) examined students and faculty reactions to the use of OERs at seven community colleges in three states in Science, Technology, Engineering, and Mathematics (STEM) courses as part of the Association of American Colleges and Universities' Project Kaleidoscope, using both closed-ended and open-ended surveys administered to students and faculty in various courses. They report that "most faculty and students who participated in the study recognized and appreciated the low cost of PK textbooks and perceived them as being of high quality.

Hilton et al. (2016) similarly examined the adoption of OERs by five mathematics courses at a community college in Arizona. In four of the five courses, student success rates (in terms of completing the course with a C or better) were unaffected (within the margin of error), while in one remedial mathematics course student success rates did somewhat decline. As was the case in the Bliss et al. (2017) study, Hilton et al. (2016) further reported general high levels of student and faculty satisfaction with the OERs and CERs used in their courses.

Perhaps the largest study to date on the effectiveness of OERs and CERs was conducted by Fischer et al. (2015); the authors use a quasi-experimental design to compare approximately 4,900 students in courses that used OERs and CERs to nearly 12,000 students in courses that used traditional, proprietary materials at 2-year and 4-year colleges in several states, predominantly enrolled in STEM fields (although some courses represented were in other areas, such as education, English, history, psychology, and business). In their study, the authors found mixed effects of OERs and CERs on student completion and grades. With OERs and CERs, students were more likely to enroll in more credit hours in the subsequent

term. Orr, Rimini and Van Damme (2015) explicitly identified six key benefits OERs and CERs have added to the education systems today:

1. **Fostering New Forms of Learning for 21st Century:** New forms of learning are required to provide learners with a learning experience that better facilitates personal development and success in a knowledge society. These include the use of approaches to learning, which involve learners as a community in the development of their own learning materials and the support of other learners. The possibility to easily adapt and share OER supports this objective (Willey, Bliss & McEwen, 2014).
2. **Containing Public and Private Costs of Education:** Higher levels of participation in education systems across the world lead to a challenge for cost sharing between public budgets and private households to cover the costs of high-quality learning materials. OER offers the possibility of reducing these costs through developing, sharing and updating resources more cost effectively (Mulder, 2015).
3. **Fostering Teachers' Professional Development and Students' Engagement:** Teacher development and students' engagement have been shown to be key to effective learning. The adaptability of OERs and CERs allow teachers to revise and tailor their educational resources to provide a better fit to the educational environment in which they are teaching their students.
4. **Continually Improving the Quality of Educational Resources:** The dynamics of a knowledge society lead to three challenges for educational resources: they must reflect new developments in the subject area they cover, they must reflect new learning theories in order to better support high-quality learning, and they must be fit for purpose for the expected learning outcomes and the heterogeneous group of learners who are using them. The adaptability of OER offers the possibility for keeping educational resources at pace with these dynamics (McGreal, 2016).

5. **Widening the Distribution of High-quality Educational Resources:** High-quality resources for education are being produced and used in some educational institutions, for some groups of learners and in some countries. The ability to share OER offers the possibility of breaking down boundaries to high-quality provision by ensuring a more even distribution of high-quality educational resources. This can build bridges between countries, between informal learning and formal education and facilitate lifelong learning.
6. **Reducing Barriers to Learning Opportunities:** Many learners are excluded from high-quality learning opportunities because of the requirements of place, time and pace of learning. OER offered as digital resources enable the extension of educational resources beyond a set place and time of provision, and allow provision at an appropriate pace for the learners.

2.9 Challenges Limiting Students from Using OERs and CERs

There are various factors associated with the utilization of OERs and CERs among students. Arnold (2016) identified difficulties in devising sustainable business models and retrieval systems, implementing license systems and using technologies that all partners or all potential users agree upon as some challenges hindering the utilisation of OERs and CERs among students. Another challenge often forgotten is the provision of adequate educational designs, especially taking into account the "open audience." If the goal is innovation, access alone is not enough (OEPR, 2017).

Bliss et al. (2017) asserted that in some cases, there were instances where OERs and CERs were poorly-organized and/or poorly-maintained, and students with limited Internet access reported trouble at times accessing online OERs or CERs as part of their coursework.

Another concern is the costs borne by faculty who, in many cases, created the OERs or CERs for their courses; this was perceived as a "hidden cost" of OERs that was not being properly accounted for in terms of faculty teaching loads or compensation.

Amadi and Igwe (2015) posited that it remains an undisputable fact that access to teaching and learning resources is affecting the entire educational system of Nigeria, especially at the tertiary level. Challenges such as poor funding of libraries and information centres is no longer news in our educational institutions. Sadly enough, in Nigeria, some colleges of education, polytechnics, colleges of agriculture and even universities do not have functional library systems with the services of proactive librarians and other categories of library staff. Libraries, be it based on print resources or digital contents (or both) for the provision of information resources and services to users (especially students), appear and stand out-rightly neglected in our tertiary institutions. These are having great negative impact on the availability of OERs and CERs, let alone their utilizations by the students.

Lack of awareness, poor state of Internet accessibility, requisite skills, and general absence of enabling environment are impediments to the accessibility and use of OERs and CERs in most Nigerian tertiary institutions. In most Nigerian tertiary institutions, the state of Internet accessibility is a concern in the teaching and learning process. Even the general enabling environment that will encourage serious academic endeavours is far from the reality in many Nigerian tertiary institutions. On the part of requisite skills, majority of the students may possess computing skills as digital natives for accessing OERs and CERs, but lack information literacy skills for appropriate and ethical utilization of information resources, including OERs and CERs (Ilogho & Nkiko, 2014).

Series of empirical studies over the years have shown that students in Nigerian tertiary institutions have poor information literacy skills (Igwe & Ndubuisi-Okoh, 2014). Even some academic staff in our institutions are not left out. Digital and information literacy skills cut across the area of academic writing skills, evaluating information resources, information synthesis, information ethics, knowledge of citation and referencing, and adherence to legal issues associated with information utilization (Ukpebor & Emojorho, 2012). These issues need to be addressed for result-oriented accessibility and utilization of OERs and CERs.

