

**UNIVERSITY OF GHANA**

**AVAILABILITY AND USE OF OPEN EDUCATIONAL RESOURCES AMONG  
SENIOR HIGH SCHOOL TEACHERS IN THE CAPE COAST METROPOLIS**

**BY**

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### DECLARATION

I hereby declare that this work is as a result of my own research under supervision and has not been presented by anyone or academic award in the university or any other. All references used in this work have been acknowledged. I bear full responsibility for any shortcomings.



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### CERTIFICATION

I hereby certify that this thesis was supervised in accordance with procedures laid down by the University of Ghana

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## **DEDICATION**

I dedicate this work to the Almighty God, who gave me the strength to bring this work to a successful end.

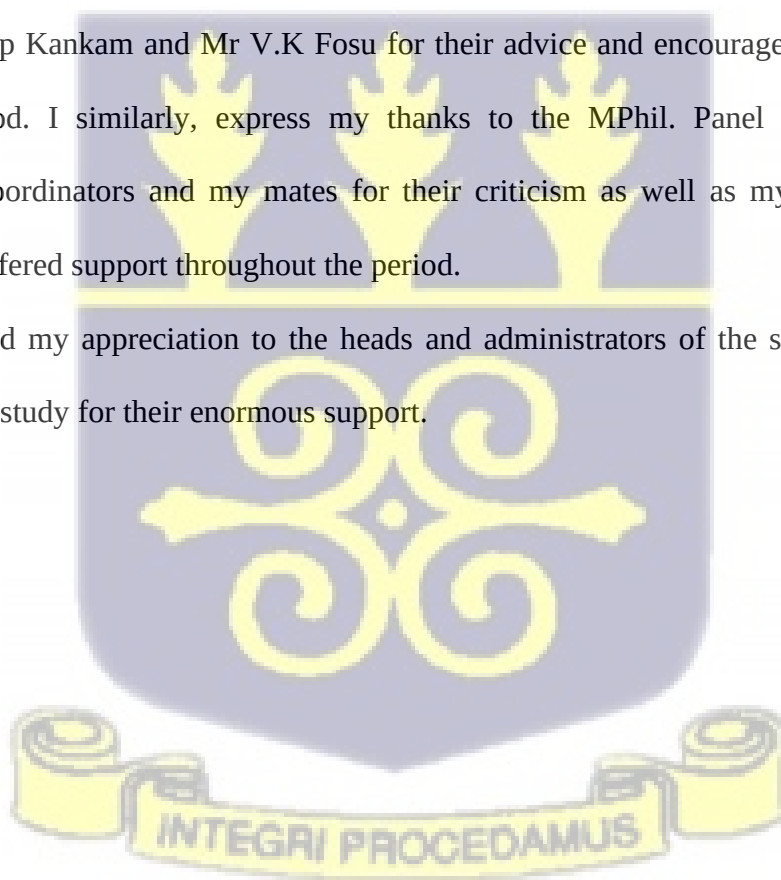


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## ABSTRACT

The advent of Open Educational Resources (OERs) has come as a relevant aid for educational institutions to access hitherto unassessed resources which are critical to teaching and learning success. The study focuses on use of open educational resources among senior high school teachers in the Cape Coast metropolis. The study was guided by objectives which include; examine awareness of the existence of OERs, access teachers have to OER materials, permission by teachers and institutions to enable them modify and use OER resources. This study employed a mixed method approach. Four Heads of the selected schools were interviewed and 266 questionnaire were administered to teachers in the four selected senior high schools which together broadly represented the characteristics of second cycle educational sector in Cape Coast metropolis. The OER adoption pyramid was used to help with analyzing and synthesizing the data. Findings showed that how OER adoption takes place at an institution is shaped by a layered sequence of factors – infrastructural access, legal permission, conceptual awareness, technical capacity, material availability, and individual or institutional volition – which are further influenced by prevailing cultural and social variables. It is recommended that significant investment is made by the government of Ghana and ministry of education by providing infrastructure including buildings, internet and textbooks to make the use of OER effective. Also, developing, modifying and incorporating OER training into second cycle education curriculum by the ministry of education would help teachers and students to be more equipped to contribute and utilize OER effectively. This study has value and application for researchers and institutions pursuing an OER agenda, policy-makers seeking tools to assess OER readiness in institutional contexts, and funding agencies aiming to boost institutional OER engagement.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the Study

Education plays a crucial role in national development, serving as the foundation for human capital formation and socio-economic advancement. Most West African countries, including Ghana, have an educational framework that include Senior High Schools (SHS). Senior High Schools are an intermediary educational institution that bridges the gap between basic education and tertiary education. They are alternatively referred to as secondary schools. They offer services to pupils aged between 14 or 15 and 17 or 18 years old (Armah & Mereku, 2018). Senior High School, commonly referred to as the second cycle institution, serves as the pivotal factor that motivates pupils to pursue a new curriculum. This redesigned curriculum's main goal is to ensure that every student in the upper grades gains deeper knowledge in specific subject areas, proficiency using that knowledge, and skills that will help them in life and in their future careers. The purpose of instruction is to help students become more information literate, adept at solving problems, capable of critical thinking, and capable of effective communication. The curriculum of senior high school in Ghana is essentially dependent on three pivots: first, a curriculum that provides students with sufficient knowledge and skills to enable them to find employment after they have completed their education at the end of senior high school; second, a curriculum that ensures pupils will have the chance to work independently; and third, a curriculum that provides students with the opportunity to continue their education (MOE, 2022). On the other hand, the activities that are included in the curriculum have not been submitted to critical study in order to objectively verify whether or not they are relevant (Mtebe & Raisamo, 2014). Since the beginning of time, the Ghanaian government has been providing schools with printed textbooks for this particular purpose. In spite of this, over the course of the years, both

teachers and students have been confronted with inadequate supplies, which has resulted in a gap in the development of students' knowledge and abilities. Similarly, there are other notable challenges like decline in government finances, limited access and poor application of teaching and learning methodologies in SHS (Duah et al., 2023; Lwoga 2012; Albright 2017).

Second-cycle institutions throughout the world are undergoing a time of rapid innovation and transformation as they move away from teacher-centered approaches toward learner-centered ones. Muyengwa and Bukaliya (2014) have drawn attention to the high subscription costs for scientific knowledge, even in rich countries, in addition to the scarcity of educational resources in developing countries. It is for this reason that the availability of Open Educational Resources (OERs) which do not require any subscription is a better option for senior high schools. OERs are resources for teaching, learning, and research that are either in the public domain or that have been made available to the public under an intellectual property license that allows others to use or repurpose them without restriction (Butcher, 2015). Full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge are all considered open educational resources ((Butcher, 2015). These resources are being created and used globally through the use of digital technologies and open licenses. The "5R characteristics" refer to the ability of users to keep, reuse, edit, remix, and redistribute the resources (Baas, Admiraal & van den Berg, 2019). Teachers can modify the materials to suit their unique teaching requirements thanks to these features (Belikov & Bodily, 2016). Teaching practices can be improved as a result of OER's global dissemination, which gives educators access to a wider variety of pedagogical approaches (Belikov & Bodily, 2016). Additional advantages include greater access to educational resources (Hennessy, Haßler & Hofmann, 2015), a rise in teachers' critical reflection on their practices and enhanced collaboration among teachers from different institutes (Chae & Jenkins, 2015). OER may



consequently have the ability to transform higher education instruction by giving users access to a wide range of materials, knowledge, and methods. This varied collection could be used by educators in four different ways (Armellini & Nie, 2013) as a planned improvement during curriculum design, (2) as a "just-in-time" resource during course delivery, (3) modified open educational resources during curriculum design, and (4) modified open educational resources during course delivery

The implementation of OERs, according to Arinto et al. (2017), helps alleviate the majority of the multiple difficulties found in teaching and learning in a developing nation like Ghana. Lawrence and Lester (2018) assert that OERs provide end users with open licenses that help them to use, modify, and share educational materials without asking permission or paying a fee to the creators. OERs can be used in many different ways across all educational levels. One of the key characteristics of OERs is their transdisciplinary nature. This makes them ideal for the modern learning society, where people need to be flexible, lifelong learners, and open to changing jobs throughout their careers (Kozinska et al., 2010).

Butcher (2015) says the only significant difference between OERs and other resources is the license that allows for content reuse and changes without the copyright holder's permission. Because of certain features, OER adoption is versatile, giving educators the ability to disseminate, translate, and modify content to suit the needs of their students. (William & Flora Hewlett Foundation, 2018). Additionally, users are not restricted in any way when it comes to how, when, where, or how long they can utilize educational resources such as audio, video, or content; they can access them without requesting permission (McGreal, 2017).

Scholars hold varying opinions about the acceptance and application of OERs. According to Butcher (2015), there are claims that conventional academic principles and open sharing of educational resources will drive educational institutions further and further

into the margins of the market. Mishra (2017) makes several arguments in favor of open sharing of educational resources, including the following: decentralized development improves quality, stability, and security; free sharing of educational resources strengthens societal development; free sharing results in broader and faster dissemination and, as a result, more people participating in problem-solving. According to Bossu, Brown and Bull (2011), the availability of the internet and other net 2.0 tools have aided in the spread of OERs among a larger population. Also, according to Arendt and Shelton, (2019), the Open Education Movement has had the most impact on education online to date.

Among other aspects, the 2017 Global Report on Open Educational Resources states that OERs made high-quality information accessible to developing nations. (77.75%) and decreased the cost of educational materials (80.88%) (Bulathwela et al., 2024). Additionally, it was shown that textbook prices in the US rose by 82% between 2012 and 2019., (The William and Flora Hewlett Foundation, 2013) which was three times the rate of inflation. Students in Ghana's higher education institutions spend an average of GHc900 on books alone each year, according to Arinto et al. (2017). To stop the growing inequality in access to educational resources, numerous governments throughout the world are frantically raising funds for OER programs. The Dutch government, for example, paid eight million euros in its OER program to incorporate OERs into every aspect of its educational system. (Mulder & Jelgerhuis, 2013). The authors claim that from 2011 to 2014, the US government invested two billion dollars in the creation of community-based open educational resources. The New York state budgeted US\$ 38.4 million to provide OERs to students at the City University and State University of New York, according to a report by Becker et al. (2018) published more recently. In other African countries such as Seychelles, Nigeria, Botswana and South Africa, several OERs initiatives have been undertaken as a way to promote access to educational resources. For instance, in order to increase access to high-quality educational resources,

Seychelles implemented an ICT in education and training strategy in 2014 that for the first time acknowledged OER at the national level in any African nation (MoE, 2014). Aftermath the second World War, Nigeria implemented a national OER policy for higher education in 2017. OER Congress. Certain universities, such as Africa Nazarene University, Botswana Open University, the National Open University of Nigeria, the University of Cape Town and the University of South Africa, have open educational resources (OER) policies that facilitate the creation, use, and exchange of educational resources under an open license. The current global educational dynamics underline the widening disparities in access to quality educational resources among second cycle institutions in Ghana. Notably, teachers in schools located in urban centres seem to be ahead of their contemporaries in rural areas in the areas of educational resources and materials. Teachers in secondary schools in rural and hinterlands in Ghana have been experiencing considerable delays in accessing educational resources especially teaching and learning materials. Many have therefore attributed the abysmal learning outcomes among students in rural areas to delays in teachers' access to governments prescribed educational resources.

Despite their growing popularity, senior high school-level stakeholders in underdeveloped countries such as Ghana are unaware of the transformative impact that second-cycle educational institutions can have by implementing open educational resources. (Dulle & Minishi-Majanja, 2011). Studies on open educational resources (Hodgkinson-Williams, 2010) have focused primarily on higher education institutions with minimal attention given to second-cycle institutions. The Ghanaian literature is also starved of scientific study that delves into the usage of open educational resources among instructors at the senior high school level.

Ghana has a draft OER policy that aims to make it easier for different educational institutions to use open educational materials (Mishra, 2017). Hence, the choice for this

topic: use of open educational resources among senior high school teachers in the Cape Coast Metropolis. Because of the government's initiatives to "provide equitable access to education, enhance fairness in the system, and provide all with relevant and high-quality educational opportunities, "open educational resources have become an important tool in Ghana (MOE, 2016). Also, McGreal (2017) argues that OERs can be utilized to solve concerns with access, cost, quality and equity in Ghana in order to fulfill the SDGs.

For the purposes of this research, teachers would also include teacher-librarians in the schools. Teacher-librarians have been trained in librarianship and handle many aspects of this service in addition to performing their regular teaching role. The teacher-librarians provide vital services to their schools such as print and digital resources, organizing material, and instructing both students and teachers on appropriate technological tools to help augment curriculum units (Welz, 2017). Educating students to distinguish between reliable and authoritative online sources and to navigate both free and paid resources, including databases, reference materials, multimedia, and informative text, is something that teacher-librarians have some experience with. Thus, in order to support OER projects in schools and assist in choosing OERs that are relevant for their curriculum, teachers and teacher-librarians are transformative leaders in this regard (Kompar 2016). A lot of scholars have done research into OERs in information communication and technology whilst none has been done to investigate the use of open educational resources among senior high school teachers in the Cape Coast metropolis.

## **1.2 Statement of the problem**

Incorporating Open Educational Resources (OER) into instruction has become an essential approach for expanding access to high-quality learning resources and encouraging creative teaching methods around the world (Huang et al., 2020). This stems from their flexibility and

accessibility, open educational resources (OER) have the potential to alleviate resource restrictions in educational institutions, especially in developing nations like Ghana. OER, which includes freely available and openly licensed educational materials, can expand access to high-quality teaching materials and drastically lower the cost of educational resources (Cox & Trotter, 2017). Within the African setting, there have been three successful OERs implemented in educational institutions. The National Open University of Nigeria (NOUN), which transformed over 30 of its 2,000 course materials into OER, is a notable example of this (Agbu et al., 2016). Additionally, NOUN has created a special OER section tasked with teaching academic staff how to create, utilise, and reuse OER (Agbu et al., 2016). The Open University of Tanzania created an open educational resource (OER) policy and an OER course on digital literacy. In an effort to institutionalise OER, UNISA created "In-house" strategies that would direct the methodical approach to managing intellectual property (study materials), utilising OER for teaching and learning, reviewing institutional policies to incorporate OER values, and advancing global knowledge in open education.

However, little is known about how senior high school instructors in Ghana use these resources to improve pedagogical techniques, meet curriculum needs or encourage student participation. Furthermore, it is not well documented to what degree these teachers are aware of, have access to, or possess the digital literacy skills necessary to incorporate open educational resources (OER) into their teaching practices (Hodgkinson-Williams & Trotter, 2018). Examining the obstacles and facilitators of open educational resources (OER) adoption in senior high schools in Ghana may yield important information on how to best utilise these resources to enhance learning outcomes in environments with limited resources. This calls into question the extent to which teaching and learning outcomes are enhanced by these resources. Furthermore, some secondary school teachers and teacher-librarians are uninformed of the existence of OER in their schools and libraries, as well as the benefits that

it offers. It is also public knowledge that many senior high schools in Ghana faces numerous challenges, including inadequate access to up-to-date teaching materials, limited financial resources, and significant disparities in resource allocation across urban and rural schools. These challenges create a pressing need for alternative educational materials like OER to bridge the gap and ensure equitable access to high-quality resources. Students' academic performance can be improved through the utilization of open educational resources (OER) by educators and teacher-librarians (Chipana, 2018). However, the extent to which OER are available, accessible and effectively used by teachers is unclear. This study is to determine whether or not the institutions that are the subject of the study have any open educational resources (OER). In order to try to close this gap in the literature, the goal of this study is to look into the topic of senior high school teachers in the Cape Coast metropolitan area's use of open educational resources.

### **1.3 Purpose of the study**

The study aims to examine the availability and use of OERs among senior high school teachers in the Cape Coast metropolitan.

### **1.4 General Objective of the Study**

The main objective of the study was to assess the availability and use of OERs among senior high school teachers in the Cape Coast Metropolis.

#### **1.4.1 Research Objectives**

Specifically, objectives of the study are to:

1. Assess the current level of access teachers have on OER materials in the selected institutions

2. Investigate challenges encountered by teachers when seeking permission for using, modifying or sharing OER materials
3. Determine the extent to which teachers and institutions are aware with the concept of OER
4. Investigate the capacity of teachers to adopt and integrate OER into teaching and learning practices
5. Evaluate the availability of OERs for relevance and quality teaching
6. Explore and enhance the volition of teachers to engage with and actively participate in the usage of OER.

### 1.5 Definition of terms

**A teacher-librarian** is a librarian who is qualified and also has specialized training in teaching.

**Education** refers to the action or procedure of transmitting or learning broad knowledge, cultivating the abilities of logical thinking and discernment, and generally equipping oneself or others intellectually for adulthood.

**Educational resources** are utilized within an instructional setting to facilitate and support individuals' growth and acquisition of knowledge. These tools are specifically created to enhance the process of acquiring knowledge and, in certain instances, enable individuals to assess their understanding.

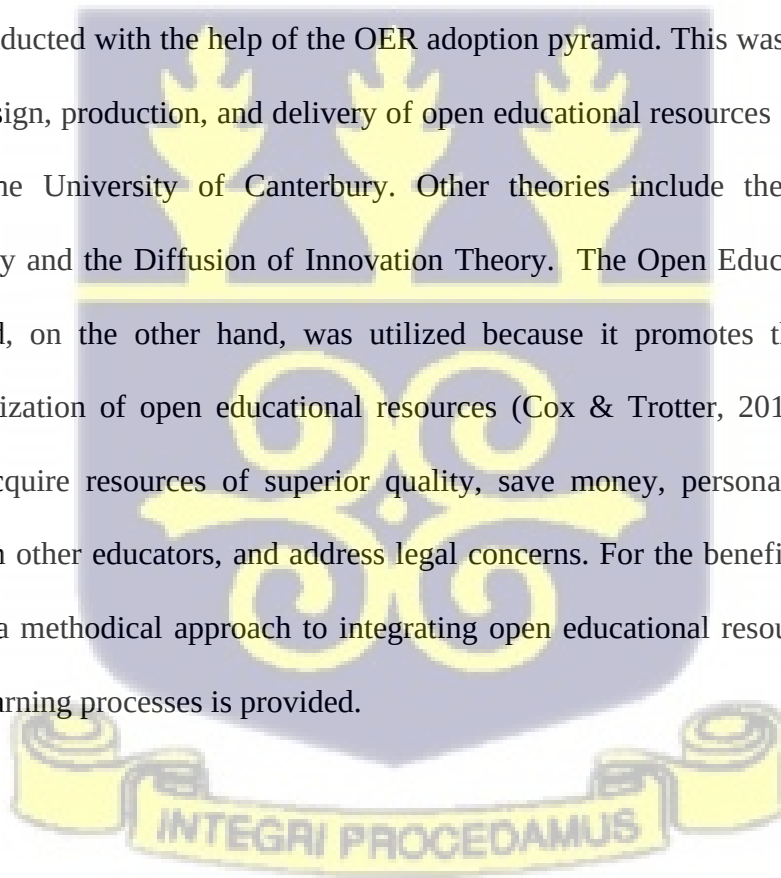
**Teacher:** A teacher, often known as a schoolteacher or an official educator, is a person who uses the teaching profession to assist students in gaining knowledge, skills, or morality. Informally, anyone can take on the role of a teacher.