2.10 Appraisal of Literature Review

OERs and CERs are gaining prominence in the contemporary educational system by providing educational resources to students for free or for a fee (Amadi & Igwe, 2015; Maguire, 2018). This have made Igwe and Ndubuisi-Okoh (2014); Orr, Rimini & Van Damme (2015); Maguire (2018) investigated the utilization of OERs in tertiary institutions and they found out that there is encouraging use of OERs among the students. They submitted that the use of OERs has transformed students' learning experience and transformed their learning interest. These and other studies were examined in this study's literature review.

Amadi and Igwe (2015) was clear on the use of OER in Nigerian universities, citing OER Commons, MIT Opencourseware, Multimedia Educational Resources for Learning and Online Teaching (MERLOT II), WIKI Educator, Open Textbook Network, Open Stax, Open Learning Initiatives and Lumen Learning as used OERs. Although, the level of the OERs are not provided. This, therefore, creates another gap for this study to examine the level of use of OERs among the students.

Literature search revealed that there is a dearth of literature on CERs, specifically, its usage among students. However, Khan (2018); Maguire (2018) wrote conceptual titles on usage of CERs in Europe and America. The major gap revealed by the literature cited in this study is that there is need for an extended study on CERs and if possible, the combination of OERs and CERs. It is the aim of closing that gap that makes this study to be focusing on the use of OERs and CERs among students in Kwara State Polytechnic, Ilorin, Nigeria.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter discussed the research methodology, which includes research design, population of the study, sampling technique and sample size, instrument for data collection, validity of research instrument, method of data collection and method of data analysis.

3.2 Research Design

This study adopted the descriptive survey design. This was considered appropriate because the study focused on a population that is large in nature which the researcher cannot cover all of them.

3.3 Population of the Study

The study's population, according to Issa (2012) set the limit within which the researcher's findings would be applicable. Thus, the population of this study were the students of Institute of Information and Communication Technology, Kwara State Polytechnic, Ilorin.

3.4 Sampling Technique and Sample Size

Sample represents a smaller group of the element or member drawn through some definite procedure for a specific population for the study. Simple random sampling technique was adopted because the researcher gave equal opportunity to every member of the population to participate in the study.

Sampling size is the portion of the population that will provide data to be used in answering the questions raised by the study. Thus, Taro Yamane formula was used to pick the sample size of this study. The formula is:

$n=N/(1+N(e)^2)$

n= Sample Size

N= Population (2,683)

e= Margin Error (0.02)

$n=2683/ (1+2683(0.02)^2)$

n=2683/ (1+2683(0.04)

n=2683/2684(0.04)

n= 188

That is, the sample size used is =188

3.5 Research Instrument

The instrument used for data collection was a questionnaire titled ***"Utilization of Open Educational Resources by Students of Kwara State Polytechnic, Ilorin."*** The questionnaire was designed in a way that elicited the needed information from the sampled students. The questionnaire comprised closed-ended and open-ended options organised in accordance with the research objectives. Section A was on demographic characteristics of respondents, Section B was on the Types of OERs, Section C was on Types of CERs, Section D was on Level of use of OERs, Section E was on Level of use of CERs, Section F was on the Benefits of OERs and CERs on students of IICT, and Section G was on Challenges limiting students of IICT from using OERs and CERs.

3.6 Method of Data Collection

The questionnaire for this study was administered to respondents by the researcher. A letter of introduction was obtained from the Head of Department, Library and Information Science to facilitate access to the students of Kwara State Polytechnic IPS.

3.7 Method of Data Analysis

Data obtained was presented and analysed by using the IBM Statistical Package for Social Science (SPSS) 23rd edition to present the data in simple percentage and frequency table. The reason for the choice of simple percentage and frequency table is because it allowed presentation, analysis and comparison of multiple attitude, opinion and ideas which can enhance easy comprehension of tables and the data they contained.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter present, analyse, discuss, and interpret the data obtained from the field with the aid of questionnaire. For the sake of clarity, this chapter is further arranged in the following order:

4.2 Questionnaire Administration and Response Rate

4.3 Demographic Characteristics of Respondents

4.4 Analysis of data

4.5 Discussion of Findings

4.2 Questionnaire Distribution and Response Rate

From the 188 copies of questionnaires administered, only 153 were returned and out of the questionnaire returned, 149 were fully filled and adequate for analysis. The return rate of the analysed questionnaire is 78.98%. Going by the position of Ramshaw (2021) that questionnaire is suitable for analysis if the response rate is more than average for physically administered questionnaires.

4.3 Demographic Characteristics of the Respondents

4.3.1 Table 1: Respondents' Demographic Information

Options		F	Per (%)
Gender	Male	79	53.0%
	Female	70	47.0%
	Total	**149**	**100%**
Age range	21-25 years	20	13.4%
	26-30 years	45	30.2%
	31-35 years	34	22.8%
	36-40 years	27	18.1%
	41 and above years	23	15.4%
	Total	**149**	**100%**
Academic level	200 level	33	22.1%
	300 level	47	31.5%
	400 level	69	46.3%
	Total	**149**	**100%**
Marital status	Single	61	40.9%
	Married	76	51.0%
	Divorce	8	5.4%
	Widow	4	2.7%
	Total	**149**	**100%**

Table 1 above revealed that majority of the respondents were males with 53.0%, with their female counterparts having 47.5%. Also, respondents with the age range of 26 – 30 (30.2%) formed the majority. Respondents in 400 level are more than others (46.3%), followed by 31.5% in 300 level. Furthermore, 51.0% of the respondents are married, followed by 40.9% who are single.

4.4 Data Analysis of Data

Data analysis was done based on this study's research questions.

4.4.1 Research Question 1: What are the Types of OERs Used by Students of IICT, Kwara State Polytechnic?

Table 2: Types of OERs Used by Students of IICT, Kwara State Polytechnic

Options	Yes		No	
	F	Per. (%)	F	Per (%)
Open Textbook Network	112	75.2%	37	24.8%
Lumen learning	86	58.1%	62	41.9%
Open RN	93	62.4%	56	37.6%
MIT Open Courseware	103	69.1%	46	30.9%
OER by discipline guide	85	57.0%	64	43.0%
OER Commons	131	87.9%	18	12.1%
Open course library	88	59.5%	60	40.5%
Wiki Educator	128	85.9%	21	14.1%
Open Illinois	100	67.1%	49	32.9%
Open Learning Initiative	127	85.2%	22	14.8%
World digital library	131	87.9%	18	12.1%

OpenStax	108	72.5%	41	27.5%

From Table 2 above, it can be understood that OER Commons and World Digital Library (87.9%) are the types of OERs used by majority of IICT students, followed by Wiki Educator with 85.9%, Open Learning Initiative (85.2%), and Open Textbook Network (75.2%). OER by discipline guide was rated lowest (57.0%). This implies that OER Commons, World Digital Library, Wiki Educator, Open Learning Initiative and Open Textbook Network are the types of OERs mostly used by students of IICT, Kwara State Polytechnic, Ilorin.

4.4.1.1 Research Question 2: What are the Types of CERs Used by Students of IICT, Kwara State Polytechnic?

Table 3: Types of CERs Used by Students of IICT, Kwara State Polytechnic

Options	Yes		No	
	F	Per. (%)	F	Per. (%)
Masterclass	95	63.8%	54	36.2%
Khan Academy	107	71.8%	42	28.2%
Coursera	114	76.5%	35	23.5%
Kahoot!	102	68.5%	47	31.5%
Skillshare	125	83.9%	24	16.1%
Udacity	125	83.9%	24	16.1%
Wondrium	101	67.8%	48	32.2%
LinkedIn Learning	123	82.6%	26	17.4%
Udemy	121	81.2%	28	18.8%
Alison	79	53.0%	70	47.0%
Lynda	102	68.5%	47	31.5%

edX	116	77.9%	33	22.1%

From Table 3 above, it can be deduced that Skillshare and Udacity (83.9%) are the types of CERs used by majority of IICT students, followed by LinkedIN Learning with 82.6%, Udemy (81.2%), and edX (77.9%). Alison was rated lowest (53.0%). This implies that Skillshare, Udacity, LinkedIN Learning, Udemy, edX and Coursera are the types of CERs mostly used by students of IICT, Kwara State Polytechnic, Ilorin.

4.4.2 Research Question 3a: What are the Levels of Use of OERs among Students of IICT, Kwara State Polytechnic?

Table 4: Level of Use of OERs Used among Students of IICT, Kwara State Polytechnic

Options	High		Moderate		Low	
	F	**Per (%)**	**F**	**Per (%)**	**F**	**Per (%)**
Open Textbook Network	54	36.2%	45	30.2%	50	33.6%
Lumen Learning	45	30.2%	64	43.0%	40	26.8%
Open RN	95	63.8%	28	18.8%	26	17.4%
MIT Opencourseware	94	63.1%	35	23.5%	20	13.4%
OER by discipline guide	80	53.7%	31	20.8%	38	25.5%
OER Commons	111	74.5%	33	22.1%	5	3.4%
Open Course Library	60	40.3%	47	31.5%	42	28.2%
Wiki Educator	112	75.2%	23	15.4%	14	9.4%
Open Illinois	66	44.3%	47	31.5%	36	24.2%
Open Learning Initiatives	101	67.8%	28	18.8%	20	13.4%
World Digital Library	91	61.1%	35	23.5%	23	15.4%

OpenStax	69	46.3%	32	21.5%	48	32.2%

The Table 4 above reveals that Wiki Educator is highly used by the majority (75.2%) of the students followed by 74.5% for OER Commons, Open Learning Initiative has 67.8%, while Open RN and MIT Opencourseware have 63.8% and 63.1% respectively. However, Lumen Learning has the lowest level of use with 30.2%, followed by Open Course Library with 40.3%.

4.4.2.1 Research Question 3b: What are the Levels of Use of CERs among Students of IICT, Kwara State Polytechnic?

Table 5: Level of Use of CERs Used among Students of IICT, Kwara State Polytechnic

Options	High		Moderate		Low	
	F	Per (%)	F	Per (%)	F	Per (%)
Masterclass	77	51.7%	46	30.9%	26	17.4%
Khan Academy	72	48.3%	38	25.5%	39	26.2%
Cousera	104	69.8%	27	18.1%	18	12.1%
Kahoot!	61	40.9%	48	32.2%	40	26.8%
Skillshare	112	75.2%	26	17.4%	11	7.4%
Udacity	58	38.9%	36	24.2%	55	36.9%
Wondrium	45	30.2%	54	36.2%	50	33.6%
LinkedIn Learning	68	45.6%	59	39.6%	22	14.8%
Udemy	109	73.2%	24	16.1%	16	10.7%
Alison	62	41.6%	44	29.5%	43	28.9%
Lynda	69	46.3%	27	18.1%	53	35.6%

edX	109	73.2%	19	12.8%	21	14.1%

Table 5 above shows that majority (75.2%) of students of IICT highly used Skillshare, followed by 73.2% for edX and Udemy, Coursera has 69.8%, while Masterclass managed to 51.7%. However, Wondrium has the lowest level of use with 30.2%, followed by Udacity with 38.9%.