**Teaching** involves addressing individuals' needs, experiences, and emotions, and implementing targeted interventions to facilitate their learning.

### 1.6 Theoretical Perspective

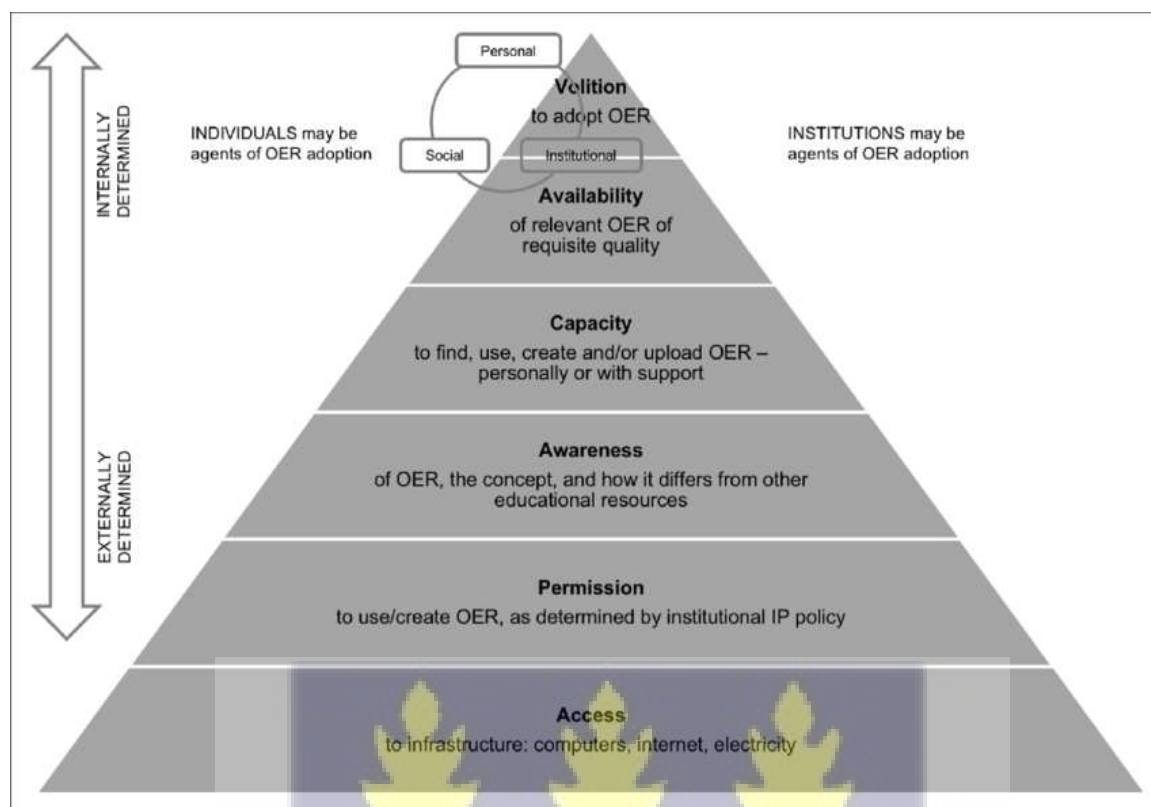


According to Mohajan and Mohajan (2023), a theoretical perspective, or to put it another way, a "theory" would be more accurate to say that it is not simply an idea that someone possesses. Instead, it is a comprehensive framework, explanation, or instrument that has been subjected to testing and evaluation throughout the course of time. Scholarship, research, the exchange of ideas, and debate all contribute to the development and application of theories. Through the use of theories, we are able to gain a better understanding of the world in general, and in this particular instance, the manner in which educational institutions and learning centers are established, operate, engage with the world, and experience it. The OER Pyramid theory, which was proposed by Cox and Trotter (2017) utilized in this research project. There was also an ecological investigation of open education practices that Strømme et al (2022) conducted with the help of the OER adoption pyramid. This was done in order to promote the design, production, and delivery of open educational resources (OER) in tertiary education at the University of Canterbury. Other theories include the Transformative Learning Theory and the Diffusion of Innovation Theory. The Open Educational Resource (OER) pyramid, on the other hand, was utilized because it promotes the effective and responsible utilization of open educational resources (Cox & Trotter, 2017). This enables educators to acquire resources of superior quality, save money, personalize the content, collaborate with other educators, and address legal concerns. For the benefit of teachers and students alike, a methodical approach to integrating open educational resources (OER) into teaching and learning processes is provided.





## OER Pyramid



**Source: Cox & Trotter (2017)**

*Figure 1: OER Pyramid*

This external–internal spectrum of elements is represented by the pyramid, which shows the categorical gradations that exist within it. Furthermore, it illustrates the assessment process for educators or educational establishments that include Open Educational Resources (OER) into their operations. The adoption pyramid for Open Educational Resources (OER) groups the pertinent OER adoption elements into six categories, which are grouped hierarchically based on the degree of influence that individual educators have on them (Cox & Trotter, 2017). In order from external to internal determination, these factors are as follows: access to the infrastructure, legal permission, conceptual awareness, technical capacity, availability of educational resources, and human volition.

### 1.6.1 Access

In light of this, access is the main factor influencing teachers' or institutions' use of OER Cox and Trotter (2017). When we talk about access to the right physical infrastructure and hardware, we are referring to things like energy, internet connectivity, library facilities, books, and computer devices that are required in order to engage with open educational resources (OER). Because institutional resource allocations (for computers and book-filled libraries in SHS schools) and state resource capabilities and provision (for energy and connectivity) dominate its operation, the element of open educational resource adoption is the one over which instructors have the least amount of control.

### 1.6.2 Permission

According to Cox and Trotter (2017) the second element is whether or not educational institutions or teachers have permission to embrace open educational resources (OER). For open educational resources (OER), the criteria of how they can be used are determined by the OER itself, through the licensing requirements that it contains. These parameters include whether the OER can be used in part or must be utilized in its entirety, as well as whether or not it can be marketed. When it comes to open educational resources (OER), the policies of the institution's library are often the ones who decide whether the teachers, who are the ones who really construct the instructional materials, or the institution itself are the ones who have copyright over the instructional materials and are therefore able to freely distribute them. Open educational resource (OER) "creation" refers to the process of publicly distributing educational information in a legal manner (Shukla et al.,2022).

### 1.6.3 Awareness

The knowledge of open educational resources (OER) among educators or institutions constitutes the third element. To put it simply, the pertinent agent needed to know what open educational resources (OER) are and how they differ from other types of educational materials, which are usually under copyright (Al-Ghaith, Sanzogni & Sandhu, 2013).

### 1.6.4 Capacity

According to Al-Jabri (2013) and Wolfenden et al. (2010), the fourth aspect is the competence of the teachers or institutions, as well as their technical and semantic skills, to use and/or create open educational resources (OER). This ability could be demonstrated by the specific teacher in question or it could be found in the support services that the specific organization offers. When a teacher or institution possesses this attribute, it means they have the technical fluency needed to find, recognize, utilize, and/or create open educational resources (OER), or they have access to support from others who do.

### 1.6.5 Availability

The fifth factor to take into account is whether or not educational institutions or teachers can use or share open educational resources (OER). In addition to counting the number of open educational resources (OER) that are currently available in a given field of study, availability for a potential user is also based on how relevant a given OER is for a given anticipated use (utility) in terms of its content, scope, tone, level, language, and format, to name a few factors, as well as the user's subjective assessment of the OER's quality. (Abeywardena et al., 2012).

As was previously mentioned, it makes sense to assume that the range of subjects that are covered by open educational resources (OER) still have a number of substantial gaps.

This challenge is exacerbated for individuals who wish to use resources in a language where there are limited open educational resources (OER) available. (Cobo, 2013). "Availability" refers to whether or not the agent (either instructors or institutions) has educational materials that are openly shared when addressing possible producers of open educational resources (OER). Most of the time, they would need to make some changes to the instructional materials before they could be shared, even if they might have educational materials that were created for a specific in-class or correspondence teaching scenario. These changes would entail raising the materials' caliber, increasing their applicability, and creating open permissions.

#### 1.6.6 Volition

The final factor in the adoption of open educational resources is the institutions' or teachers' motivation or volition, which is their desire or will to use OER. Whether or not to use or create open educational resources (OER) depends on the relevant agent's decision (Allen, & Seaman, (2014) Volition becomes the most crucial element if the relevant agent possesses the access, permission, awareness, capacity, and availability required to participate in OER activities.. However, regardless of who owns the copyright to the teaching materials, individual volition may be influenced by institutional structures (policies, strategies, and mechanisms) as well as social context (disciplinary and departmental norms) (Cox & Trotter, 2017). This complicates the idea of a teacher's or institution's volition. On the other hand, institutional volition is frequently influenced by the desires of its teachers as well as the social context that is applicable across a variety of institutions.

In the view of Perkins (2011), one of the newest advances in educational institutions is the usage of open educational materials. OER Pyramid Theory is applied as a framework

to comprehend the level of access, permission, awareness, capacity, availability and volition relating to their likely adoption at the senior high school level (Cox & Trotter, 2017).

| number | Research Objective                                                                                                                | Variables being addressed | Sources of variables  |
|--------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------|-----------------------|
| 1      | Assess the current level of access teachers have on OER materials in the selected institutions                                    | Access                    | Theoretical framework |
| 2      | Investigate challenges and barriers encountered by teachers when seeking permission for using, modifying or sharing OER materials | Permission                | Theoretical framework |
| 3      | Determine the extent to which teachers and institutions are awareness with the concept of OER                                     | Awareness                 | Theoretical framework |
| 4      | Investigate the technical skills of teachers to adopt and integrate OER into teaching and learning practices                      | Capacity                  | Theoretical framework |
| 5      | Evaluate the existing repositories, platforms and sources to determine the overall availability of OER                            | Availability              | Theoretical framework |
| 6      | Explore and enhance the volition or willingness of teachers to engage with and actively participate in the usage of OER           | Volition                  | Theoretical framework |

### **1.7 Brief setting/environment**

The physical, social, or experimental setting in which research is carried out is referred to as the research environment (Malodia, Dhir, Hasni & Srivastava, 2023). The study will focus on how senior high school instructors in the Cape Coast Metropolis use free educational resources. This investigation will take place in the Cape Coast Metropolis, specifically using Wesley Girls High School, Mfantsipim School Senior High School, Holy Child SHS and St. Augustine senior High School as case studies. The Central Region's capital, Cape Coast was specifically selected as it is the place where formal education in Ghana began. The four secondary schools were selected as they are all grade (A) schools and have proven records of excellent performance in their final examinations. The selected schools also have massive support from their Old Students, hence, receive gift on educational resources for teaching and learning. When similar resources are made available to other lower-grade schools, there is a good chance that it will assist in improving the academic performance of those schools.

### **1.8 Limitations of the Study**

The researcher perceives that some teachers will not participate in providing answers to the usage of open educational resources at the senior high school due to their busy schedules. This will be taken care when the researcher contacts the headmaster and headmistress of the four schools to encourage teachers to participate in the study. The unwillingness of respondents to participate in the study will be a significant restriction.

### **1.9 Significance of Study**

The quality of educational opportunities could be improved by addressing the variables that teachers consider when deciding whether to utilize open educational resources (OERs) (Percy & Van Belle, 2012). There is a common belief among students that their

teachers can provide them with better learning tools or resources. Teachers and institutions receive praise and criticism for varying degrees of knowledge and usage since they are perceived as change agents (Li, Yuen & Wong, 2014; Johnson, 2022). It is clear that a teacher's engagement and interest are essential for an innovation to be adopted. The study's findings will aid in identifying the factors that affect teachers' engagement in the use of open educational resources (OERs), which will help policymakers enhance teacher usage. The significance of this research is in its ability to predict, elucidate, and enhance educators' use of open educational resources (OERs), thereby contributing to the resolution of issues (Hylén, 2006). The quality of instruction is also influenced by the accessibility of contemporary pedagogies and instructional resources. Because OERs provide current information for teaching, learning, and research, the study can raise teachers' awareness of OERs and the necessity for their creation and usage.

Additionally, OER writers will be able to modify their materials to meet the demands of instructors by understanding how educators perceive the value of OER (Kelly, 2014). Since the quantity of teachers utilizing open educational resources (OERs) will affect their adoption, it is anticipated that the study's findings will raise teachers' awareness of the benefits of incorporating OERs into their lessons in order to facilitate mainstream adoption (Allen & Seaman, 2014).

By using the study's findings, researchers and policy makers will gain an understanding of the factors that facilitate or impede the integration of open educational resources (OER) into programs at higher education institutions, which will help them scale up successful practices and address problem areas through training or policy development. The results will give stakeholders who wish to boost OER utilization evidence-based recommendations.

### 1.10 Organization of the Study

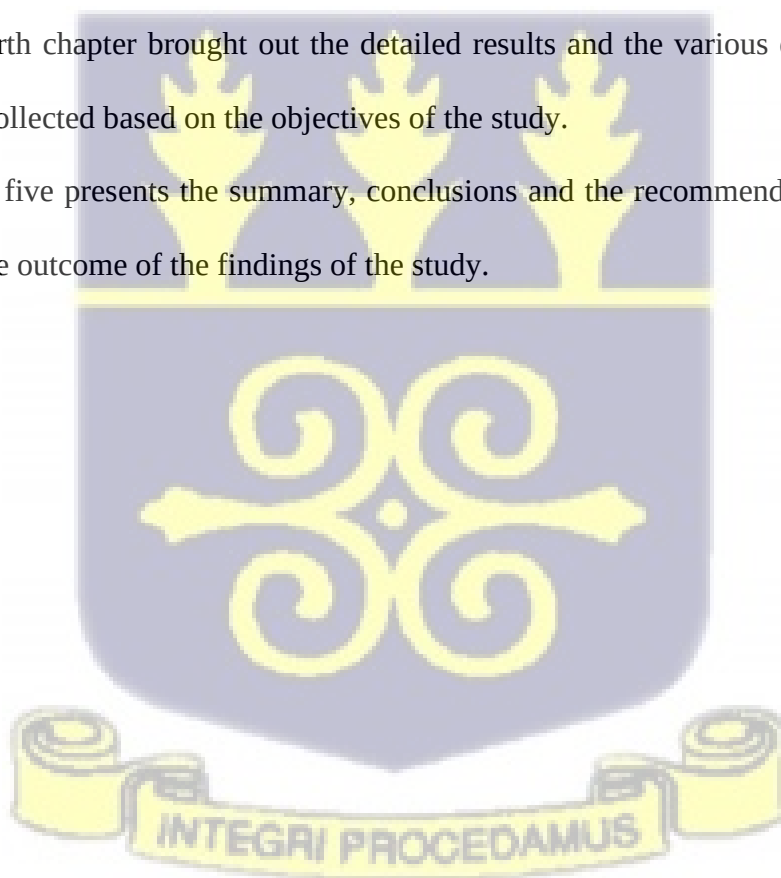
This study was organized into five major chapters. The first chapter focused on the background to the study, statement of the problem, and purpose, as well as objectives of the study. Definition of terms, theoretical framework, scope/limitation, and the research environment.

Chapter two reviewed relevant literatures based on key thematic areas that have bearing on usage of open educational resources in school library.

Chapter three presents methodology which describes the introduction, research paradigm, research design, population, the sample size, sampling techniques, data collection and procedure and also data analysis.

The fourth chapter brought out the detailed results and the various discussion of the analyzed data collected based on the objectives of the study.

Chapter five presents the summary, conclusions and the recommendations as well as the results of the outcome of the findings of the study.





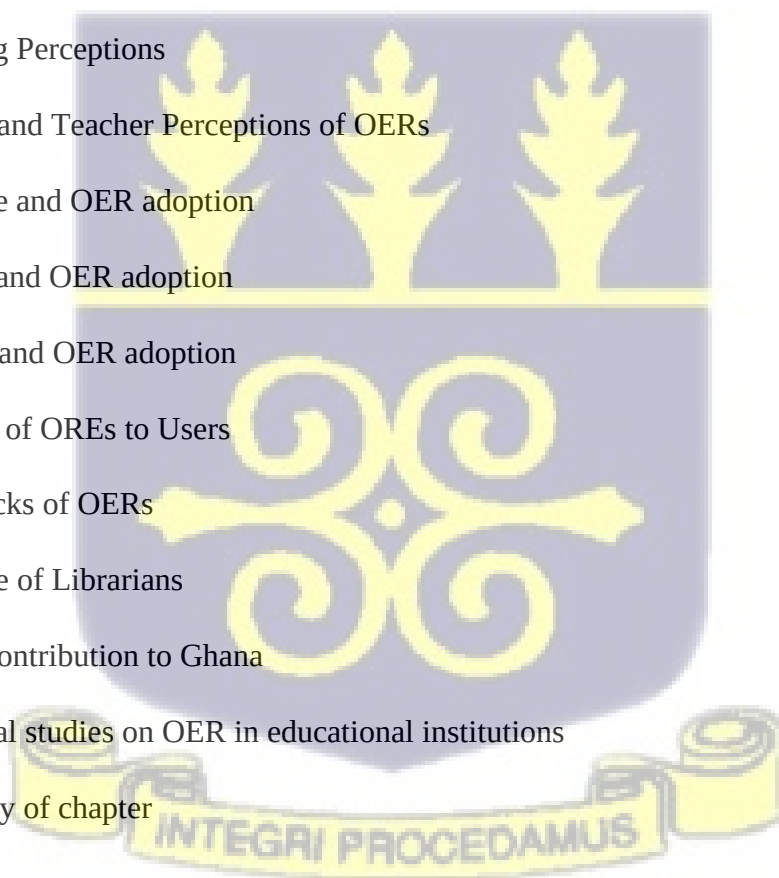
## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

A literature review provides knowledge about theories and scientific knowledge of a particular problem and ends up with what is known and what is not known," according to Burns & Grove (2010). The literature that was reviewed comprised print and online sources, books, theses, and journals. The literature makes use of search engines such as MEDLINE, Google Scholar, CINAHL, and PubMed. The following theme areas have been used to organize the literature:

- History of OER
- Evolving Perceptions
- Student and Teacher Perceptions of OERs
- Structure and OER adoption
- Culture and OER adoption
- Agency and OER adoption
- Benefits of OERs to Users
- Drawbacks of OERs
- The Role of Librarians
- OERs Contribution to Ghana
- Empirical studies on OER in educational institutions
- Summary of chapter



## 2.2 History of OER

Open Educational Resources (OERs) have existed in libraries for more than 20 years in their current form (Santos-Hermosa, 2024). Long before various types of open educational resources (OERs) were widely used, librarians made a number of contributions to the open education infrastructure. For example, Project Gutenberg, the first digital library of public domain content and another example of open educational resources, was founded in the early 1970s and is continuously maintained by volunteers, including librarians (Rowberry, 2023). The Internet Archive has been in operation for approximately 25 years (Costa, Gomes & Silva, 2017). These pioneering initiatives paved the way for the creation of other, more specialized OER types that are currently in use. Furthermore, when education began to shift toward open digital textbooks distributed across heterogeneous internet sources, students and teachers were unaware of how librarian roles in various institutions began to evolve, requiring a more active engagement in the discovery of OERs.

The concept of open educational resources (OER) was developed in tandem with the expansion of distance and open learning in the latter half of the 20th century. This development took place within a cultural milieu that placed a premium on open knowledge, open source, free sharing, and peer collaboration (Karunanayaka & Naidu, 2014). Open educational resources (OER) are defined by UNESCO as offering instructors and students excellent educational resources that may be used, modified, and distributed without charge. The general landscape of libraries has changed as a result of the advancement of information and communications technologies. Therefore, in order to remain relevant in the brand-new world of the future, libraries must reconsider their operations, roles, and services (Liauw, 2011). This kind of development might be seen as a threat, where new technology could render old libraries obsolete, or it can be seen as a chance to improve user needs and information access. The most significant impact that the development of information and

communications technology has had on the open knowledge movement is that it has made it possible for users to access the world of open source software and freeware, which is all over the place. Freeware and open-source software are used by a significant number of libraries today to manage a significant portion of their day-to-day operations (Corbly, 2014).

As their traditional role is thought to be dwindling, librarians are increasingly entering the publishing industry as a way to make up for it (Leng, Ali & Hoo, 2016). Institutional repositories are part of this trend and can be thought of as a particular kind of digital library. Libraries have implemented institutional repositories as a strategic development to help educators with searching, sharing, and reusing existing content as well as creating new resources through systematic collaboration with other institutions.

### 2.3 Evolving Perceptions

Numerous researches have looked into how OERs affect learning outcomes as well as how teachers and students perceive them. Views of OERs from teachers and students have been thoroughly examined. For example, although some people still believe that open textbooks are of poorer quality than traditional textbooks, most people believe that open educational resources (OERs) are of superior quality. According to certain research, more than three times as many educators and six times as many students believe open educational resources (OERs) to be superior than print books (Bliss & Smith, 2017). In only the past few years, tens of thousands of students have taken part in research looking at the effects of open educational resources.

Seventy-eight percent of students said that they would recommend open educational resources (OERs) to their peers, and eighty-three percent (83%) of students stated that OERs adequately supported the work that they undertook outside of the classroom (Mkhize, Mtshali & Sithebe, 2022). Students have a tendency to grumble about the weight of traditional

textbooks and continuously worry about whether or not they will get damaged, especially when they intend to eventually sell them back to bookstores. If asked to point out the primary problems of traditional textbooks, students prefer to moan about the weight of the textbooks. On the other hand, the way in which educators view open educational resources (OERs) is more complicated.

Research suggests that educators are more receptive than they were a few years ago to open educational resources (OERs), but they also highlight some concerns. Open educational resources (OERs) have the ability to prepare students equally for class, according to the majority of instructors. Of teachers, sixty-three (63) thought that using both traditional and open-access learning resources will prepare their pupils equally (Bliss, 2013). This was discovered in a large-scale open educational resource (OER) study that was conducted in the context of an open education initiative called Project Kaleidoscope and involved eight community colleges in the United States that primarily served students who were considered to be at risk. The Public Interest Research Group of the United States of America reports that since 1994, the prices of college textbooks have climbed at a rate that is approximately four times higher than the rate of inflation for all finished goods.

The survey on textbook affordability that was conducted by Library Journal (LJ) in 2019 found that two-thirds of the libraries that took part in the survey confirmed that the cost of textbooks was a major concern for their institutions (Roncevic, 2021). Furthermore, an astounding 95 percent of the libraries also confirmed that it was a major concern for their students, particularly those who were attending community colleges (Mayer et al., 2020). OERs were recognized as the most obvious alternative presented to instructors on campus when trying to decrease the cost of education for students, according to the findings of the study conducted by the Library Journal (McGlinn, 2016). The poll also found that libraries worked actively with teachers to offer realistic solutions. According to Adams Becker et al.

(2017), approximately 64 percent of librarians claim to assist instructors in selecting relevant open educational resources (OERs) for their classes. It is very clear that educators have compassion for students with regard to the issue of financial constraints. They are in agreement that open educational resources (OERs) lower the cost of materials and may even require less preparation for textbooks. OERs, on the other hand, are cited by an increasing number of educators as demanding additional time for preparation. It simply takes more time for them to collect the resources that are dispersed over a variety of platforms and sort through them than it would take for them to assign a single, dependable textbook as a necessary component of the course reading (Albright, 2017).

### **Student and Teacher Perceptions of OERs**

The perspectives of open educational resources (OERs) held by students and teachers are subject to two primary concerns. When it comes to pupils, both cost and affordability are always important considerations, however for teachers, it is more about quality and advice. Both students and teachers require direction in order to be able to create, use, and share open educational resources (OERs), now that there is abundant evidence that OERs are commonly viewed as being of high quality. But before that, they have to be aware that they are there. The idea of Open Access (OA), for instance, is something that many other people take for granted, yet educators all around the world are still getting used to it (Beall, 2013). Of the 2,707 teacher members who participated in a study, just seven percent were considered to be "very familiar" with open-access textbooks, while more than half of the respondents (52 percent) were considered to be "not at all familiar" with open-access textbooks (Hilton, 2021). Only 34% of the teachers who participated in another poll of nearly 2000 teachers in the United States were aware of open educational resources (Allen & Seaman, 2014). There is no denying that the market is still in its infancy, despite the fact that it has advanced significantly in 2019.

## 2.4 Structure and OER adoption

Research on open educational resources (OER) suggests that a number of structural factors influence whether or not teachers use OER and how they do so. These elements include access to technology resources, availability of resources, and legal permission.

### 2.4.1 Access

The extent to which educational institutions in the Global South adopt and are prepared to implement Open Educational Resources (OER) is largely shaped by infrastructural constraints. Researchers such as Bateman (2018), Cox and Trotter (2017), and Clements and Pawlowski (2012) emphasize that inadequate technological infrastructure remains a persistent barrier. Moreover, limited internet coverage, unreliable broadband services, and inconsistent electricity supply further hinder institutional capacity for OER integration (CERI/OECD, 2007; Ngimwa, 2010). These deficiencies extend beyond the institutional environment, as teachers and students also experience restricted access at home, which in turn influences institutional and pedagogical decisions about OER use (Butcher, 2011; Dhanarajan & Abeydawara, 2013).

### 2.4.2 Availability

Many educators across the Global South have expressed concern over the limited availability of high-quality and contextually relevant Open Educational Resources (OER) suited to their local teaching environments (Abeywardena, Dhanarajan, & Chan, 2012). Since the development and dissemination of OER remain relatively new compared to the broader production of educational content globally, substantial gaps still exist in subject coverage and representation. This challenge is even more pronounced for educators and learners who require materials in languages for which few OER resources are available (Zagdragchaa &

Trotter, 2018; Cox & Trotter, 2017; Cobo, 2013). Despite these limitations, there has been a gradual but noticeable expansion of OER initiatives in the Global South. Meanwhile, the Global North has witnessed a more rapid proliferation of open-access platforms. In the African context, several noteworthy initiatives have emerged, reflecting efforts to enhance accessibility, localization, and the diversity of OER content across the continent.

- The African Virtual University (AVU) has established a robust Open Educational Resources (OER) repository that continues to expand in English, French, and Portuguese. This initiative originated from a large-scale collaboration involving 12 African universities and the collective efforts of 146 authors and peer reviewers representing ten countries across Anglophone, Francophone, and Lusophone regions (Bateman, 2018; Cox & Trotter, 2017; Diallo, Wangeci, & Wright, 2012). The project's primary objective was to provide freely accessible learning materials for both the wider African community and the participating universities, thereby promoting equitable access to higher education resources across linguistic and regional boundaries.

The Open Educational Resources Africa (OER Africa) project, spearheaded by the South African Institute for Distance Education, seeks to harness African knowledge and expertise to create open resources tailored to the continent's educational needs. Its central aim is to support educators by providing teaching materials that reflect Africa's diverse contexts and priorities. As noted by Omollo (2012) and Welch and Glennie (2016), the initiative has placed considerable emphasis on key disciplines such as agriculture, teacher education, and health sciences across several African countries.

- The African Veterinary Information Portal (AfriVIP), based at the Faculty of Veterinary Science, Onderstepoort Campus of the University of Pretoria, represents a significant contribution to Africa's Open Educational Resources (OER) landscape. As



noted by Haßler and Mays (2015), the platform facilitates the open sharing of the institution's extensive intellectual output through open licensing, thereby promoting knowledge exchange in veterinary education across the continent. Similarly, OpenUCT, as described by Czerniewicz et al. (2015), serves as a comprehensive repository providing open access to both research outputs and teaching and learning materials. The initiative underscores the growing commitment among African universities to advance open scholarship and expand access to locally relevant educational content.

The Teacher Education in Sub-Saharan Africa initiative, often known as TESSA, is a "consortium of institutions concerned with the collaborative production of original open educational resources to support teacher development" (Wolfenden, 2018, n.p.). "in four languages to support school-based teacher education: English, French, Swahili (Tanzania), and Arabic (Sudan)" (Murphy & Wolfenden, 2013; Moon, 2010) is how it accomplishes this goal. Open educational resources (OER) are provided in these languages. These initiatives are also supplemented by emerging national policy developments, such as the recommendation for the widespread use of open educational resources (OER) that was included in the White Paper for Post-School Education and Training (de Hart, Chetty & Archer, 2015) published by the Department of Higher Education and Training of South Africa, as well as some other smaller OER developments across the continent (Al-Jabri, 2013). However, it is difficult to determine the significance or impact of many of these initiatives because recent research indicates that the level of engagement with open educational resources (OER) continues to be relatively low not only in Africa (Cox & Trotter, 2017; Samzug & Mwinyimbegu, 2013), but also throughout the Global South (Dhanarajan & Porter, 2013).

When examining the concept of Open Educational Resources (OER), it is essential to differentiate between materials that are generally applicable within a discipline and those that



are specifically aligned with a teacher's instructional context. The true value of an OER lies in its ability to support an educator's pedagogical goals and intended learning outcomes (Zaid & Alabi, 2021). Even when appropriate materials are identified, they must still meet the educator's quality benchmarks regarding accuracy, comprehensiveness, and academic rigor. Consequently, the availability of OER should be understood through three interrelated dimensions: relevance, usefulness, and quality (Cox & Trotter, 2017). As Moe (2015) argues, the openness of a resource is often secondary to its educational and practical significance. Ultimately, teachers play a pivotal role in contextualizing, adapting, and applying OER effectively, underscoring their centrality in determining how open resources enhance teaching and learning.

For educators who have the capacity to contribute to the Open Educational Resources (OER) ecosystem, the notion of *availability* extends beyond accessing materials to encompass the resources they create and are willing to share openly (Cox & Trotter, 2017). These contributions may include original materials developed specifically for classroom use, as well as modified or remixed versions of existing OER (Tillinghast, Fialkowski, & Draper, 2020). To determine whether their materials are suitable for open dissemination, educators can apply similar evaluative criteria used by OER users—namely, relevance and quality (Cox & Trotter, 2017). In doing so, teachers must consider whether their work holds value for a broader audience and meets appropriate academic standards. However, some may perceive their materials as too specialized or narrowly contextualized, or believe that comparable resources already exist on OER platforms, leading them to conclude that their content may not meaningfully contribute to the wider OER community.

Moreover, educators may regard their teaching materials as well-suited for their own students but remain uncertain about how these resources would be perceived by peers in other institutions (Cox & Trotter, 2017). This hesitation often stems from the fact that such

materials are typically designed to complement face-to-face teaching, relying on verbal explanations or contextual insights that are not captured within the written content. When assessed through these lenses, many instructional materials may not qualify as *readily available* OER in their existing form (Bliss & Smith, 2017). To make them suitable for open dissemination, educators would need to revise and adapt their content to ensure clarity, completeness, and standalone usability. This process—transforming resources from closed, classroom-bound materials into open, shareable educational assets—requires time, effort, and careful pedagogical adjustment.

### 2.4.3 Permission

Beyond challenges of availability and accessibility, educators in higher education institutions often face legal restrictions that prevent them from publicly sharing their teaching materials. In many cases, such materials are considered the intellectual property of the institution rather than of the individual instructor (Mtebe & Raisamo, 2014). Consequently, teachers may hesitate to release their lesson content openly due to concerns about violating intellectual property rights or uncertainty over their legal authorization to do so (Bateman, 2021). The right to develop and distribute Open Educational Resources (OER) is typically governed by institutional intellectual property (IP) policies. In South Africa, most universities maintain IP policies that assign ownership of academic work produced by staff to the institution itself (de Hart, Chetty & Archer, 2015). This aligns with provisions of South Africa's Copyright Act of 2018, which grants employers default copyright ownership over works created in the course of employment.

Mtebe and Raisamo (2014) point out that university lecturers typically do not hold the copyright to the instructional materials they create. Consequently, they cannot legally release these materials as Open Educational Resources (OER) without obtaining formal authorization from the institution that owns the copyright. While it is sometimes possible for educators to

request permission to share their content openly, the absence of automatic copyright ownership presents a substantial barrier for many South African academics interested in contributing to OER development (de Hart, Chetty & Archer, 2015). In practice, this means that institutions—rather than individual educators—often serve as the primary agents responsible for the open licensing and dissemination of educational materials.

When educators retain copyright ownership of their instructional materials, their decision to engage with Open Educational Resources (OER) can be significantly influenced by institutional initiatives that promote openness (Zaid & Alabi, 2021). Institutions can encourage greater participation by providing various forms of support—such as technical assistance for OER creation and adoption, access to necessary resources including hardware, software, and funding, and formal recognition for excellence in OER use or development through awards or commendations (Orwenjo & Erastus, 2018). Additionally, the establishment of explicit pro-OER policy frameworks can further strengthen faculty motivation. These institutional mechanisms extend beyond the mere provision of basic infrastructure like electricity or computers; they reflect an organization's strategic and cultural commitment to advancing OER practices. Such forms of institutional support can play a decisive role in shaping educators' willingness and capacity to engage in open educational activities (Al-Jabri & Sohail, 2012).

### **Culture and OER adoption**

The adoption of Open Educational Resources (OER) is shaped by a complex interplay of institutional beliefs, aspirations, practices, and historical traditions. These factors collectively define the social and cultural environments within which educators engage with OER-related issues. To better understand this phenomenon within South African higher education institutions, Mtebe and Raisamo (2014) conducted a study grounded in the broader literature on African institutional cultures. Their findings highlighted the diversity of

governance structures, policy orientations, and collegial practices that influence OER adoption across institutions. According to Allen and Seaman (2012), institutional culture can be conceptualized in two main ways, both centered on the dynamics of academic organizations. Specifically, they classify institutional cultures based on two dimensions: (1) the extent to which policy frameworks are rigid or flexible, and (2) the degree of institutional control exercised over policy implementation. McNay (2015) proposes four distinct typologies of institutional cultures:

1. Collegium (“laissez faire”): loose policy definition, loose control of implementation.
2. Bureaucracy: loose policy definition, tight control of implementation.
3. Enterprise: tight policy definition, loose control of implementation.
4. Corporation: tight policy definition, tight control of implementation.

While this framework provides a valuable starting point, understanding “culture” goes beyond simply examining institutional policy measures. To gain a more comprehensive view, we also draw on the work of Zuhairi, Karthikeyan, and Priyadarshana (2020), who categorize institutional cultures based on several factors, including the nature of governance, the level of individual autonomy granted to members, and whether members operate in physical or virtual environments. According to their classification, six primary types of institutional cultures exist: collegial, managerial, developmental, advocacy, virtual, and physical. However, only the first two of these cultures are applicable on this particular study:

1. Collegial: decentralised governance, academic freedom, teacher contributions.
2. Managerial: bureaucracy, hierarchical, efficiency and assessment of work.

The term *institutional culture* serves as a broad descriptive concept that helps distinguish among the diverse and complex organizational forms arising from the dynamic interplay of structural factors (such as policies), social factors (such as collegial norms), and agential factors (such as the level of individual autonomy) (Cox & Trotter, 2017). This

conceptualization facilitates understanding of how these elements interact within a particular institution, thereby revealing the dominant institutional culture and its potential influence on open educational resource (OER) initiatives. Three key types of institutional cultures are particularly relevant to this study: collegial culture, marked by decentralized authority and high individual autonomy; managerial culture, characterized by hierarchical structures and tightly enforced policies and bureaucratic culture, defined by hierarchical systems with extensive yet inconsistently implemented policies (Lee, 2018). The motivation of instructors to use open educational resources (OER) may be poor, according to scholars studying OER (He & Wei, 2019). This dynamic can be shaped by the broader cultural context, encompassing departmental and disciplinary norms surrounding the sharing of teaching materials, colleagues' familiarity and understanding of OER, prevailing pedagogical orientations (e.g., traditional versus progressive, risk-averse versus risk-taking), and the overall level of OER engagement within the academic community—whether one operates within a supportive network or in relative isolation (Cox & Trotter, 2017; Wolfenden, Buckler & Keraro, 2012). Such social conventions, collegial expectations, and disciplinary standards collectively shape how academics engage with open educational resources (OER), as scholars may either align with or challenge these norms. As Pirkkalainen et al. (2014) emphasize, the social and cultural environment in which educators operate significantly influences their motivation and willingness to participate in OER initiatives. Nevertheless, some individuals may choose to transcend these contextual constraints, grounding their participation in personal values, beliefs, or pedagogical commitments (Cox & Trotter, 2017).

## **2.6 Agency and OER adoption**

In addition to the institutional and structural variables that impact the use of open educational resources (OER), teachers' agency and actions are shaped by their own institutional and personal approaches to OER awareness, capacity, and values.