4.3.3 Research Question 4: What is the Relationship between the Use of OERs and CERs among the Students of IICT?

Table 6: Relationship btw Use of OERs and CERs among the Students of IICT

Correlations

		Level of use of OER	Level of use of CER
Level of use of OER	Pearson Correlation	1	0.541**
	Sig. (2-tailed)		.000
	N	149	149
Level of use of CER	Pearson Correlation	0.541**	1
	Sig. (2-tailed)	.000	
	N	149	149

**. Correlation is significant at the 0.01 level (2-tailed).

The results in Table 6 above showed that there is a significant relationship between the two variables level of use of OERs and level of uses of CERs among the students of IICT (r =0.541**, $p < 0.01$). This implies that OERs and CERs are well used by the students of IICT, Kwara State Polytechnic, Ilorin.

4.4.4 Research Question Four: What are the Benefits of Using OERs and CERs by Students of IICT, Kwara State Polytechnic?

Table 7: Benefits of Using OERs and CERs by Students of IICT, Kwara State Polytechnic

Options	SA		A		D		SD	
	F	Per (%)	F	Per (%)	F	Per (%)	F	Per (%)
Fostering new form of learning for 21st century	76	51.0%	53	35.6%	14	9.4%	6	4.0%
Reducing public and private cost of education	89	59.7%	23	15.4%	27	18.1%	10	6.7%
Fostering teachers' professional development and students' engagements	107	71.8%	23	15.4%	9	6.0%	10	6.7%
Continually improving the quality of educational resources	64	43.0%	53	35.6%	22	14.8%	10	6.7%
Widening the distribution of high quality educational resources	76	51.0%	41	27.5%	18	12.1%	14	9.4%
Reducing barriers of learning opportunities	53	35.6%	29	19.5%	45	30.2%	22	14.8%
Increasing the level of adequacy of information materials in teaching and learning	74	49.7%	43	28.9%	14	9.4%	18	12.1%
Makes students active learners	44	29.5%	61	40.9%	29	19.5%	15	10.1%

Boost students' learning processes	58	38.9%	43	28.9%	30	20.1%	18	12.1%

It can be understood from Table 7 above that fostering teachers' professional development and students' engagements was ranked highest (2.50 ± 1.29) out of the benefits of using OERs and CERs by students of IICT, followed by boost students' learning processes (2.37 ± 1.09), fostering new form of learning for 21st century has (2.13 ± 0.98) and continually improving the quality of educational resources has (2.10 ± 0.97). Widening the distribution of high quality educational resources was ranked lowest with (1.72 ± 1.01). This shows that the major benefits of OERs and CERs to students of IICT are fostering teachers' professional development and students' engagements.

4.4.5 Research Question Four: What are the Challenges of Using OERs and CERs by Students of IICT, Kwara State Polytechnic?

Table 8: Challenges of Using OERs and CERs by Students of IICT, Kwara State Polytechnic

	SA		A		D		SD	
Options	**F**	**Per (%)**	**F**	**Per (%)**	**F**	**Per (%)**	**F**	**Per (%)**
Inadequate educational models	45	30.2%	58	38.9%	28	18.8%	18	12.1%
Difficulties in devising sustainable learning models and retrieval systems	51	34.2%	67	45.0%	19	12.8%	12	8.1%
Some OERs and CERs are poorly organised or poorly maintained	55	36.9%	14	9.4%	31	20.8%	49	32.9%
Poor internet connectivity	46	30.9%	59	39.6%	27	18.1%	17	11.4%
Inadequate OERs and CERs	86	57.7%	36	24.2%	10	6.7%	17	11.4%

infrastructures in libraries								
Lack of awareness of OERs and CERs	73	49.0%	40	26.8%	36	24.2%	0	0.0%
Lack of requisite skills to use OERs and CERs	56	37.6%	55	36.9%	29	19.5%	9	6.0%
Lack of interest in using OERs and CERs	70	47.0%	33	22.1%	25	16.8%	21	14.1%
Libraries' nonchalant attitudes towards providing consumers with digital information	32	21.5%	60	40.3%	27	18.1%	30	20.1%

It can be deduced from Table 8 above that "some OERs and CERs are poorly organised or poorly maintained" ranked highest (2.50 ± 1.29) out of the challenges of using OERs and CERs by students of IICT, followed by libraries' nonchalant attitudes towards providing consumers with digital information (2.37 ± 1.40), inadequate educational models (2.13 ± 0.98) and poor internet connectivity (2.10 ± 0.97). Inadequate OERs and CERs infrastructures in libraries ranked lowest with (1.72 ± 1.14). This implies that poorly organised or maintenance of OERs and CERs, libraries' nonchalant attitudes towards providing consumers with digital information, inadequate educational models and poor internet connectivity are major challenges of using OERs and CERs by students of IICT, Kwara State Polytechnic, Ilorin.

4.6 Discussion of Findings

4.6.1 Types of OERs used by the students of IICT, Kwara State Polytechnic, Nigeria

This study investigated the utilisation of OERs and CERs by students of Institute of Professional and Continuous Education, Kwara State Polytechnic, Nigeria. The usage of

OERs is gaining prominence in recent times, most especially among the students who are using OERs for course works, assignments, presentations, academic and personal projects (Amadi & Igwe, 2015). The usage of OERs is beyond the boundaries where the contents are created. This makes OERs to be a vital aspect of the emerging teaching and learning process.

Findings of this study revealed that OER Common and World Digital Library are mostly used by the students of IICT. During the data collection process, most of the students conceded that they have never heard of the concepts of OERs or CERs. It takes elaborate explanations from the researcher to make the students understand the concepts of OERs and CERs. The researcher went further by citing some examples of the OERs and CERs students are using but which they are not aware of. The researcher's explanation therefore provided clues to the students which influence their choice of responses.

The students picked from the researcher's examples of Wiki Commons to settle for their choice of OER Commons and also opted for World Digital Library because they are curious to prove that they are making use of the library either physically or virtually. The World Digital Library is a project of the United States' Library of Congress in collaboration with the United Nations Educational Scientific Cultural Organisation (UNESCO). That majority of students of IICT use World Digital Library shows consistency with the assertion of the Methodist College Library (2022) that most users of World Digital Library are the academics or students in tertiary institutions.