### 2.6.1 Awareness

Several studies have identified limited exposure to open educational resources (OER) as a major factor influencing educators' engagement with such materials (Hodgkinson-Williams et al., 2017). Similarly, Allen and Seaman (2014) highlight a general lack of awareness about OER as a significant barrier. In this study, awareness of OER refers to educators' understanding that these are learning materials which can be freely shared, reused, and distributed under open licenses such as Creative Commons (CC) (Orwenjo & Erastus, 2018). A key issue arises when educators purchase or share instructional materials informally with colleagues without recognizing the legal difference between copyrighted resources and openly licensed OER. While teachers may incorporate portions of copyrighted materials for instructional use under "fair use" or "fair dealing" provisions, such practices differ fundamentally from the principles of openness that define OER (Cox & Trotter, 2017).

However, such practices may sometimes exceed what is legally permissible. Strictly speaking, educators engaging in these activities are not genuinely participating in OER adoption, as they are not intentionally sharing their materials under open licenses that permit adaptation and redistribution of content (Coughlan & Farrow, 2019). Although these actions—such as collecting and informally sharing resources—may resemble OER-related practices, they lack the deliberate openness that defines true OER engagement. Therefore, a clear understanding of the principles underlying the creation and use of open educational resources (OER) is essential for meaningful and legitimate participation in OER initiatives.

### 2.6.2 Capacity

A strong capacity framework that equips educators and institutions to create, adapt, and share open content is vital for the effective adoption of Open Educational Resources (OER) in schools. This capacity extends beyond basic digital literacy and encompasses technical, pedagogical, and institutional competencies necessary for meaningful engagement



with OER. Many educators struggle to adapt materials to specific learning contexts, underscoring the need for technical skills in editing and remixing open content. According to Luo et al. (2020), limited expertise in digital content editing, metadata management, and navigation of open repositories constrains educators' ability to fully utilize OER. Furthermore, understanding the functionality of digital platforms hosting OER is essential, as their accessibility and usability across diverse educational settings depend on users' ability to engage with multiple formats and technologies (Orwenjo & Erastus, 2018). Beyond technical proficiency, effective OER integration requires the development of pedagogical approaches that embed open materials into teaching and learning. As Orwenjo and Erastus (2018) note, access alone is insufficient; educators must design instructional practices that leverage OER to enhance learning outcomes. Central to this process is the concept of open pedagogy, which encourages collaborative knowledge creation and active student participation. Without such pedagogical innovation, the potential impact of OER on educational outcomes remains limited.

### 2.6.3 Vltion

Moreover, many educators in the Global South who utilize Open Educational Resources (OER) in their classrooms often stop short of creating and sharing their own materials with the wider community (Zaid & Alabi, 2021; Mtebe & Raisamo, 2014). This limitation risks reinforcing what Dhanarajan and Porter (2013) describe as a “culture of dependency” on the Global North, where educators rely on external ideas, frameworks, and solutions that may not align with their local realities. Addressing this challenge requires more than isolated individual efforts; it calls for collective action and institutional support. As Rolfe emphasizes, “central to sustainability is the community and growth of a critical mass of interested individuals,” while Khanna and Basak (2013) argue that a sustainable OER ecosystem depends on the presence of an enabling institutional and technological

architecture. Ironically, the rapid expansion of OER may unintentionally deepen the digital divide between North and South rather than bridge it (Otto & Kerres, 2022). Although OER holds democratic and transformative potential—allowing Southern educators to share their intellectual and pedagogical contributions without intermediary gatekeepers—this promise will remain unfulfilled unless a critical mass of educators from the Global South actively engage in both using and contributing to OER.

## 2.7 Benefits of OERs to Users

The enormous number of open educational resources (OERs) that are accessible online has led to the development of sources that are designed to point teachers and librarians in the direction of free content that is suitable for use in research and education. In a logical sense, the more librarians are aware of what is available and where it can be found, the more they will be able to accomplish their aims of assisting teachers in keeping up with the speed of the classroom. There are two categories of sites that might be considered to be "directories" for open educational resources (OERs). According to Arendt and Shelton (2019), the first type of repository is intended to store true "open" information, which includes a wide range of publications.

The second type of repository is a gateway that is aimed to lead users in the appropriate path (Cox & Trotter, 2017). The real contents are under the jurisdiction of repositories because they are stored on the servers that belong to the institution. As a result, repositories require a large amount of resources, labor, and finance in order to remain competitive and relevant (Cox & Trotter, 2017). This contains a variety of institutional archives that libraries all over the world have established in order to promote, maintain, and make widespread available the research that their teachers have conducted. Portals, on the other hand, serve a much distinct purpose.



This stems from the basis that they do not have to concentrate on constructing and managing fluid collections of actual materials, which expand at a dizzying rate, portals are simply focused on referring to other repositories and resources. According to Arinto, Hodgkinson-Williams, King, Cartmill, and Willmers (2017), their benefit is that they are able to point to a vast amount of materials that are available across the Internet. This is significantly more than any single repository is able to keep, which provides educators and librarians with a much more comprehensive understanding of what is available. According to Arinto et al. (2017), "platforms like Teacher Select are the 'go-to' place for institutions to obtain quality, free content that supports student access while also controlling the ever-rising cost of education." This was another issue that was brought up in the study. In addition, there are platforms such as EBSCO Teacher Select that make it possible for educators to locate open educational resource (OER) content and gain access to it (Armah & Mereku, 2018).

Teacher Select, on the other hand, extends beyond open educational resources (OERs) to incorporate digital rights management (DRM)-free e-books, providing educators with unrestricted access to a large variety of free educational materials in a single location (Bittar, 2014). This is in contrast to other products on the market that help instructors identify high-quality resources for their students, such as Intellus Learning. Electronic books that are included in Teacher Select are not protected by digital rights management (DRM), which means that they provide users more flexibility than typical e-books. For example, students have the ability to print, copy, or download chapters (Wolfenden, Buckler & Keraro, 2012).

Teacher Select is comprised of two distinct categories of records: 1) Open textbook metadata and links from Open Educational Resources (OER) providers, such as Open Textbook Network, OAPEN Library, Open BC Textbooks, and SUNY Open Textbooks; and 2) E-books that are available for purchase, which include approximately 200,000 DRM-free e-books from EBSCO eBooks and major textbook publishers such as Taylor & Francis,

Cambridge University Press, and Wiley (Cox & Trotter, 2017). Teacher Select echoes educators' aspirations to not abandon traditional textbooks but rather to create a bridge that connects traditional teaching methods with digital innovation by serving as a discovery engine that offers access to both traditional open educational resources (OERs) and unrestricted electronic books (Karunanayaka & Naidu, 2014). Additionally, it makes it simpler for librarians to assist teachers in locating items that are suitable for their individual students (Roncevic, 2021). Furthermore, regardless of whether teachers opt for traditional open educational resources (OERs) or digital rights management (DRM)-free e-books, the library makes these materials freely accessible to students.

## 2.8 Drawbacks of OERs

Despite the fact that they are not as much of an issue in 2019 as they were in the past, teachers continue to bring them up despite the fact that they still warrant some examination. The first concern is with the caliber of open educational resources (OER) in general. As a result of the fact that different kinds of open educational resources (OERs) can be altered by anyone at any time, frequently in "real" time, the information that they hold (and that they allow for future sharing) might not necessarily be reliable or wholly correct. It is reasonable to anticipate that instructional resources will be authoritative, and educators have a good cause to continue putting their faith in the materials that come from the sources that they have relied on for a considerable amount of time (Armah & Mereku, 2018).

The second concern is related to the notion of intellectual property. Over the course of several decades, educators have relied on the protection afforded by the 'fair use' provision in order to share portions from copyrighted publications for the purpose of educating (Cox & Trotter, 2017). But when it comes to open educational resources (OERs), the concept of "fair use" is no longer relevant. Many educators are unsure of what exactly may or cannot be done

with open educational resources (OERs) due to the fact that the licenses that they bear, which are typically one of several Creative Commons (CC) licenses, may still be uncertain to a great number of individuals (Zagdragchaa & Trotter, 2018).

Furthermore, according to Shukla et al., (2022), open educational resource licenses regularly shift from "All rights reserved" to "Some rights reserved." Furthermore, open resources may face challenges related to copyright and permissions, which necessitates that educators alter their expectations. Discoverability is likely the most important issue concerning open educational resources (OERs) as we make our way into the third decade of the century (Bossu, Brown, & Bull (2011)). It is also the issue that affects the greatest number of users, including educators. The capacity to keep up with and sort through thousands of open educational resources (OERs) in a variety of formats and designs is a skill in and of itself, regardless of any other potential problems that may arise. Open educational resources (OERs) are dispersed across a wide variety of platforms and continue to expand at an astonishing rate. The Open Course Ware (OCW) platform is currently being utilized by hundreds of institutions all over the world, and institutional librarians are actively working to construct open access repositories for their respective institutions. A growing number of educators are also taking part in the production and publication of open textbooks on their own.

## **2.9 The Role of Librarians**

Librarians are therefore in a position that is very favorable to help both parties within the context of their constant role as the middleman, especially educators who need help with discoverability. According to Abeywardena, Dhanarajan and Chan (2012), Teachers are very good at breaking down content into its constituent parts, but they struggle more to find and use that stuff—whether it be in print or on the internet. At their respective institutions,

librarians are crucial to the discovery, accessibility, and use of open educational resources (OERs), particularly in the areas of open digital textbooks and open access books (Wiley, Bliss & McEwen, 2014).

This is similar to the role that librarians play in other aspects of supporting research. Despite the fact that educators are quite excellent at analyzing instructional information, they are not as skilled at locating and utilizing it online. To add to existing studies, teachers are not often aware of what their own libraries have in their collections, let alone what is floating freely in cyberspace. As a result, librarians need to have a clear understanding of what teachers on campus desire and need. This is especially true in institutions for which open education is not a primary focus. Butcher (2015), who is the Open Education Librarian at the University of Arizona, states that "We can help teachers find a range of content options that are free for students to use." These content possibilities include open educational resources (OERs), library-licensed e-books and articles, and streaming video. An Open Educational Resource (OER) Professional Learning Community was established at the University of Arizona (UA) during the current semester.

This community is aimed at educating instructors and instructional designers on several topics, including Creative Commons licensing, copyright and fair use, open pedagogy, and where to get OERs. The Library Directors of Nevada State College, Zohoorian-Fooladi and Abrizah (2014), is of the opinion that librarians should go even further in an effort to accomplish their goals. When it comes to open education, we need to put teachers at the heart of the action. The discovery of open materials that are suitable is merely one component of the equation. Wiley, Bliss and McEwen (2014) continue by saying, "Many teachers have a strong attachment to the materials that they already have in their classrooms." According to them, the process of converting their course might be an undertaking that is both risky and time-consuming. As the environment for open educational

resources (OERs) continues to develop, the most successful educational institutions in this field will be willing to devote the financial resources necessary to fairly pay teachers for developing, adopting, and adapting these documents.

It is clear that librarians have two primary responsibilities: first, they are responsible for promoting the discoverability and utilization of open educational resources (OERs), which will be of tremendous benefit to students and the entire OER ecosystem. Additionally, they are tasked with assisting educators in the production and publication of their own OERs. The future open educational resources (OERs) will have more credibility as a result of this since they will foster the professional development of their teachers and provide them with reasonable recompense. In addition to this, it will ensure that they are preserved for future generations (Chu, Tavares, & Lee, 2017).

## **2.10 OERs Contribution to Ghana**

Studies on Open Educational Resources (OER) in developing nations, like Ghana specifically, are scarce. According to a number of studies (OECD, 2007; Ngimwa & Wilson, 2012), despite the fact that open educational resources (OERs) are readily available and have the potential to enhance teaching and learning, especially in developing nations, it seems that they are not being used very often (Dulle & Minishi-Majanja, 2011; Percy & Van Belle, 2012; Mtebe & Raisamo, 2014). All of these demonstrate how little OER use there is among African institutions. Furthermore, there seems to be little adoption of OER in second-cycle educational institutions, despite significant funding and lobbying for these programs (Coalition for Networked Information, 2016).

Although Ghana's higher education institutions have several Open Educational Resources (OER) programs, no research has been done to ascertain the current state of OER uptake and use among teachers in second cycle institutions (Ofori, 2023; Agormedah et al.,

2020). Teachers are crucial to the uptake of OERs because students make up the majority of OER users. One's comprehension of relevant concerns regarding OER adoption and tactics that may be used to improve its use in Ghanaian educational institutions is limited by the lack of information on teachers' use of OERs.

### 2.11 Empirical Studies

Studies conducted in Africa, Asia, Europe, and the United States reveal that awareness of OERs varies significantly across contexts. In West Africa, Nigerian students demonstrated moderate awareness of OERs, with usage positively correlated with awareness levels. Commonly accessed materials included theses, journal articles, and lecture notes, while video content and conference proceedings were less utilized. Notably, 80% of respondents acknowledged that OERs contributed to improved learning outcomes (Oluwayimika & Idoghor, 2023; Ndaago, Kankam & Bentil, 2025). Conversely, Odame (2020) found that graduate students at the University of Ghana had limited engagement with the Sakai Learning Management System (LMS) due to accessibility challenges, though their attitudes toward its use remained positive.

Similarly, Hoang (2015) reported that students in Vietnam's English Language Teaching Program valued OERs for their accessibility and cost-effectiveness but were hindered by limited understanding and minimal faculty support. In the United States and United Kingdom, awareness is relatively higher but still inconsistent. Morris-Babb and Henderson (2012) found that 52% of Florida faculty were unaware of open-access textbooks, while Allen and Seaman (2016) reported that only 7% of U.S. faculty were highly familiar with OERs. Similarly, Rolfe (2012) found that only 18% of academic staff in a UK institutions were aware of the term "OER," and Reed (2012) reported that just 32% of participants across two UK universities recognized open content. These findings highlight a global trend of

limited awareness, suggesting that understanding of OER principles remains uneven, even in technologically advanced educational systems.

Despite low awareness levels, several studies indicate that both students and faculty use OERs to varying degrees. At Utah State University, Karunanayaka and Naidu (2017) found that faculty effectively integrated OER particularly open textbooks into teaching when provided with institutional support. Similarly, Llanda (2023) revealed that teachers frequently used OER from platforms such as YouTube and Khan Academy but were largely unaware of Creative Commons licensing terms. In Ghana, Odame (2020) and Martin-Yeboah (2021) emphasized that while institutions recognized the potential of OER repositories, engagement remained minimal due to poor promotion and limited content development. A study at the Open University of Tanzania by Samzugui and Mwinyimbegu (2013) found that both students and faculty were aware of OER and used it to access study materials, course notes, bibliographic information, and course outlines—mainly for research, reference, and self-learning. The authors observed that OER significantly reduced the cost of accessing learning materials and enhanced distance learning. However, they cautioned that not all open resources are suitable for every learning level, aligning with Mishra's (2017) argument that an open license does not necessarily guarantee educational relevance. Similarly, Sandanayake (2019) demonstrated that the adoption of OER-based online courses improved learning quality by enhancing flexibility and allowing learners to apply knowledge in broader contexts.

In Nigeria, Oloidi et al., (2021) found moderate OER use among postgraduate history students, attributing the limited utilization to a lack of awareness and absence of capacity-building sessions on how to search and ethically use OERs. Mwinyimbegu (2019) therefore advocated institutional policies to guide the ethical use of OERs, stressing that students must



understand licensing agreements to prevent misuse. Numerous studies have identified persistent barriers to OER adoption. In Africa, Ibrahim et al., (2021) and Mtebe and Raisamo (2014) cited limited internet connectivity, poor system understanding, and inadequate institutional support as key challenges. Hassall and Lewis (2020) identified lack of awareness, motivation, and training as major constraints in medical education, noting that while 68.4% of instructors incorporated OERs, institutional backing was weak. Pawlowski and Hoel (2012) and Ozdemir (2017) also highlighted that many educators misunderstood OER, often equating “open” with “free.” Allen and Seaman (2016) confirmed this misconception in their U.S. study, emphasizing that only 5% of courses required openly licensed texts, partly because many instructors lacked knowledge to evaluate OER quality.

Institutional frameworks and faculty attitudes play a pivotal role in OER adoption. Zhang and Li (2019), applying Rogers’ Innovation Diffusion Theory, found that faculty at Zhejiang University recognized OER’s relative advantages but expressed mixed views regarding its complexity. Similarly, Dneprovskaya, Shevtsova and Vacarelu (2024) reported that although university staff supported open sharing, they often viewed OER narrowly as digital content rather than as part of a transformative pedagogical model. Odame (2020) recommended greater integration of LMS platforms within higher education to promote lifelong learning and effective teaching, while Martin-Yeboah (2021) highlighted the need for institutional promotion of repositories to enhance content visibility. Tagoe and Cole (2020) reported low awareness and inconsistent LMS use among Ghanaian faculty, underscoring the importance of ongoing digital literacy initiatives. Across disciplines, Allen and Seaman (2016) observed that awareness was higher in information science than in the social sciences and business, suggesting disciplinary variations in openness to digital learning technologies.



## 2.12 Summary of chapter

Several different theories have been proposed by other academics in this field in an effort to provide an explanation for the concepts and variables found including subheadings such as History of OER, Evolving Perceptions, Student and Teacher Perceptions of OERs, Structure and OER adoption, Culture and OER adoption, Agency and OER adoption, Benefits of OERs to Users, Drawbacks of OERs, The Role of Librarians, OERs Contribution to Ghana. Similar research conducted in the past has also been used as an empirical study. As a result, it was essential for the researcher to examine a few of these theories as well as prior works that contained information on the subject area. Despite the fact that the majority of these works had been published in a variety of settings and contexts, the contribution that they made to the accomplishment of this study is extremely significant.



## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

The approach that was utilized in the research is discussed in this chapter. The research paradigm, research approach, design, and the study setting are some of the concepts that are covered in this section. Among the other aspects are the population, the size of the sample, the methods of sampling, the procedures for collecting data, the presentation of the data, and the analysis. A cross-sectional and explanatory sequential mixed technique was utilized in the research design for this study, which was a mixed method research design.

#### **3.2 Research paradigm**

From the perspective of Shah and Al-Bargi (2013), a paradigm is a fundamental collection of beliefs or a world view that directs researchers in their investigations with regard to the ontology, epistemology, and technique that they choose to employ. In a similar vein, Saunders, Lewis, and Thornhill (2003) defined a paradigm as the core belief system or world view that directs the study, not only in terms of the selection of methods, but also in terms of the fundamental ways in which ontological and epistemological concerns are addressed. The research philosophies of researchers are comprised of fundamental assumptions regarding their worldview. Additionally, the techniques and methodologies that were selected for this research are influenced by the assumptions that are a part of the world view. For the purpose of research philosophy, epistemology, ontology, and axiology are the three most important components. Ontology is concerned with the nature of reality, whereas epistemology is concerned with the knowledge or evidence of social phenomena related to social phenomena (Yucel, 2018).