That majority students also make use of WIKI Educator should not be a surprise to anyone familiar with the popularity of Wikipedia among Nigerians. This result is consistent with the position of McGreal (2016) who submitted that the works of WIKI Educator on building

open education resources (OERs) on how to create OERs networking on funding proposals make it to be an evolving community for collaborative and planning of educational projects among students.

4.6.2 Types of CERs used by the students of IICT, Kwara State Polytechnic, Nigeria

Findings indicated that students of IICT used Skillshare and Udacity than other CERs. Based on the popularity of Skillshare, the students opted for it confirming their familiarity with various adverts on the Internet. Duffy (2022) supported the use of Skillshare among students showing that more than 70% of students in the Western World used Skillshare for various purposes ranging from academic to social and business.

Duffy (2022) supported his claim with benefits students derived from Skillshare, such as sharing videos that teach them skills to lead a creative life and covers everything from creative hobbies to tips for running a creative online business. Skillshare also offers short videos, sometimes as part of a much longer series, where students learn and practice mostly hands-on skills. Students get additional materials, such as PDF handouts, and sometimes community forums where you can upload examples of your work to get feedback from other learners.

In the same vein, it is interesting to learn that the students also make use of Udacity. Khan (2018) reasoned that Udacity is widely used among students because it is a subject-oriented CER that focuses on a particular topic such as searching for jobs and considering the level of unemployment in Nigeria and knowing that most of the students of IICT are young graduates searching for jobs, their choice of using Udacity is commendable. Udacity offers some more general business courses on topics such as marketing.

The drive to meet up with the competitions of the modern world is also prompting the students to use LinkedIN Learning, according to some of the students. Aside the professional visibility offered by LinkedIN, students go extra mile to pay for LinkedIN membership, so that they can be learning different skills including business, management, leadership, communication, coding, and interpersonal relations skills. The major benefit of LinkedIN Learning is that it allows students to update their profiles anytime they have achieved new things on LinkedIN. This will create visibility for students and connect them with their potential employers (Duffy, 2022).

4.6.3 Level of use of OERs by the students of IICT, Kwara State Polytechnic, Nigeria

The students' level of use of OERs contradicts the types of OERs they claimed they are using in Table 2 where majority of them are using OER Commons and World Digital Library. Though, in that Table 2, the students also claimed they are using WIKI Educator, which is now the most highly used OERs by the students. That the students highly use WIKI Educator contradicts the study of Okonkwo (2016) where it was established that the most highly used OERs are MIT Opencourseware.

Students also claimed that OER commons are highly used by them, after WIKI Educator. This shows that some of the students are consistent with their options in Table 2 where majority of them opted for OER Common as their most used types of OERs. The implication of this is that the level at which students use OER Common, the more they have the opportunities to explore, create and collaborate with educators around the world to improve their learning process. This was supported by Amadi & Igwe (2016) and Maguire (2018) by OER Commons is highly used among Nigerian students.

Open Learning Initiative also has a figure that should be considered in this discussion. In the table for the types of OERs used by the students, Open Learning Initiative did not make the top three. This calls for interrogation from the researcher. However, further finding by the researcher revealed that the Open Learning Initiative may be highly used by students because it provides dozens of college-level courses, and a platform that enables research and experimentation with any aspect of the learning experience.

It is interesting to discover that Open RN and MIT Courseware are highly used by the students. This is consistent with the position of Dohl (2015) who posited that MIT's Open Courseware Initiative is among the many most popularly used OERs in higher education. The MIT OCW is a web-based publication of virtually all MIT course content. Recently, it has been integrated to Canvas application in order to encourage more independent and centralised learning for students.

4.6.4 Level of use of CERs by the students of IICT, Kwara State Polytechnic, Nigeria

The students' level of use of CERs is consistent with the types of CERs they claimed they are using in Table 3. The students claimed that Skillshare is the CER they are using most, and they affirmed their consciousness to their choices by choosing Skillshare as the CER highly used by them. The usage of Skillshare among the students has been established with various benefits. Students are expected to be highly using Skillshare because of the video contents it offers and the quality of the contents it uploaded for students to access.

It is interesting to find out that edX is also highly used by students. Khan (2018) supported that students in tertiary institutions are interested in using edX because it offers some great courses from the best universities around the globe. Though the courses are not self-paced;

they require students to keep an eye on the timeline of their courses and facilitate students from different parts of the world by incorporating a brilliant translation feature.

Coursera is also a popular CER that its exclusion from the types of CERs used by the students was strange. Coursera has a robust digital marketing strategy that can motivate students to give them a trial. It is very encouraging now that it has been established by the students that they highly use Coursera. Duffy (2022) supported that Coursera is best for learners who can handle college-level course material. It is good for students who want access to real university classes and have the self-discipline to follow through on all the assignments, which can often take weeks or months to complete.

4.6.5 Relationship between the level of usage of OERs and CERs by the students of IICT, Kwara State Polytechnic, Nigeria

This study has established that there is a correlation between the level of usage of OERs and CERs by students of IICT. This is proven by the results of Table 6 that showed that there is a significant relationship with the level of use of OERs and CERs by students of IICT. Basically, some CERs also offers services of OERs.

Students who want to maximise the benefits of such CERs have to subscribe or upgrade their registrations with the CERs' platforms (Khan, 2018; Duffy, 2022). This means that during the process of using CER platforms as OERs, students become aware of additional benefits they can enjoyed if they upgrade their registration. A typical example of this is Future Learn. On Future Learn, students can register for free and take some free courses. But during the process, paid courses will be advertised to students, which they can obtain certificates after their completion of the courses.

The results of the hypothesis tested further affirmed that there is a significant difference between the usage of OERs and CERs among the students of IICT. Going by the results of Tables 2 and 3, it can be deduced that 70% or more of the students selected only six types of OERs they are using, while 70% or more of the students used seven or more types of CERs. The implication of this is that students are not concerned with the money or means of accessing educational resources, all they are concerned with is the quality of the contents available to them.

Khan (2018) supported this argument that the use of OERs and CERs among students determined by values they derived from them and not the amount they have to pay to access the courses they intend to take. He stressed his argument noting that despite the number of free and certified courses available on different OER platforms, students still pay to register for courses in some fields such as coding, AI, programming, psychology and others.

4.6.6 Benefits of using OERs and CERs by the students of IICT, Kwara State Polytechnic, Nigeria

Having established that there is a correlation between OERs and CERs, this study finds that OERs and CERs foster teachers' professional development and students' engagements. This result is in alignment with the position of Ipaye and Ipaye (2015) that through OERs and CERs, teachers can continuously learn new things and latest development in their areas of interest and students can also positioned to take charge of their learning process by which students construct meanings from educational materials. This point has also satisfied the point of Amadi and Igwe (2015) that OERs and CERs boost students' learning processes.

Willey, Bliss and McEwen (2015) asserted that OERs and CERs foster new form of learning for 21st century. This study has validated their position with empirical data. OERs and CERs have truly foster new forms of learning in the 21st century. OERs and CERs have defeated the practices of traditional, physical classrooms where teachers and students have to be present in one room and students will be learning from the curriculum the teacher is delivering. Also, the OERs and CERs have made the creation of teaching and learning contents available in multimedia forms which is most suitable to the 21st century. With OERs and CERs, students can decide to either watch videos, listen to audios, read a full text or download a transcript of a video content. This is a huge value addition for students.

The students are also aware that OERs and CERs are continually improving the quality of educational resources. The students' choice of this corroborated the assertion of McGreal (2016) who asserted that the adaptability of OERs and CERs offers the possibility for keeping educational resources at pace with the three dynamics of knowledge society which involved reflection of new developments in the subject area they cover, reflection of new learning theories in order to better support high-quality learning, and fitting for purpose for the expected learning outcomes and the heterogeneous group of learners who are using them.

It is incomprehensible to know why most of the students don't believed that OERs and CERs are widening the distribution of high quality educational resources, reducing barriers of learning opportunities, increasing the level of adequacy of information materials in teaching and learning and make students active learners since OERs and CERs offered the students the opportunity to learn at their pace and chose the model that is best suitable to their desired learning styles.

4.6.7 Challenges limiting students of IICT, Kwara State Polytechnic from using OERs and CERs

The major challenge limiting the students of IICT from using OERs and CERs is poor organisation and maintenance of OERs and CERs platforms. It is difficult to understand the students here. OERs and CERs platforms have the best organisation and maintenance patterns aimed at ensuring that students adequately learn. Mulder (2015) clarifies this misconception by noting that OERs and CERs are tailored towards satisfying the educational resources needs of teachers and students. Bearing this in mind, the administrators of OERs and CERs always adopt top notch pattern in arranging the resources available on their platforms and update their resources consistently.

Students also chose the option that libraries' nonchalant attitudes towards providing consumers with digital information is a challenge to their usage of OERs and CERs. This choice of the students is contestable because most of them have poor attitudes towards library use. Another angle that can make someone understand the option of the students is because they are taking their courses at different centers far to the University's Main Campus in Malete. And because of this, students have been indirectly excluded from benefiting from the services of Muhammadu Buhari Library of Kwara State Polytechnic. The library offers OPAC/WebPAC cataloguing and classification services, provide access to different databases and the University itself has an institutional repository stored with diverse digital information emanated from the institution.

The students further believed that poor internet connectivity is also affecting their usage of OERs and CERs. Internet connectivity in Nigeria is being determined by someone's network providers and location. Therefore, this reason provided by students is common to most

Nigerians. Amadi and Igwe (2015), Ilogho and Nkiko (2017), Igwe and Ndubuisi-Okoh (2016) also affirmed the problem of poor internet connectivity to Nigerians accessing and exploiting the usefulness of digital information. They submitted that poor internet bandwidth is highly affecting students' access to information materials on the internet.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the results of the data obtained from the field, draws conclusions, and makes recommendations.

Thus, this chapter is organised in the following order:

5.2 Summary of the Findings

5.3 Conclusion

5.4 Recommendations

5.2 Summary of the Findings

Findings of this study established that:

1. Male students of IICT are many than their female counterparts, with the highest students ranging between the age of 26 – 30 years and 400 level; while most of them are married.
2. OER Commons, World Digital Library, WIKI Educator, Open Learning Initiatives are OERs used by IICT students, while Skillshare, Udacity, LinkedIN Learning, Udemy, edX and Coursera are CERs used by most IICT students.
3. WIKI Educator, OER Commons, Open Learning Initiative, Open RN and MIT Open Course Ware are OERs highly used by IICT students, while Skillshare, edX, Udemy, Coursera and Masterclass are CERs highly used by IICT students.
4. Students of IICT believed that the use of OERs and CERs foster teachers' professional development and students' engagements, boost students' learning processes, foster

new form of learning for 21st century and continually improving the quality of educational resources.

5. Poor organisation or maintenance, libraries' nonchalant attitudes towards providing consumers with digital information, inadequate educational models and poor internet connectivity are the major challenges limiting students of IICT from using OERs and CERs.

5.3 Conclusion

OERs and CERs are educational resources that evolved in response to the changing needs of educational methods that fit the 21st century. The OERs and CERs have enabled educational resources to be available in diverse formats which can be used by students from different locations. Students who are smart are taking advantages of some OERs such as OER Commons, World Digital Library, WIKI Educator and Open Learning Initiative to expand their horizons of learning, while students who are also committed and can afford the registration/subscription fees are leveraging CERs like Skillshare, edX, Udacity, Udemy, LinkedIN Learning and Coursera to advance their knowledge and skills. The management of Kwara State Polytechnic should endeavour to make internet available to students and provide access to some OER and CER platforms students can use to enrich their learning experience.