Therefore, with reference to open educational resources (OERs), the nature of reality would be related to the perceptions of OERs held by respondents in relation to certain study aims. On the other hand, paradigms can be understood as the philosophical foundation of the question that is being posed, as well as the character of the inquiry that is required in order to answer the issue that has been recognized (Ellis, 2010). According to Johnson, Onwuegbuzie, and Turner (2007), the mixed methods design is situated in the middle of two extreme worldviews: the positivists, who believe in one truth or universal truths, and the constructivists or interpretivists, who believe in numerous or relative truths. On the other hand, the mixed methods design is positioned in the middle of these two positions. It may be deduced from this that they are enthusiastic about both quantitative and qualitative designs accordingly. According to Hanson et al., (2005) pragmatists are of the opinion that it is possible to use both qualitative and quantitative research methodologies as part of a single investigation, independent of the circumstances or the setting. The pragmatists, on the other hand, argue that the research question is the most essential factor in determining which philosophical approach to take in the end due to the fact that one method might provide a more satisfactory response to a query than this other method (Dube et al., 2024; Morgan, 2014).

Additionally, pragmatists support both subjective and objective information (Hanson et al., 2020), as well as practices that are deemed to be the most effective and those that are deemed to be the most suitable (Hanson et al., 2020; Saunders et al. 2007) When it comes to mixed-method research, pragmatism is considered to be the foundational principle (Teddle & Tashakkori, 2013). In the mixed methods study, the pragmatic paradigm gave me the option to use a variety of methodologies, different views, and different assumptions. Additionally, it allowed me to collect and analyze data in a variety of different ways. As a result, this research supported the existence of many realities from an ontological standpoint, embraced

both objective and subjective knowledge from an epistemological standpoint, and made use of diverse values from a variety of perspectives according to its axiological assumptions.

### 3.4 Research approach

This study adopted a triangular research approach (mixed method approach) to investigate the use of open educational resources among senior high school teachers in the Cape Coast Metropolis. When examining the same issue, triangulation approach involves the employment of both qualitative and quantitative research approaches (Donkoh & Mensah, 2023). Triangulation advocates believe that the strengths of two methodologies can balance out each other's shortcomings (Rothaermel, 2012; Schoonenboom & Johnson, 2017). The fact that they are complimentary techniques that concentrate on various aspects of the same event, however, necessitates their combination (Schoonenboom & Johnson, 2017).

In the case of the qualitative approach, it is adaptable and may be changed to include fresh problems as they emerge. However, the qualitative approach has drawn criticism for being time-consuming, lacking objectivity, and having issues with analysis and interpretation (Rothaermel, 2012). On the other hand, a quantitative research approach uses data collection and mathematical analysis to describe a phenomenon (Rahman, 2016). Instead of determining or interpreting the motivations behind the acts that led to the outcome, it focuses on the parts of behavior that can be quantified. It emphasizes just how many, just how much, or just how much. The quantitative method is popular due to its objectivity, quickness, economy, and comprehensive coverage. However, the approach is rigid and unsuitable for research using no numerical data. Ary et al. (2013) have criticized the quantitative technique for failing to obtain a much deeper insight of the respondents' behaviors, experiences, and perspectives. It tends to prescribe a picture of the phenomenon since it ignores the common meanings of the social phenomenon (Denzin & Lincoln, 2021).

### 3.5 Research design

This research utilized a mixed method design that included both a cross-sectional and an explanatory sequential approach. An example of a mixed method research design is the explanatory sequential survey design. This form of research is based on the assumption that behavior may be adequately explained by collecting and evaluating several types of data. For the purpose of researching issues, it employs a two-stage methodology. According to Creswell (2013) and Creswell and Creswell (2017), the explanatory sequential mixed method design begins with the collection of quantitative data on the variables that are being investigated at a particular point in time. The variables are then subjected to analysis, and the results of the quantitative analysis are used to inform the type of qualitative data that is required to further explain the reasons for the quantitative results. This is done in order to achieve a more comprehensive outcome by combining the advantages of the other way with the drawbacks of utilizing a single approach (Schoonenboon & Johnson, 2017). According to Ary et al. 2019, several other mixed study designs, such as the convergent parallel and exploratory sequential mixed designs, are also capable of accomplishing the research objectives in an equivalent manner. It was pointed out by Creswell and Creswell (2017) that the explanatory sequential design is comparatively more cost-effective, speedier, and saves time. As opposed to the convergent parallel, which gathers data on all of the research variables, the explanatory sequential only collects qualitative data that feeds directly on the quantitative results. This is the reason why this is the case. Because of this, the design is the most suitable option for providing a clear comprehension of the implications that use of open educational resources (OER) by educators in the schools that have been chosen in the Cape Coast Metropolis.

### 3.6 Study Setting

The physical, social, or experimental setting in which research is carried out is referred to as the research environment (Malodia, Dhir, Hasni & Srivastava, 2023). The study concentrated on usage of open educational resources among senior high school teachers in the Cape Coast Metropolis. This investigation took place in the Cape Coast Metropolis, specifically using Wesley Girls High School, Mfantsipim School Senior High School, Holy Child SHS and St. Augustine senior High School as case studies. The Central Region's capital, Cape Coast was specifically selected as it is the place where formal education in Ghana begun. The four secondary schools were selected as they are all grade (A) schools and have proven records of excellent performance in their final examinations. The selected schools also have massive support from their Old Students, hence, receive gift on educational resources for teaching and learning. Below is a brief description of all the four schools which consist of two male and two female Schools.

### 3.7 Profile of Schools in the Study

This section provides a brief profile of selected senior high schools used in the study, thus Wesley Girls' High School, Mfantsipim School, Holy Child SHS School and St Augustine College.

#### 3.7.1 Wesley Girls' High School

Wesley Girls High School is an all-female secondary school. Wesley Girls' High School was founded by the wife of the 2<sup>nd</sup> Methodist missionary to the Gold Coast, Harriet Wrigley in 1936 with 25 girls. The aim was to give the girls basic training in housekeeping and catechism. Majority of the students who gain admission into the school offer science subjects. Other causes taught are business, visual arts, general arts, home economics and French. The

school has a student's population of about three thousand students as at January, 2023. It has a library with about ten thousand (10,000) teaching and learning materials covering the various subjects taught in the school. The library is being managed by a Teacher-Librarian. The school is known for its excellent academic performance and has produced notable personalities in the country and across the globe.

### **3.7.2 Mfantshipim School**

Mfantshipim School, was the first male Secondary School in the Gold Coast (now Ghana) in 1876 and in 1905 it moved to its present location at Kwabotwe Hill in the northern part of the town, at the top of Kotokoraba road in Cape Coast. The school has turned out some of the country's best known public figures in all walks of life. It has a students' population of about three thousand (3,000) students offering courses such as Pure Science, technical, Visual Science and General Science. It has a school library with about eight thousand (8,000) teaching and learning materials. Mfantshipim School, which is an all-boys school has historic ties with its sister school, then Wesley Girls' High School. The school is affectionately called "The school" by its alums (old boys) due to its historic origin. Mfantshipim School has a Librarian who is in charge of the school Library.

### **3.7.3 Holy Child SHS School**

Holy Child SHS School which is one of the all-female secondary schools in Ghana is in the Cape Coast Metropolis. It was founded by the Society of the Holy Jesus in the year 1946 to provide holistic education to Catholics within the region. The student population is almost three thousand by January 2023 academic. The school has a well-stocked library with three thousand eight hundred and ninety-four (3,894) teaching and learning materials. Some of the

courses offered are General Science, General art, Visual art and home economics. The School has a librarian who is in charge of the Library

#### **3.7.4 S<sup>t</sup> Augustine College**

S<sup>t</sup> Augustine is an all-male boarding senior high school in the Cape Coast Cape Coast Metropolis. The school started at Amissano, a village near Elmina in 1930. The Roman Catholic institution was established to serve as a training college and seminary. The school was named after St Augustine of Hippo (AD 354-430). It has a school library with about six thousand (6,000) teaching and learning materials. The current population stands about three thousand eight hundred (3,800) students. The school has a teacher who doubles as a Librarian who is manning the activities of the library.

#### **3.8 Population of the Study**

According to Sekaran (2010), a target population is defined as all of the individuals who belong to a specific group to whom the inquiry is related. On the other hand, the accessible population is examined in terms of those aspects of the target population that are within the scope of the research. According to Kothari (2012), a population is a collection of instances, individuals, or things of interest that have a characteristic that can be observed by all of them. Participants in this study will include teachers and teacher librarians from senior high schools in the Cape Coast Metropolis, which is located in the Central Region of Ghana. The study will be conducted primarily in Ghana. Five hundred and seventy one teachers, 4 headmasters/ Headmistress, two Teacher Librarians and two School Librarians make up the target population, which brings the total population to 579. Teacher librarians were employed at both Welsy Girls' and St. Augustine. The remaining two schools, on the other hand, did not



have any teacher librarians; hence, only instructors were employed at those academic institutions.

In Table 1, the population distribution of staff and teacher Librarians from the selected Institutions is presented.

**Table 1: Population of the study**

| School                           | Headmaster/<br>Headmistress | Teachers | Teacher<br>Librarian | -<br>School<br>Librarian | Total |
|----------------------------------|-----------------------------|----------|----------------------|--------------------------|-------|
| Wesley Girls' Senior High School | 1                           | 141      | 1                    | 0                        | 143   |
| Mfantsipim School                | 1                           | 192      | 0                    | 1                        | 194   |
| Holy Child SHS School            | 1                           | 113      | 0                    | 1                        | 115   |
| St Augustine College             | 1                           | 125      | 1                    | 0                        | 127   |
| Total                            | 4                           | 571      | 2                    | 2                        | 579   |

**Source: field data survey, (2023)**

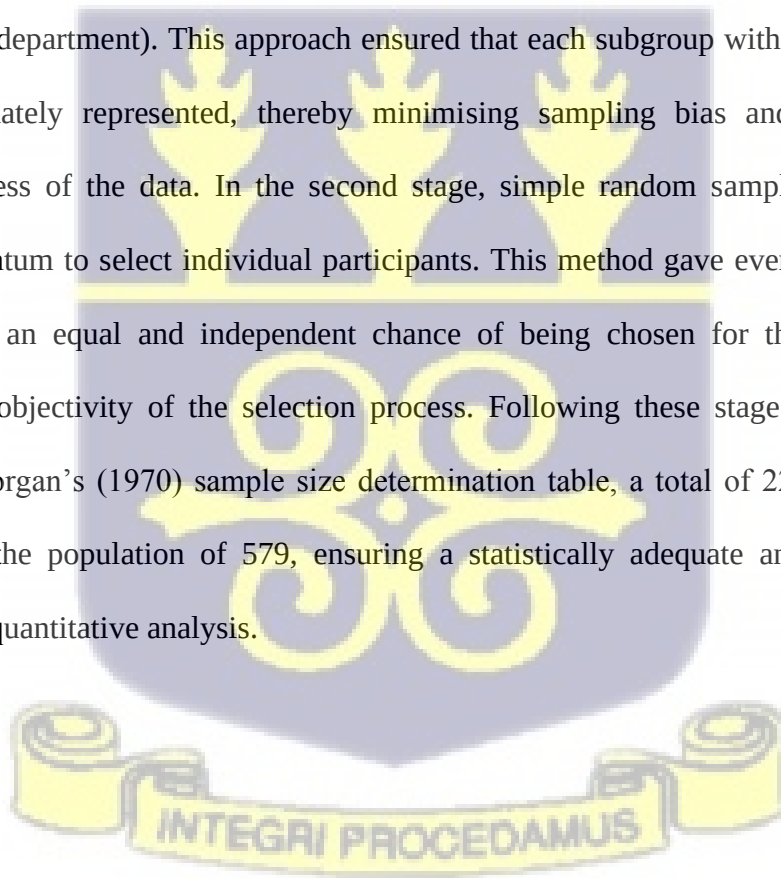
It is interesting to note that two schools, Mfantsipim School and Holy Child SHS have school librarians but no teacher-librarians. Though they do not fall directly under the participants of the study, these two school librarians (Mfantsipim and Holy Child SHS) were interviewed for their views on whether their librarians are custodians of OER materials.

### 3.9 Sample and Sampling Technique

The process of selecting participants for a study is known as sampling. According to Ritchie et al. (2003), when drawing a sample from a population, the process must be conducted carefully to ensure that the selected sample accurately represents the characteristics of the entire population. In this study, the total population comprised 579 teachers, from which a

sample of 226 instructors was drawn across four senior high schools. The sample size was determined using the Krejcie and Morgan (1970) sample size determination table, which is particularly suitable for large populations. This approach was deemed appropriate because the Krejcie and Morgan formula accounts for population heterogeneity, ensuring that even smaller subgroups within the population are adequately represented in the final sample.

In the quantitative phase of the study, a two-stage sampling procedure was employed, thus the stratified sampling followed by simple random sampling to ensure that the sample accurately represented the population of teachers in the selected senior high schools. In the first stage, stratified sampling was used to divide the total population of 579 teachers into meaningful strata based on key characteristics such as school and teaching category (e.g., subject area or department). This approach ensured that each subgroup within the population was proportionately represented, thereby minimising sampling bias and enhancing the representativeness of the data. In the second stage, simple random sampling was applied within each stratum to select individual participants. This method gave every teacher within each subgroup an equal and independent chance of being chosen for the study, further enhancing the objectivity of the selection process. Following these stages and guided by Krejcie and Morgan's (1970) sample size determination table, a total of 226 teachers were selected from the population of 579, ensuring a statistically adequate and representative sample for the quantitative analysis.



**Table 2: Krejcie and Morgan Table**

| <i>N</i> | <i>S</i> | <i>N</i> | <i>S</i> | <i>N</i> | <i>S</i> |
|----------|----------|----------|----------|----------|----------|
| 10       | 10       | 220      | 140      | 1200     | 291      |
| 15       | 14       | 230      | 144      | 1300     | 297      |
| 20       | 19       | 240      | 148      | 1400     | 302      |
| 25       | 24       | 250      | 152      | 1500     | 306      |
| 30       | 28       | 260      | 155      | 1600     | 310      |
| 35       | 32       | 270      | 159      | 1700     | 313      |
| 40       | 36       | 280      | 162      | 1800     | 317      |
| 45       | 40       | 290      | 165      | 1900     | 320      |
| 50       | 44       | 300      | 169      | 2000     | 322      |
| 55       | 48       | 320      | 175      | 2200     | 327      |
| 60       | 52       | 340      | 181      | 2400     | 331      |
| 65       | 56       | 360      | 186      | 2600     | 335      |
| 70       | 59       | 380      | 191      | 2800     | 338      |
| 75       | 63       | 400      | 196      | 3000     | 341      |
| 80       | 66       | 420      | 201      | 3500     | 346      |
| 85       | 70       | 440      | 205      | 4000     | 351      |
| 90       | 73       | 460      | 210      | 4500     | 354      |
| 95       | 76       | 480      | 214      | 5000     | 357      |
| 100      | 80       | 500      | 217      | 6000     | 361      |
| 110      | 86       | 550      | 226      | 7000     | 364      |
| 120      | 92       | 600      | 234      | 8000     | 367      |
| 130      | 97       | 650      | 242      | 9000     | 368      |
| 140      | 103      | 700      | 248      | 10000    | 370      |
| 150      | 108      | 750      | 254      | 15000    | 375      |
| 160      | 113      | 800      | 260      | 20000    | 377      |
| 170      | 118      | 850      | 265      | 30000    | 379      |
| 180      | 123      | 900      | 269      | 40000    | 380      |
| 190      | 127      | 950      | 274      | 50000    | 381      |
| 200      | 132      | 1000     | 278      | 75000    | 382      |
| 210      | 136      | 1100     | 285      | 100000   | 384      |

Note. — *N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

**Source: field data survey, (2023)**

The table is constructed using the formulae for the determining sample size

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

*S* = required sample size.

*X*<sup>2</sup> = the table value of chi-square for 1 degree of freedom at the desired confidence level (3.841).

*N* = the population size.

*P* = the population proportion (assumed to be .50 since this would provide the maximum sample size).

*d* = the degree of accuracy expressed as a proportion (.05)

**Table 3: Sample Size**

| School                           | Sampled teachers (n) | % of sample (n=226) | Estimated school population | Sampling fraction (sample/population) |
|----------------------------------|----------------------|---------------------|-----------------------------|---------------------------------------|
| Wesley Girls' Senior High School | 57                   | 25%                 | 145 (0.25 × 579)            | 57 / 145 = 0.393 (39.3%)              |
| Mfantshipim School               | 77                   | 34%                 | 197 (0.34 × 579)            | 77 / 197 = 0.391 (39.1%)              |
| Holy Child SHS                   | 45                   | 20%                 | 116 (0.20 × 579)            | 45 / 116 = 0.388 (38.8%)              |
| St Augustine College             | 47                   | 21%                 | 121 (0.21 × 579)            | 47 / 121 = 0.388 (38.8%)              |
| Total                            | 226                  | 100%                | 579                         | —                                     |

**Source: field data survey, (2023)**

On the qualitative side, qualitative methodologists are widely in agreement that the purposive sampling methodology continues to be the most appropriate method for qualitative research (Rahman, 2016; Hassall & Lewis, 2017). This is due to the fact that it confers upon the researcher the ability to strategically select individuals who are readily available and possess a substantial amount of industrial experience in order to take part in the study. According to Sarantako (2013), who said that when selecting participants for a qualitative study, a particular set of people who are more knowledgeable and can supply rich data can be purposefully picked for the study, this is in agreement with what he said. It is recommended by Eisenhardt (1989) that qualitative studies perform well with sample cases ranging from four (4) to ten (10). This is despite the fact that there is no commonly agreed minimum sample that is adequate for a qualitative study. As a result, a technique known as purposive sampling was utilized in order to pick one (1) Headmaster/Headmistress of Academics from each of the senior high schools that were chosen, as well as two (2) teacher Librarians from both Wesley Girls Senior High School and St. Augustine College, in order to take part in the

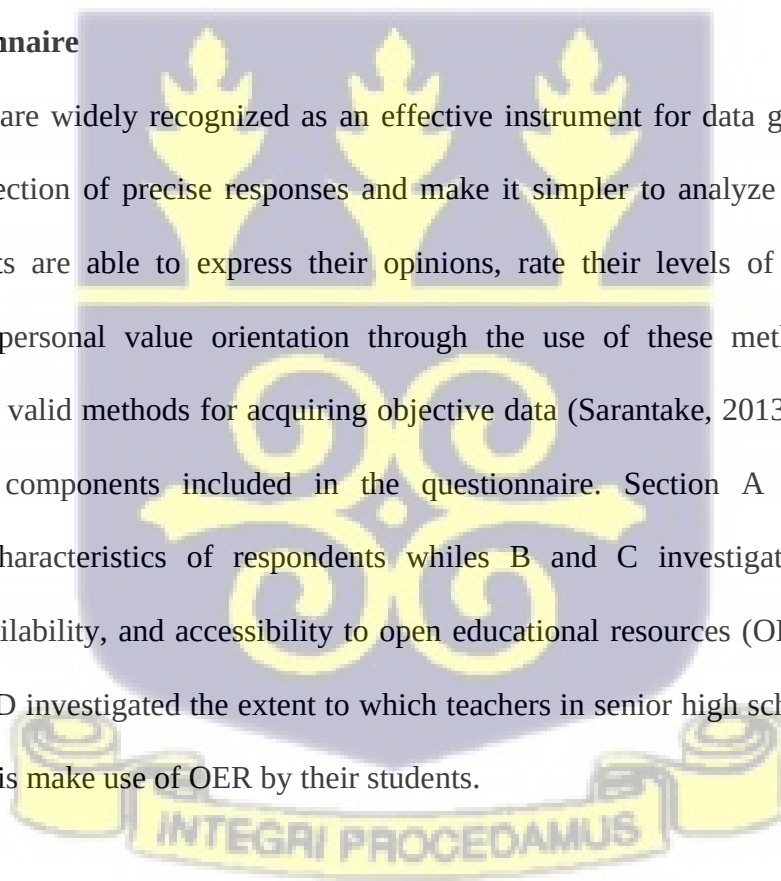
in-depth interview. Despite the fact that Holy Child SHS and Mfantshipim School do not have teacher librarians but rather school librarians, these two schools were included in the interview because they disclosed additional information regarding the role that their libraries play in giving access to open educational resources (OER). All eight (8) of the participants were subjected to an interview.