5.4 Recommendations

Based on the findings of this study, the following recommendations are hereby made:

1. Students of IICT should learn how to use OERs and CERs to support their information needs in various dimensions of their lives. The usage of OERs and CERs are not limited to academic purposes, they can also be used for career progression and development of skills required to survive in the 21st century.

2. Providers of OER and CER platforms should continuously be working on their platforms so that platforms can be designed in seamless ways that can be easily navigated by students and other users.
3. The IICT should collaborate with the University libraries and other relevant bodies to sensitise the students of IICT on OERs and CERs. This will create awareness for OERs and CERs among the students and also empower them to leverage OERs and CERs.
4. Internet services providers should provide a robust bandwidth that students of IICT can rely on to access different media of educational contents available on OERs and CERs.
5. The management of the University libraries should endeavour to initiate and create library services that are inclusive in nature, which can make students of IICT to be accessing the digital information resources of the library without physical presence.

REFERENCES

Abayomi, T.A. (2020). What are educational resources? https://www.twinkl.com.ng/teaching-wiki/educational-resources

Akomolafe, C.O. & Olajire, A.A. (2014). Utilisation of open educational resources and quality assurance in universities in Nigeria. *European Scientific Journal*, 10 (7), 535 – 543.

Amadi, U.P.N. & Igwe, M.C. (2015). Open Educational Resources and the Teaching and Learning Process in Higher Education Institutions in Nigeria. *Ebonyi Journal of Library and Information Science,* 2(1), 81-90.

Arnold, P. (2010). Open educational resources or closed learning management systems? –The Challenge of Designing ICT Support for Learning Communities in Higher Education. In: *The Journal of Community Informatics*, 6(3).

Babcock University (2021). Open educational resources. https://www.babcock.edu.ng/oer/bu_oer_intro.php

Creative Commons (2012). What is OER? http://wiki.creative commons.org/What_is_OER%3F.

Döhl, W. (2010). Methoden der Online-Lehre (MOL) – Ergebnisbericht Sommersemester 2010. Internal Document, University of Applied Sciences Munich, Germany.

Duffy, J. (2022). The best online learning platforms for 2022. https://www.pcmag.com/picks/best-online-learning-services

Gamlin, R. (2017). Build or buy? Curricular design and external basic sciences learning resources. *Acad Med.,* 92(4): 430. DOI: http://dx.doi.org/10.1097/ACM.0000000000001597

Igwe, K.N. & Ndubuisi-Okoh, E.O. (2014). Information literacy awareness, perception and skills assessment using students of National Open University in Southwest Nigeria. *International Journal of Digital Literacy and Digital Competence*, 5 (3), 15 – 29.

Ilogho, J.E. & Nkiko, C. (2014). Information literacy and search skills of students in five private universities in Ogun State, Nigeria. *Library Philosophy and Practice (e j o u r n a l)* R e t r i e v e d J a n u a r y 3 0 , 2 0 1 4 f r o m . http://digitalcommon.unl.edu/libphilprac/1040

Ipaye, B. & Ipaye, C.B. (2013). Opportunities and challenges for open educational resources and massive open online courses: The case of Nigeria. http://linc.mit.edu/linc2013/proceedings/Session1/Session1Ipaye.pdf.

Kanwar, A., Kodhandaraman, B., & Umar, A. (2010). If content is king, why are OER still uncrowned? A developing world perspective. *Paper presented at the Sixth PanCommonwealth Forum on Open Learning*, Kochi, India.

Khan, A.I. (2018). Top 10 paid learning resources that will help you learn anything today. https://elearningindustry.com/top-elearning-resources-help-learn-anything-today-10

Komolafe-Opadeji, H. & Haliso, Y. (2012). Defective information services in Nigerian academic libraries: is marketing the way forward? *Ozean Journal of Social Sciences*, 5 (3), 79–86.

Lawrence, C.N. & Lester, L.A. (2018). Evaluating the Effectiveness of Adopting Open Educational Resources in an Introductory American Government Course. *Journal of Political Science Education,* 14(4) 555-566. DOI: 10.1080/15512169.2017.1422739.

Maguire, C.E. (2018). Medical library resources. Florida: Florida State University College of Medicine. http://med-fsu.libguides.com/CourseTexts/Support

McGreal, R. (2014). Why open educational resources are needed for mobile learning. Increasing Access through Mobile Learning. http://oasis.col.org/handle/11599/558.

Methodist College Library (2022). Open Educational Resources: Home. https://methodistcol.libguides.com/OER

Mulder, F. (2015). Open(ing up) education for all, boosted by MOOCs? (license CC BY 4.0), in C. J. Bonk et al (Eds.), MOOCs and Open Education Around the World. New York: Wayne and Routledge. http://www.eadtu.eu/home/publications/open-education-moocs-publications.

O'Hanlon, R. & Laynor, G. (2019). Responding to a new generation of proprietary study resources in medical education. *Journal of Medical Library Association*, 107(2): 251–257. doi: 10.5195/jmla.2019.619.

Okonkwo, C.A. (2012). A needs assessment of ODLeducators to determine their effective use of open educational resources. *The International Review of Research in Open and Distance Learning*, 13 (4), 294 – 312.

OLCOS Open Educational Practices and Resources (2007). OLCOS Roadmap 2012. Salzburg: Salzburg Research EduMedia Group.

Orr, D., Rimini, M. & Van Damme, D. (2015). Open Educational Resources: A Catalyst for Innovation, Educational Research and Innovation. Paris: OECD Publishing. http://dx.doi.org/10.1787/9789264247543-en

Thibault, J. (2010). Moodle: open source, closed doors. http://opensource.com/education/10/2/moodle-open-source-closed-doors (01.09.2010).

Ukpebor, C.O. & Emojorho, D. (2012). Information literacy skills: a survey of the transition of students from secondary to university education in Edo State, Nigeria. *Library Philosophy and Practice.* http://digitalcommons.unl.edu/libphilprac/824.

University of Pittsburgh (2022). Open educational resources - Introduction. https://pitt.libguides.com/openeducation

Virtual Campus for Public Health [VCPH] (2019). Types of educational resources. https://www.campusvirtualsp.org/en/types-educational-resources

Wiley, D., Bliss, T.J. & McEwen, M. (2014). Open educational resources: A review of the literature. Handbook of Research on Educational Communications and

Technology. New York: Springer-Verlag. pp. 781-789 http://link.springer.com/chapter/10.1007/978-1-4614-3185-5_63.

Glimpse Nigeria (2020). Kwara State Polytechnic. https://www.glimpse.ng/kwara-state university/amp/

Mahmud, M. (2017). Kwara State Polytechnic Gets NUC Approval For Aeronautical Engineering Programme. Students' Nigeria. Retrieved on the 3rd of March, 2020.

Open Educational Resources Commons (2020). OER Commons and open education: The future of education, co-created with you. https://www.oercommons.org/about

APPENDIX 1

KWARA STATE POLYTECHNIC, ILORIN

INSTITUTE OF INFORMATION AND COMMUNICATION TECHNOLOGY

DEPARTMENT OF LIBRARY AND INFORMATION SCIENCE

Questionnaire on **"Utilization of Open Educational Resources by Students of Kwara State Polytechnic, Nigeria"**

Dear Respondent,

Request for Response to Questionnaire

I am an undergraduate of the above named institution, carrying out research on the above mentioned topic. My research is in partial fulfillment of the requirements for the award of National Diploma in Library and Information Science (ND).

Your assistance and support are hereby requested for timely completion of this questionnaire. I am assuring you that all data provided will be treated with utmost confidentiality and used for academic purpose only.

Thank you for your anticipated cooperation.

Researcher

Section A: Demographic Characteristics of Respondents

Kindly select the option of your choice by ticking from the answers below

1. Gender: Male ( ) Female ( )
2. Age range: 21 – 25 years ( ) 26 – 30 years ( ) 31 – 35 years ( )
   36 – 40 years ( ) 41 and above years ( )
3. Marital Status: Single ( ) Married ( ) Divorced ( ) Widow ( )

Section B: Types of OERs

What are the types of OERs used by you?

Kindly tick "yes" if you agree with the question and "no" if you disagree and tick as many statements as applicable

S/No	Options	Yes	No
1.	Open Textbook Network		
2.	Lumen Learning		
3.	Open RN		
4.	MIT OpenCourseWare		
5.	OER by Discipline Guide by McMaster University		
6.	OER Commons		
7.	Open Course Library		
8.	Wiki Educator		
9.	Open Illinois		
10.	Open Learning Initiative		
11.	World Digital Library		

12.	OpenStax		

Section C: Types of CERs

What are the types of CERs used by you?

Kindly tick "yes" if you agree with the question and "no" if you disagree and tick as many statements as applicable

S/No	Options	Yes	No
1.	MasterClass		
2.	Khan Academy		
3.	Coursera		
4.	Kahoot!		
5.	Skillshare		
6.	Udacity		
7.	Wondrium		
8.	LinkedIn Learning		
9.	Udemy		
10.	Alison		
11.	Lynda		
12.	edX		

Section D: Level of use of OERs

What is the level at which you use OERs?

Kindly tick the best option suitable for the level at which you use OERs

S/No	Options	High	Moderate	Low
1.	Open Textbook Network			
2.	Lumen Learning			
3.	Open RN			
4.	MIT OpenCourseWare			
5.	OER by Discipline Guide by McMaster University			
6.	OER Commons			
7.	Open Course Library			
8.	Wiki Educator			
9.	Open Illinois			
10.	Open Learning Initiative			
11.	World Digital Library			
12.	OpenStax			

Section E: Level of use of CERs

What is the level at which you use CERs?

Kindly tick the best option suitable for the level at which you use CERs

S/No	Options	High	Moderate	Low
1.	MasterClass			
2.	Khan Academy			
3.	Coursera			
4.	Kahoot!			
5.	Skillshare			
6.	Udacity			
7.	Wondrium			
8.	LinkedIn Learning			
9.	Udemy			
10.	Alison			
11.	Lynda			
12.	edX			

Section F: Benefits of OERs and CERs on students of IICT

What are the benefits you derived from using OERs and CERs?

Kindly tick SA for "Strongly Agree," A for "Agree" D for "Disagree" and SD for "Strongly Disagree."

S/No	Options	SD	A	D	SD
1.	Fostering new forms of learning for 21st century				
2.	Containing public and private costs of education				
3.	Fostering teachers' professional development and students' engagement				
4.	Continually improving the quality of educational resources				
5.	Widening the distribution of high-quality educational resources				
6.	Reducing barriers to learning opportunities				
7.	Increasing the level of adequacy of information materials in teaching and learning				
8.	Makes students active learners				
9.	Boost students' learning process				
10.	Others, please specify…….				

Section G: Challenges limiting students of IICT from using OERs and CERs

What are the challenges limiting you from using OERs and CERs?

Kindly tick SA for "Strongly Agree," A for "Agree" D for "Disagree" and SD for "Strongly Disagree."

S/No	Options	SA	A	D	SD
1.	Difficulties in provision of adequate educational				

	designs				
2.	Difficulties in devising sustainable learning models and retrieval systems				
3.	Some OERs and CERs are poorly-organized and/or poorly-maintained				
4.	Poor internet connectivity				
5.	Inadequate OER and CER infrastructures in libraries				
6.	Lack of awareness of OERs and CERs				
7.	Lack of requisite skills to use OERs and CERs				
8.	Lack of interest in using OERs and CERs				
9.	Outright neglect of provision of digital information to users by your library				
10.	Others, please specify…….				