### **3.10 Data Collection Instruments**

The semi-structured interview guide and the survey questionnaire were the instruments that were utilised in this study for the purpose of data collection by the researchers.

#### **3.10.1 Questionnaire**

Questionnaires are widely recognized as an effective instrument for data gathering, as they enable the collection of precise responses and make it simpler to analyze those responses. The respondents are able to express their opinions, rate their levels of knowledge, and evaluate their personal value orientation through the use of these methods, which are dependable and valid methods for acquiring objective data (Sarantake, 2013). There are four (4) structured components included in the questionnaire. Section A focused on the demographic characteristics of respondents whiles B and C investigated the level of knowledge, availability, and accessibility to open educational resources (OER) respectively. Lastly, section D investigated the extent to which teachers in senior high schools in the Cape Coast Metropolis make use of OER by their students.



### **3.10.2 Reliability and Validity of Questionnaire**

#### **3.10.2.1 Reliability**

Research reliability pertains to the ability of research procedures to consistently replicate identical results on several occasions. If your research methods are capable of generating consistent outcomes, then it is probable that the procedures are dependable and not susceptible to external influences. This essential information can assist you in assessing the accuracy of your research methods in collecting data that can be utilized to substantiate subsequent work in a study.

#### **3.10.2.2 Validity**

The validity of a research instrument is the extent to which the instrument elicits the accurate response needed for the study. In order to ensure the validity of the research instrument, the instrument was designed to reflect the research questions. The items were then given to friends to make the necessary corrections. Sarantakos (2006) indicates that validation of an instrument is improved through expert judgment. Hence the corrected version was later given to seasoned lecturers to make comments such as language difficulty, ambiguity of words and the fact that certain items may not address the research questions

#### **3.10.3 Interviews**

All eight (8) interview participants availed themselves for the interview. Interviews provide a structured way for interviewer and interviewee to meet and decide a suitable decision for a particular study. This makes them a valuable part of the overall study process. For the purpose of supplementing the questionnaire, the semi-structured interview guide was utilized to obtain data from Heads and teacher librarians. Because of this, the collection of data was able to cover all of the research objectives that were included in this study. According to

Schoonenboom and Johnson (2017), this gave the heads of the libraries and the teaching librarians the opportunity to freely express their perspectives on the study issues by drawing on their own personal experiences and body of knowledge. According to Creswell and Creswell (2017), semi-structured interviews offer a more expedient method of collecting qualitative data. Additionally, they give the researcher with the chance to acquire historical data without compromising their ability to manage the lines of questions. On account of its high degree of adaptability, as well as its capacity to provide fast response and comprehensive comprehension, an interview is highly regarded. Creswell and Clark (2017) state that this is possible due to the fact that explanations and misunderstandings can be resolved immediately. In total, there were five primary portions that comprised the interview program. The respondents' background information was acquired in Section A of the questionnaire.

The subsequent sections looked at awareness, availability and accessibility of OER, the extent of use of OER, the level of adaptability and customization and extent of collaborations and sharing of OER, policies and guidelines that relates with the use of OER among senior high teachers and the two teacher librarians in the Cape Coast Metropolis. With regard to the teacher librarians, the study retrieved data on their roles in propagating the idea of open educational resources, selection practices and storage of open educational resources.

### **3.11 Trustworthiness**

The term "trustworthiness" refers to the quality and credibility of your qualitative data, whereas the term "rigor" refers to the correctness and precision of your quantitative data. Increasing your trustworthiness can be accomplished through the utilization of many methods, including triangulation, member verification, reflexivity, and audit trail. There are particular research methods that researchers engage in, and these procedures build credibility



inside their study activity as well as in their documents. When determining whether or not something is trustworthy, Lincoln and Guba (1985) use four general criteria as their basis. Credibility, transferability, reliability, and confirmability are the four characteristics under question. Increasing the credibility of qualitative research can be accomplished through the use of a variety of methods, including triangulation, prolonged engagement with data, persistent observation, negative case analysis, member checks, and referential adequacy.

### **3.12 Authenticity**

The term "authenticity" refers to the extent to which researchers facilitate change across participants and systems during the course of their analysis, as well as the degree to which they capture the various viewpoints and values of the people who participated in their study. Increasing the credibility of qualitative research can be accomplished through the use of a variety of methods, including triangulation, prolonged engagement with data, persistent observation, negative case analysis, member checks, and referential adequacy. Authenticity criteria are standards that are used to evaluate qualitative research in terms of its quality, reliability, validity, and level of rigor. The trustworthiness criteria can be contrasted with these criteria on the basis of foundational reasons.

### **3.13 Data collection procedure**

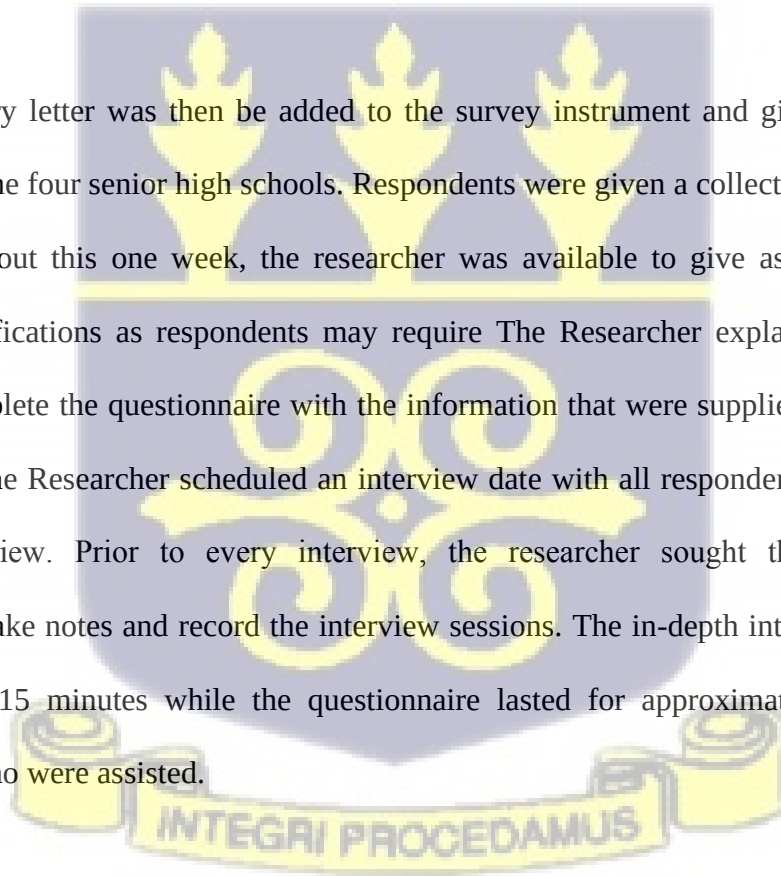
The study acquired an introductory letter from the Department of Information Studies, University of Ghana and gave to the Heads of Academics in the four selected senior high schools. The head then sent a memo to all teachers and teacher Librarians in the four senior high school to create awareness about the details and intent of the study. The researcher subsequently had an appointment with teachers and teacher Librarians that were involved in the study. Potential respondents were assured of confidentiality and were given the



opportunity to accept to participate or opt out from the study. In the main study, the questionnaire was administered by the researcher to all teachers and teacher librarians to solicit their views on the study.

The researcher scheduled a date with all the four headmasters/ Headmistresses Academics and two teacher Librarians to conduct an in-depth interview. Prior to every interview, the researcher sought the interviewee's permission to take notes and record the interview sessions. The in-depth interview lasted for approximately 15 minutes while answering the questionnaire lasted for approximately 20 minutes. Potential participants were assured of confidentiality and they were given the opportunity to willingly accept to participate or opt-out from participating. Those willing to participate were considered as the participants for this study.

The introductory letter was then be added to the survey instrument and given to Heads of Academics in the four senior high schools. Respondents were given a collection period of one week. Throughout this one week, the researcher was available to give assistance and the necessary clarifications as respondents may require The Researcher explained the various items and complete the questionnaire with the information that were supplied by the various respondents. The Researcher scheduled an interview date with all respondents to conduct an in-depth interview. Prior to every interview, the researcher sought the interviewee's permission to take notes and record the interview sessions. The in-depth interview lasted for approximately 15 minutes while the questionnaire lasted for approximately 20 minutes, except those who were assisted.



### **3.14 Presentation of data and analysis**

The analysis of the study started with the collection of quantitative survey responses, which investigated the relationship between the many factors that were being investigated. The

outcome was utilized for the purpose of gathering qualitative data in order to investigate the causes of convergence and divergence. As Creswell and Clarke (2017) had hypothesized, this served to provide a better explanation of the quantitative finding that was obtained.

#### **3.14.1 Analysis of the In-depth Interview**

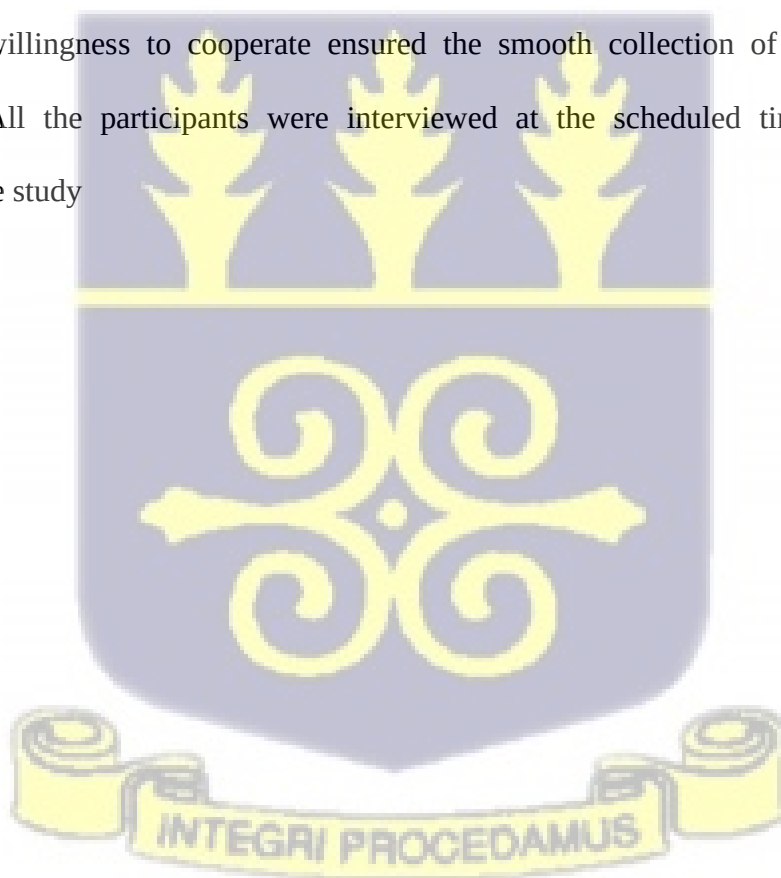
The data obtained from the in-depth interview were subjected to thematic analysis in order to investigate the themes that were present within the overall data collected. Following the transcription of the data, it was categorized into recurring themes. After then, content analysis was carried out on a number of different topics. This assisted the researcher in recognizing the connections between the numerous themes, which ultimately led to the development of a conclusion that was well-grounded.

#### **3.14.2 Analysis of the Quantitative Study**

Edits were made to the data that was collected from the field in order to eliminate errors and guarantee consistency. The items on the questionnaire were examined to ensure that they are complete and relevant to the research. After editing, closed-ended items from the questionnaire concerning the variables under investigation were coded in SPSS using a seven-point rating scale, with 1 being the least amount of agreement and 7 representing the highest level of agreement. For the purpose of capturing the data that was provided, the Statistical Package for Service Sciences (SPSS) 20 software was utilized. After that, the data was converted into a Comma Separated Values File (.CSV) format in Microsoft Excel, and then it was sent to SPSS for further analysis. Cross tabulation focusing on frequencies, percentages, mean and standard deviations were utilized in the analysis of the data.

### 3.15 Ethical Considerations

Ethical issues about the study were all addressed in line with the prescribed standards of social science research. During both the review and the analysis processes, all cited works were duly acknowledged to avoid plagiarism. During the data collection processes, participants were not in any way deceived about the purpose and the impact of the work. Thus, data presented by the respondents were objectively analyzed and presented without any massaging or falsification of any part of the data to suit the desired interest of the researcher. An introductory letter was collected from the Department of Information Studies of University of Ghana to the selected Secondary Schools for Permissions to conduct the study. Also, permission of the heads of the selected schools were sought before data collection begun. Their willingness to cooperate ensured the smooth collection of data and active participation. All the participants were interviewed at the scheduled time and location allocated for the study



## CHAPTER FOUR

### PRESENTATION AND ANALYSIS OF DATA

#### 4.1 Introduction

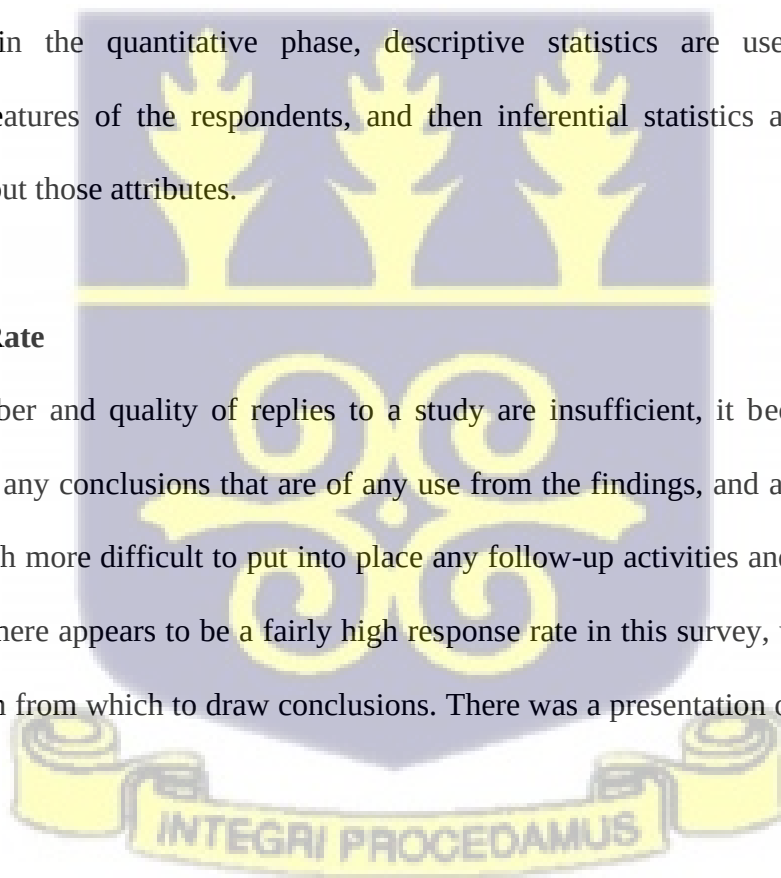
This chapter offers the findings, analysis, and interpretation of quantitative and qualitative data for teachers and teacher-Librarians working in some selected senior high schools in the Cape Coast Metropolis. There are two stages in presenting data for the study. The first phase consists of the presentation of quantitative data, while the second phase is devoted to the description of the qualitative investigation.

#### 4.2 Phase One: Quantitative Results

To begin the quantitative phase, descriptive statistics are used to show the demographic features of the respondents, and then inferential statistics are used to draw conclusions about those attributes.

#### 4.3 Response Rate

When the number and quality of replies to a study are insufficient, it becomes extremely tough to derive any conclusions that are of any use from the findings, and as a consequence, it becomes much more difficult to put into place any follow-up activities and procedures that are effective. There appears to be a fairly high response rate in this survey, which provides a solid foundation from which to draw conclusions. There was a presentation of the outcome in Table 4.1.



**Table 4.1: Response Rate**

| Survey Response     | Frequency  | Percentage |
|---------------------|------------|------------|
| Completed Survey    | 226        | 100        |
| In completed Survey | 0          | 0          |
| No response         | 0          | 0          |
| <b>Total</b>        | <b>226</b> | <b>100</b> |

Table 4.1 depicts how the responses to the survey were retrieved. It shows that 226 respondents' questionnaire representing 100% were retrieved.

#### 4.4 Response from the Secondary Schools

This study seems to have a very high response from each school indicating their willingness and acceptance of the study topic. The result is presented in Table 4. 2.

**Table 4.2: Responses From Schools**

| School                           | Frequency  | Percentage (%) |
|----------------------------------|------------|----------------|
| Wesley Girls' Senior High School | 57         | 25             |
| Mfantsipim School                | 77         | 34             |
| Holy Child SHS                   | 45         | 20             |
| S <sup>t</sup> Augustine College | 47         | 21             |
| <b>Total</b>                     | <b>226</b> | <b>100</b>     |

**Source: Field Data Survey, (2023)**

Table 2 depicts how the responses from each school to the survey were retrieved. Majority of the participant were from Mfantsipim School. They were 77 representing 34% of the study participants. They were followed by Wesley Girls' School, who were 57 representing 25%. On the other hand, S<sup>t</sup> Augustine and Holy Child SHS came with 47 and 45 with 21% and 20% respectively.

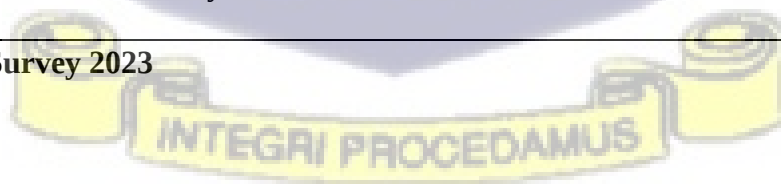
#### 4.5 Demographic characteristics

A determination of the nature of the respondents and the establishment of linkages with the theoretical constructs of the study were both accomplished through the utilization of the demographic characteristics obtained. Table 4.3 presents the demographic characteristics of the respondents from the schools.

**Table 4.3: Demographic Factors**

| Demographic Factors | Category        | Frequency | Percentage |
|---------------------|-----------------|-----------|------------|
| Gender              | Male            | 170       | 75.22      |
|                     | Female          | 56        | 24.78      |
| Age                 | 20 – 29 years   | 17        | 7.52       |
|                     | 30 – 39 years   | 94        | 41.59      |
|                     | 40 – 49 years   | 85        | 37.61      |
|                     | Above 50        | 30        | 13.27      |
| Level of Education  | 1st Degree      | 144       | 63.7       |
|                     | Master's Degree | 80        | 35.39      |
|                     | PhD             | 2         | 0.88       |
| Teaching Experience | Below 10 years  | 97        | 42.92      |
|                     | Over 10 years   | 129       | 57.08      |

**Source: Field Survey 2023**



#### **4.5.1 Gender**

The respondents consisted of 170 males and 56 females, with the former accounting for 75.22% of the total respondents and the latter for 24.78% of the total respondents. A greater number of males than females responded to the questions. This is in line with the finding that males make up the majority of the population in the institutions that are being studied.

#### **4.5.2 Age**

Individuals who were between the ages of 30 and 39 made up the majority of the responses. The group of people aged 40 to 49 years old, which accounted for 37.61% of the total respondents, came in second. The age group of 20 to 29 years old was the last to answer, with 17 individuals representing 7.52% of the total respondents. The respondents had a mean age of 56.5 years during the survey. The fact that instructors are mature and fall inside the middle adulthood bracket is demonstrated by this.

#### **4.5.3 Level of Education**

The majority of the respondents, which accounts for 64.60 percent of the total, have earned a first degree. This was followed by 35.39 percent of individuals who held a master's degree. There were just two people who held a PhD, which is 0.88%. In research that were conducted on open educational resources (OERs), it was discovered that first-degree holders had insufficient understanding about OERs (BCG 2013). Therefore, it was essential to discover this information.

#### **4.5.4 Teaching experience**

It is essential to investigate the teaching experience of respondents at their various educational institutions in order to determine the extent to which this influences their

adoption and utilization of open educational resources (OERs). In terms of the respondents' teaching experience, it was found that 42.92 percent of them had worked for less than ten years, while 57 percent had been employed for more than ten years. It can be deduced from this that the bulk of the respondents had prior experience and offered information that can be relied upon.

#### **4.6 Descriptive Statistics**

As a way of providing answers to the research questions, this section of the results provides an analysis of the descriptive statistics of all of the items in the study that were closed-ended. The goal of this analysis is to determine the means and standard deviations of the items. On a scale that ranged from 1 (strongly disagree) to 2 (disagree), 3 (neutral), 4 (agree), and 5 (strongly agree), all of the means may be found on the Likert scale. While the mean was utilized to provide a summary of the information provided by the teachers, the standard deviation was utilized to determine whether or not the responses provided by the teachers were distributed or clustered towards the mean. According to the mean, neutrality or indifference is indicated when it falls between 3.0 and 3.4. An item in a construct is considered to be in agreement with the teacher when the mean score is 3.5 or higher. On the other hand, a mean score of 2.99 or lower indicates that the instructor is not in agreement with the items. When it comes to the standard deviation, a deviation that is relatively minimal, that is, when it falls within the range of 1, indicates that the responses of the teachers are similar or related. If, on the other hand, the deviation is quite big, that is, greater than 1.5, it indicates that the responses of the teachers are diverse or distributed on the opinions that are voiced. To put it another way, the teacher in question does not agree with the conclusion that was made regarding the matter or does not have the same ideals.



#### 4.6.1 Correlation Analysis

The study also aimed to investigate the relationship between usage of OER and its dimensions (access, permission, awareness, capacity, availability and volition). Pearson product-moment correlation analysis was conducted to that effect. Preliminary analyses were performed to ensure homoscedasticity. The findings are presented in Table 4.4.

**Table 4.4: Correlation matrix**

| Variables    | Usage             | Access            | Permission        | Awareness         | Capacity         | Availability     | Volition |
|--------------|-------------------|-------------------|-------------------|-------------------|------------------|------------------|----------|
| Usage        | 1.000             |                   |                   |                   |                  |                  |          |
| Access       | -0.270<br>(0.000) | 1.000             |                   |                   |                  |                  |          |
| Permission   | 0.598<br>(0.000)  | -0.280<br>(0.000) | 1.000             |                   |                  |                  |          |
| Awareness    | 0.047<br>(0.482)  | 0.066<br>(0.322)  | -0.062<br>(0.353) | 1.000             |                  |                  |          |
| Capacity     | -0.477<br>(0.000) | -0.324<br>(0.000) | -0.295<br>(0.000) | 0.161<br>(0.016)  | 1.000            |                  |          |
| Availability | -0.711<br>(0.000) | 0.103<br>(0.124)  | -0.216<br>(0.001) | -0.111<br>(0.097) | 0.333<br>(0.000) | 1.000            |          |
| Volition     | -0.266<br>(0.000) | -0.242<br>(0.000) | 0.077<br>(0.251)  | 0.005<br>(0.936)  | 0.370<br>(0.000) | 0.336<br>(0.000) | 1.000    |

**Source: Field Survey (2023)**

The correlation results presented in Table 4.4 show the relationships between OER (Open Educational Resources) usage and its various dimensions, namely access, permission, awareness, capacity, availability, and volition. The coefficients provide insights into how these factors interact and influence the extent to which OER is utilized among respondents. The findings indicate that OER usage has a significant negative correlation with access ( $r = -0.270$ ,  $p < 0.01$ ), suggesting that as access barriers such as poor internet connectivity, limited infrastructure, or restricted digital resources increase, the use of OER declines. This implies that improved access conditions could enhance OER utilization, whereas limited access acts as a major constraint. In contrast, there is a strong positive correlation between usage and

permission ( $r = 0.598$ ,  $p < 0.01$ ), showing that when teachers have clear rights to adapt, reuse, and share educational materials, their likelihood of using OER increases significantly. This highlights the importance of institutional policies and open licensing systems, such as Creative Commons, in promoting OER adoption.

The relationship between usage and awareness is positive but weak ( $r = 0.047$ ,  $p > 0.05$ ), implying that awareness alone does not necessarily translate into active use of OER. Although teachers may know about OER, they might lack sufficient understanding of how to integrate these resources effectively into teaching and learning practices. Furthermore, capacity ( $r = -0.477$ ,  $p < 0.01$ ) and availability ( $r = -0.711$ ,  $p < 0.01$ ) both show strong negative correlations with OER usage. This suggests that while OER materials and training opportunities may exist, teachers' ability to utilize them effectively is limited by factors such as inadequate digital skills, insufficient institutional support, or lack of access to appropriate technologies. The negative correlation with availability also indicates that having many OER materials available does not necessarily lead to higher usage, especially if the materials are not relevant or user-friendly. Lastly, volition shows a negative but significant correlation with usage ( $r = -0.266$ ,  $p < 0.01$ ), indicating that teachers' motivation or willingness alone does not guarantee the effective use of OER unless it is supported by enabling conditions such as training, infrastructure, and institutional encouragement. In summary, the results point to a complex relationship between OER usage and its dimensions. While permission positively influences use, other factors particularly access, capacity, availability and volition act as constraints. Therefore, increasing OER utilization among teachers requires a comprehensive approach that improves access to resources, strengthens digital and pedagogical capacity, ensures contextual relevance of materials, and establishes institutional frameworks that support and encourage OER integration into teaching.

#### **4.7 Current level of access teachers have to OER materials in the selected institutions**

The first objective sought to assess the current level of access teachers have to OER materials in the selected institutions. The results were discussed using means and standard deviation. A mean of 3.5 and above indicates respondents' agreement with the factors while a mean of 2.9 and below indicates respondents' disagreement with the statement. The respondents rated the various statements using a five-point Likert scale which is provided as; 1= strongly disagree, 2= disagree, 3= neutral, 4= agree, 5= strongly agree. The results are presented in the Table 4.5 below.



**Table 4.5: Access to use OER Access**

| Variable                                                                   | Institution             | 5          | 4          | 3          | 2          | 1          | Mean | Std. D. | Total Mean |
|----------------------------------------------------------------------------|-------------------------|------------|------------|------------|------------|------------|------|---------|------------|
| <b>The available license and copyright facilities usage of OER</b>         | Wesley Girls' SHS       | 5 (8.8%)   | 27 (47.4%) | 17 (29.8%) | 7 (12.3%)  | 1 (1.8%)   | 3.75 | 1.53    |            |
|                                                                            | Mfantsipim School       | 10 (13.0%) | 35 (45.5%) | 19 (24.7%) | 10 (13.0%) | 3 (3.9%)   | 3.51 | 1.47    | 3.56       |
|                                                                            | Holy Child SHS          | 6 (13.3%)  | 17 (37.8%) | 16 (35.6%) | 4 (8.9%)   | 2 (4.4%)   | 3.47 | 1.41    |            |
|                                                                            | St. Augustine College   | 9 (19.1%)  | 15 (31.9%) | 16 (34.0%) | 6 (12.8%)  | 1 (2.1%)   | 3.52 | 1.39    |            |
| <b>There is proper infrastructure in place to facilitate OER access</b>    | Wesley Girls' SHS       | 4 (7.0%)   | 18 (31.6%) | 16 (28.1%) | 17 (29.8%) | 2 (3.5%)   | 3.82 | 1.26    |            |
|                                                                            | Mfantsipim School       | 12 (15.6%) | 25 (32.5%) | 14 (18.2%) | 21 (27.3%) | 5 (6.5%)   | 3.23 | 1.36    | 3.31       |
|                                                                            | Holy Child SHS          | 5 (11.1%)  | 15 (33.3%) | 11 (24.4%) | 10 (22.2%) | 4 (8.9%)   | 3.16 | 1.32    |            |
|                                                                            | St. Augustine College   | 7 (14.9%)  | 13 (27.7%) | 8 (17.0%)  | 15 (31.9%) | 4 (8.5%)   | 3.05 | 1.29    |            |
| <b>OER are localized through languages that are easily understandable</b>  | Wesley Girls' SHS       | 8 (14.0%)  | 23 (40.4%) | 16 (28.1%) | 7 (12.3%)  | 3 (5.3%)   | 3.14 | 1.28    |            |
|                                                                            | Mfantsipim School       | 19 (24.7%) | 30 (39.0%) | 19 (24.7%) | 7 (9.1%)   | 2 (2.6%)   | 3.73 | 1.22    | 3.42       |
|                                                                            | Holy Child SHS          | 9 (20.0%)  | 14 (31.1%) | 13 (28.9%) | 6 (13.3%)  | 3 (6.7%)   | 3.35 | 1.27    |            |
|                                                                            | St. Augustine's College | 8 (17.0%)  | 18 (38.3%) | 11 (23.4%) | 7 (14.9%)  | 3 (6.4%)   | 3.45 | 1.21    |            |
| <b>There is massive awareness and promotion in accessing OER materials</b> | Wesley Girls' SHS       | 7 (12.3%)  | 16 (28.1%) | 10 (17.5%) | 21 (36.8%) | 3 (5.3%)   | 3.24 | 1.24    |            |
|                                                                            | Mfantsipim School       | 9 (11.7%)  | 24 (31.2%) | 18 (23.4%) | 16 (20.8%) | 10 (13.0%) | 3.35 | 1.29    | 3.17       |
|                                                                            | Holy Child SHS          | 7 (15.6%)  | 11 (24.4%) | 10 (22.2%) | 14 (31.1%) | 3 (6.7%)   | 3.11 | 1.25    |            |
|                                                                            | St. Augustine's College | 2 (4.3%)   | 11 (23.4%) | 15 (31.9%) | 14 (29.8%) | 5 (10.6%)  | 2.97 | 1.32    |            |
| <b>The school has institutional support for policies on OER</b>            | Wesley Girls' SHS       | 3 (5.3%)   | 22 (38.6%) | 15 (26.3%) | 14 (24.6%) | 3 (5.3%)   | 3.29 | 1.35    |            |
|                                                                            | Mfantsipim School       | 11 (14.3%) | 23 (29.9%) | 22 (28.6%) | 15 (19.5%) | 6 (7.8%)   | 3.47 | 1.33    | 3.28       |
|                                                                            | Holy Child SHS          | 6 (13.3%)  | 10 (22.2%) | 17 (37.8%) | 9 (20.0%)  | 3 (6.7%)   | 3.17 | 1.29    |            |
|                                                                            | St. Augustine's College | 5 (10.6%)  | 14 (29.8%) | 12 (25.5%) | 14 (29.8%) | 2 (4.3%)   | 3.18 | 1.26    |            |
| <b>There is funding to sustain OER in my school</b>                        | Wesley Girls' SHS       | 6 (10.5%)  | 5 (8.8%)   | 17 (29.8%) | 19 (33.3%) | 10 (17.5%) | 3.76 | 1.39    |            |
|                                                                            | Mfantsipim School       | 12 (15.6%) | 12 (15.6%) | 19 (24.7%) | 15 (19.5%) | 19 (24.7%) | 3.35 | 1.41    | 3.41       |
|                                                                            | Holy Child SHS          | 3 (6.7%)   | 10 (22.2%) | 13 (28.9%) | 11 (24.4%) | 8 (17.8%)  | 3.21 | 1.36    |            |
|                                                                            | St. Augustine's College | 5 (10.6%)  | 11 (23.4%) | 17 (36.2%) | 8 (17.0%)  | 6 (12.8%)  | 3.31 | 1.33    |            |

Source: Field Survey, (2023)

In the survey, respondents were asked about their perspectives on the availability of open educational resources (OER) in the schools that were chosen. As stated by the mean and standard deviation ( $M = 3.31$ ;  $SD = 1.30$ ), the findings demonstrated that the majority of the respondents were in agreement with the assertion that there is sufficient technical infrastructure required for accessing and exploiting open educational resources (OER). The purpose of the study was to gather the opinions of respondents regarding whether or not the digital literacy of instructors and students makes it easier for them to use open educational resources (OER) at the selected schools. As demonstrated by the mean and standard deviation score of ( $M = 3.56$ ;  $SD = 1.47$ ), it was found that the majority of respondents felt that the availability of license and copyright facilities enhances their ability to effectively use OER.

During the training and utilization of open educational resources (OER), the respondents were asked to indicate whether or not there is sufficient time and support allotted to both teachers and students. The majority of respondents were found to be in agreement with the assertion that the organizational structure provides for both vertical and horizontal communication. The mean and standard deviation score for this statement was determined to be ( $M = 3.28$ ;  $SD = 1.31$ ). The results of the survey are presented in Table 4.4, which reveals that the majority of respondents are in agreement that there is awareness and promotion in accessing open educational resource (OER) materials. The mean and standard deviation score for this survey are ( $M = 3.17$ ;  $SD = 1.28$ ), respectively.

Finally, the study sought to ascertain whether there are platforms for teachers and students to collaborate in the use of OER. A majority of the respondents, with a mean and standard deviation score of ( $M = 3.41$ ;  $SD = 1.37$ ), strongly agreed with the statement that the organizational structure and funding systems in place allow for the timely implementation and sustainability of OER in the selected schools. The study further sought to examine permission to use OER materials at the selected schools. The results were presented using

mean and standard deviation. A mean of 3.0 and above indicates respondents' agreement with the factors while a mean of 2.9 and below indicates respondents' disagreement with the statement. The results are presented in Table 4.6.



**Table 4.6: Permission to Use OER**

| Item                                                                                                                    | Institution             | 5          | 4          | 3          | 2         | 1        | Mean | Std. D. | Total Mean |
|-------------------------------------------------------------------------------------------------------------------------|-------------------------|------------|------------|------------|-----------|----------|------|---------|------------|
| <b>Flexible copyright exemptions or fair use rules may make producing and distributing OER easier</b>                   | Wesley Girls' SHS       | 13 (22.8%) | 27 (47.4%) | 9 (15.8%)  | 5 (8.8%)  | 3 (5.3%) | 3.30 | 1.06    |            |
|                                                                                                                         | Mfantsipim School       | 22 (28.6%) | 35 (45.5%) | 14 (18.2%) | 5 (6.5%)  | 1 (1.3%) | 3.36 | 0.98    | 3.36       |
|                                                                                                                         | Holy Child SHS          | 10 (22.2%) | 21 (46.7%) | 7 (15.6%)  | 5 (11.1%) | 2 (4.4%) | 3.29 | 1.02    |            |
|                                                                                                                         | St. Augustine's College | 14 (29.8%) | 18 (38.3%) | 13 (27.7%) | 2 (4.3%)  | 0 (0%)   | 3.47 | 0.91    |            |
| <b>The ability of licenses to work with other OER or proprietary materials is a crucial consideration</b>               | Wesley Girls' SHS       | 6 (10.5%)  | 32 (56.1%) | 11 (19.3%) | 6 (10.5%) | 2 (3.5%) | 3.82 | 0.52    |            |
|                                                                                                                         | Mfantsipim School       | 16 (20.8%) | 34 (44.2%) | 17 (22.1%) | 8 (10.4%) | 2 (2.6%) | 3.70 | 0.60    | 3.74       |
|                                                                                                                         | Holy Child SHS          | 14 (31.1%) | 15 (33.3%) | 8 (17.8%)  | 6 (13.3%) | 2 (4.4%) | 3.74 | 0.58    |            |
|                                                                                                                         | St. Augustine's College | 11 (23.4%) | 15 (31.9%) | 17 (36.2%) | 4 (8.5%)  | 0 (0%)   | 3.70 | 0.61    |            |
| <b>Licenses that allow modification and adaptation of OER to meet educational needs impact the permission dimension</b> | Wesley Girls' SHS       | 6 (10.5%)  | 31 (54.4%) | 16 (28.1%) | 4 (7.0%)  | 0 (0%)   | 3.58 | 0.86    |            |
|                                                                                                                         | Mfantsipim School       | 23 (29.9%) | 30 (39.0%) | 21 (27.3%) | 2 (2.6%)  | 1 (1.3%) | 3.80 | 0.78    | 3.66       |
|                                                                                                                         | Holy Child SHS          | 9 (20.0%)  | 14 (31.1%) | 17 (37.8%) | 3 (6.7%)  | 2 (4.4%) | 3.56 | 0.82    |            |
|                                                                                                                         | St. Augustine's College | 10 (21.3%) | 21 (44.7%) | 12 (25.5%) | 4 (8.5%)  | 0 (0%)   | 3.70 | 0.80    |            |
| <b>Respecting the permissions dimension requires adherence to attribution criteria</b>                                  | Wesley Girls' SHS       | 7 (12.3%)  | 31 (54.4%) | 12 (21.1%) | 6 (10.5%) | 1 (1.8%) | 3.60 | 0.73    |            |
|                                                                                                                         | Mfantsipim School       | 12 (15.6%) | 39 (50.6%) | 21 (27.3%) | 5 (6.5%)  | 0 (0%)   | 3.75 | 0.69    | 3.76       |
|                                                                                                                         | Holy Child SHS          | 13 (28.9%) | 18 (40.0%) | 9 (20.0%)  | 3 (6.7%)  | 2 (4.4%) | 3.78 | 0.72    |            |
|                                                                                                                         | St. Augustine's College | 10 (21.3%) | 24 (51.1%) | 13 (27.7%) | 0 (0%)    | 0 (0%)   | 3.90 | 0.70    |            |
| <b>Licensing consistency with institutional values and culture is crucial</b>                                           | Wesley Girls' SHS       | 9 (15.8%)  | 33 (57.9%) | 8 (14.0%)  | 6 (10.5%) | 1 (1.8%) | 3.88 | 0.56    |            |
|                                                                                                                         | Mfantsipim School       | 24 (31.2%) | 28 (36.4%) | 18 (23.4%) | 6 (7.8%)  | 1 (1.3%) | 3.89 | 0.53    | 3.83       |
|                                                                                                                         | Holy Child SHS          | 11 (24.4%) | 12 (26.7%) | 17 (37.8%) | 3 (6.7%)  | 2 (4.4%) | 3.60 | 0.64    |            |
|                                                                                                                         | St. Augustine's College | 15 (31.9%) | 19 (40.4%) | 11 (23.4%) | 2 (4.3%)  | 0 (0%)   | 3.94 | 0.49    |            |
| <b>License information linked with OER content must be clear and easily accessible</b>                                  | Wesley Girls' SHS       | 28 (49.1%) | 22 (38.6%) | 3 (5.3%)   | 1 (1.8%)  | 3 (5.3%) | 3.88 | 0.56    |            |
|                                                                                                                         | Mfantsipim School       | 43 (55.8%) | 18 (23.4%) | 10 (13.0%) | 3 (3.9%)  | 3 (3.9%) | 3.89 | 0.58    | 3.85       |
|                                                                                                                         | Holy Child SHS          | 18 (40.0%) | 16 (35.6%) | 8 (17.8%)  | 2 (4.4%)  | 1 (2.2%) | 3.72 | 0.59    |            |
|                                                                                                                         | St. Augustine's College | 20 (42.6%) | 21 (44.7%) | 6 (12.8%)  | 0 (0%)    | 0 (0%)   | 3.91 | 0.54    |            |

Source: Field Survey, (2023)



The study examined respondents' views on permission to use Open Educational Resources (OER) at the selected Senior High Schools. The results revealed that the majority of the respondents agreed with the statement that "Flexible copyright exemptions or fair use rules may make producing and distributing OER easier" ( $M = 3.30$ ;  $SD = 1.055$ ). Specifically, 22.8% of respondents strongly agreed, 47.4% agreed, 15.8% were undecided, 8.8% disagreed, and 5.3% strongly disagreed. The study further sought respondents' opinions on whether "the ability of licenses to work with other OER or proprietary materials is a crucial consideration." It was observed that the majority of respondents agreed with this statement, recording a mean and standard deviation of ( $M = 3.82$ ;  $SD = 0.523$ ). In particular, 10.5% strongly agreed, 56.1% agreed, 19.3% were undecided, 10.5% disagreed, and 3.5% strongly disagreed.

Respondents were also asked whether "the extent to which licenses allow users to modify and adapt OER to meet their unique educational needs has an impact on the permissions dimension." The findings indicated that most respondents agreed with this statement, as shown by a mean and standard deviation score of ( $M = 3.58$ ;  $SD = 0.859$ ). Out of the total, 10.5% strongly agreed, 54.4% agreed, 28.1% were undecided, 7.0% disagreed, and 0% strongly disagreed. As presented in Table 4.5, the majority of the respondents also agreed that "respecting the permissions dimension requires adherence to the attribution criteria," with a mean and standard deviation score of ( $M = 3.60$ ;  $SD = 0.728$ ). About 12.3% strongly agreed, 54.4% agreed, 21.1% were undecided, 10.5% disagreed, and 1.8% strongly disagreed. Finally, the study assessed whether "it is crucial to take into account licensing that is consistent with the values and culture of institutions." The results showed that the majority of respondents strongly agreed with this statement ( $M = 3.88$ ;  $SD = 0.558$ ), with 15.3% strongly agreeing, 57.9% agreeing, 14.0% undecided, 10.5% disagreeing, and 1.8% strongly disagreeing.



#### 4.5.2 OER Awareness

This study sought to find out teachers' knowledge on some features of OERs in order to ascertain their level of awareness or whether they were conversant with OERs. The results in Table 7 indicate that teachers generally demonstrated a high level of awareness of Open Educational Resources (OERs) ( $M = 3.86$ ,  $SD = 0.904$ ). Across the four schools, most respondents strongly agreed that teachers' knowledge facilitates the effective use of OERs, as reflected in high mean scores across Wesley Girls' SHS ( $M = 3.97$ ,  $SD = 1.209$ ), Mfantshipim School ( $M = 3.94$ ,  $SD = 1.114$ ), Holy Child SHS ( $M = 3.87$ ,  $SD = 0.946$ ), and St. Augustine's College ( $M = 3.76$ ,  $SD = 1.082$ ). Similarly, there was broad agreement that participation in training programmes enhances teachers' knowledge of OERs, with consistently high mean values ( $M = 4.18$ ,  $SD = 0.964$ ;  $M = 4.10$ ,  $SD = 0.951$ ;  $M = 3.95$ ,  $SD = 0.982$ ; and  $M = 4.05$ ,  $SD = 0.897$ ). Furthermore, respondents showed a strong understanding that collaborative networks contribute to collective knowledge sharing on OERs ( $M = 4.08$ ,  $SD = 1.089$ ).

In addition, the findings suggest that teachers were well informed about how institutional policies and feedback mechanisms influence OER quality and adoption ( $M = 3.74$ ,  $SD = 1.061$ ;  $M = 3.83$ ,  $SD = 0.985$ ). However, slightly lower awareness levels were observed regarding the incorporation of OERs into teaching and student involvement in OER use, which recorded total means of 3.72 ( $SD = 1.238$ ) and 3.56 ( $SD = 1.250$ ), respectively. Despite these minor variations, the overall results underscore that teachers across all four schools possess substantial awareness and understanding of OER principles, practices, and supporting frameworks.

**Table 4.7: OER Awareness**

| Awareness Statements                                                 | School               | 5          | 4          | 3          | 2          | 1        | Mean | Std. D. | Total Mean |
|----------------------------------------------------------------------|----------------------|------------|------------|------------|------------|----------|------|---------|------------|
| Teachers' knowledge assists in the use of OER                        | Wesley Girls' SHS    | 28 (49.1%) | 21 (36.8%) | 6 (10.5%)  | 2 (3.5%)   | 0 (0.0%) | 3.97 | 1.209   | 3.89       |
|                                                                      | Mfantsipim School    | 43 (55.8%) | 27 (35.1%) | 3 (3.9%)   | 5 (6.5%)   | 0 (0.0%) | 3.94 | 1.114   |            |
|                                                                      | Holy Child SHS       | 16 (35.6%) | 22 (48.9%) | 7 (15.6%)  | 0 (0.0%)   | 0 (0.0%) | 3.87 | 0.946   |            |
|                                                                      | St Augustine College | 21 (44.7%) | 18 (38.3%) | 6 (12.8%)  | 2 (4.3%)   | 1 (2.1%) | 3.76 | 1.082   |            |
| Information sources provide updates and resources related to OER use | Wesley Girls' SHS    | 15 (26.3%) | 34 (59.6%) | 5 (8.8%)   | 3 (5.3%)   | 0 (0.0%) | 3.82 | 0.523   | 3.74       |
|                                                                      | Mfantsipim School    | 30 (39.0%) | 32 (41.6%) | 12 (15.6%) | 2 (2.6%)   | 2 (2.6%) | 3.70 | 0.639   |            |
|                                                                      | Holy Child SHS       | 16 (35.6%) | 20 (44.4%) | 8 (17.8%)  | 1 (2.2%)   | 0 (0.0%) | 3.76 | 0.598   |            |
|                                                                      | St Augustine College | 12 (25.5%) | 24 (51.1%) | 8 (17.0%)  | 4 (8.5%)   | 0 (0.0%) | 3.66 | 0.552   |            |
| Participation in training programmes can enhance knowledge of OER    | Wesley Girls' SHS    | 27 (47.4%) | 21 (36.8%) | 5 (8.8%)   | 2 (3.5%)   | 2 (3.5%) | 4.18 | 0.964   | 4.07       |
|                                                                      | Mfantsipim School    | 37 (48.1%) | 33 (42.9%) | 4 (5.2%)   | 3 (3.9%)   | 1 (1.3%) | 4.10 | 0.951   |            |
|                                                                      | Holy Child SHS       | 22 (48.9%) | 10 (22.2%) | 8 (17.8%)  | 2 (4.4%)   | 2 (4.4%) | 3.95 | 0.982   |            |
|                                                                      | St Augustine College | 25 (53.2%) | 17 (36.2%) | 5 (10.6%)  | 1 (2.1%)   | 0 (0.0%) | 4.05 | 0.897   |            |
| Teachers seek and engage with OER information sources                | Wesley Girls' SHS    | 9 (15.8%)  | 28 (49.1%) | 13 (22.8%) | 5 (8.8%)   | 2 (3.5%) | 4.18 | 0.994   | 3.79       |
|                                                                      | Mfantsipim School    | 18 (23.4%) | 26 (33.8%) | 21 (27.3%) | 10 (13.0%) | 3 (3.9%) | 3.69 | 1.042   |            |
|                                                                      | Holy Child SHS       | 13 (28.9%) | 15 (33.3%) | 14 (31.1%) | 3 (6.7%)   | 1 (2.2%) | 3.66 | 1.012   |            |
|                                                                      | St Augustine College | 11 (23.4%) | 15 (31.9%) | 18 (38.3%) | 3 (6.4%)   | 1 (2.1%) | 3.61 | 1.002   |            |
| Collaborative networks contribute to collective knowledge on OER     | Wesley Girls' SHS    | 15 (26.3%) | 24 (42.1%) | 11 (19.3%) | 4 (7.0%)   | 3 (5.3%) | 4.08 | 1.089   | 3.90       |
|                                                                      | Mfantsipim School    | 27 (35.1%) | 30 (39.0%) | 11 (14.3%) | 9 (11.7%)  | 1 (1.3%) | 3.85 | 1.007   |            |
|                                                                      | Holy Child SHS       | 10 (22.2%) | 22 (48.9%) | 8 (17.8%)  | 3 (6.7%)   | 1 (2.2%) | 3.79 | 0.948   |            |
|                                                                      | St Augustine College | 13 (27.7%) | 22 (46.8%) | 11 (23.4%) | 2 (4.3%)   | 0 (0.0%) | 3.86 | 0.934   |            |
| Institutional policies promote OER use                               | Wesley Girls' SHS    | 23 (40.4%) | 26 (45.6%) | 5 (8.8%)   | 2 (3.5%)   | 1 (1.8%) | 3.74 | 1.061   | 3.68       |
|                                                                      | Mfantsipim School    | 29 (37.7%) | 34 (44.2%) | 10 (13.0%) | 5 (6.5%)   | 0 (0.0%) | 3.78 | 1.028   |            |
|                                                                      | Holy Child SHS       | 15 (33.3%) | 15 (33.3%) | 15 (33.3%) | 1 (2.2%)   | 0 (0.0%) | 3.60 | 0.996   |            |
|                                                                      | St Augustine College | 14 (29.8%) | 22 (46.8%) | 9 (19.1%)  | 1 (2.1%)   | 2 (4.3%) | 3.61 | 1.013   |            |
| Evaluation and feedback improve OER quality                          | Wesley Girls' SHS    | 25 (43.9%) | 21 (36.8%) | 8 (14.0%)  | 3 (5.3%)   | 0 (0.0%) | 3.74 | 1.061   | 3.82       |
|                                                                      | Mfantsipim School    | 38 (49.4%) | 28 (36.4%) | 10 (13.0%) | 2 (2.6%)   | 0 (0.0%) | 3.83 | 0.985   |            |
|                                                                      | Holy Child SHS       | 20 (44.4%) | 15 (33.3%) | 9 (20.0%)  | 1 (2.2%)   | 0 (0.0%) | 3.79 | 0.988   |            |
|                                                                      | St Augustine College | 20 (42.6%) | 21 (44.7%) | 7 (14.9%)  | 0 (0.0%)   | 0 (0.0%) | 3.90 | 0.952   |            |
| OER incorporation improves learning                                  | Wesley Girls' SHS    | 22 (38.6%) | 26 (45.6%) | 7 (12.3%)  | 2 (3.5%)   | 0 (0.0%) | 3.48 | 1.238   | 3.72       |

and teaching

|                                               |                      |            |            |            |          |          |      |       |      |
|-----------------------------------------------|----------------------|------------|------------|------------|----------|----------|------|-------|------|
| Student involvement in OER facilitates access | Mfantsipim School    | 43 (55.8%) | 25 (32.5%) | 7 (9.1%)   | 2 (2.6%) | 1 (1.3%) | 3.73 | 1.152 | 3.56 |
|                                               | Holy Child SHS       | 23 (51.1%) | 16 (35.6%) | 4 (8.9%)   | 2 (4.4%) | 0 (0.0%) | 3.82 | 1.043 |      |
|                                               | St Augustine College | 24 (51.1%) | 18 (38.3%) | 5 (10.6%)  | 1 (2.1%) | 0 (0.0%) | 3.85 | 1.027 |      |
|                                               | Wesley Girls' SHS    | 16 (28.1%) | 28 (49.1%) | 8 (14.0%)  | 4 (7.0%) | 1 (1.8%) | 3.40 | 1.250 |      |
|                                               | Mfantsipim School    | 39 (50.6%) | 24 (31.2%) | 9 (11.7%)  | 6 (7.8%) | 0 (0.0%) | 3.57 | 1.168 |      |
|                                               | Holy Child SHS       | 18 (40.0%) | 9 (20.0%)  | 15 (33.3%) | 1 (2.2%) | 1 (2.2%) | 3.47 | 1.156 |      |
|                                               | St Augustine College | 24 (51.1%) | 15 (31.9%) | 6 (12.8%)  | 2 (4.3%) | 0 (0.0%) | 3.78 | 1.067 |      |

Source: Field Survey (2023)



#### 4.6 Institutional Capacity for OER

Extent to which respondents agree with the following statements concerning Institutional Capacity for OER in their institution was also assessed. The purpose of this study was to assess respondents' perceptions of the institutional capacity for open educational resources (OER) across the selected schools. Based on the results ( $M = 3.02$ ;  $SD = 1.525$ ), the findings revealed that most respondents agreed that their institutions possess adequate technical infrastructure necessary for accessing and utilizing OER. This suggests that the schools have established the basic technological requirements to facilitate the adoption and use of OER. The study further sought to determine whether the digital literacy levels of teachers and students influence their ability to use OER. The results ( $M = 3.77$ ;  $SD = 1.255$ ) showed that the majority of respondents agreed that the digital literacy of both teachers and students facilitates the effective use of OER. This implies that enhanced digital competence among users plays a key role in integrating OER into teaching and learning activities. Respondents were also asked to indicate whether there was sufficient time allocated to teachers and students for training and using OER. The findings ( $M = 2.96$ ;  $SD = 1.275$ ) indicated that the majority were neutral to slightly in disagreement, suggesting that limited time allocation remains a constraint to the effective utilization of OER within the schools.



**Table 4.8: Institutional Capacity for OER**

| Awareness Statement                                                                                    | School                           | 5          | 4          | 3          | 2          | 1          | Mean | Std. D. | Average Mean |
|--------------------------------------------------------------------------------------------------------|----------------------------------|------------|------------|------------|------------|------------|------|---------|--------------|
| There is adequate technical infrastructure necessary for accessing and utilizing OER                   | Wesley Girls' Senior High School | 8 (14%)    | 12 (21.1%) | 12 (21.1%) | 15 (26.3%) | 10 (17.5%) | 3.00 | 1.525   | 3.02         |
|                                                                                                        | Mfantsipim School                | 12 (15.4%) | 15 (19.2%) | 18 (23.1%) | 17 (21.8%) | 16 (20.5%) | 2.88 | 1.427   |              |
|                                                                                                        | Holy Child SHS                   | 5 (11.6%)  | 15 (34.9%) | 12 (27.9%) | 10 (23.3%) | 1 (2.3%)   | 3.30 | 1.056   |              |
|                                                                                                        | St Augustine College             | 7 (14.6%)  | 11 (22.9%) | 10 (20.8%) | 11 (22.9%) | 9 (18.8%)  | 2.91 | 1.355   |              |
| The digital literacy of teachers and students facilitates usage of OER                                 | Wesley Girls' Senior High School | 17 (29.8%) | 27 (47.4%) | 5 (8.8%)   | 5 (8.8%)   | 3 (5.3%)   | 3.76 | 1.255   | 3.77         |
|                                                                                                        | Mfantsipim School                | 25 (32.1%) | 32 (41%)   | 10 (12.8%) | 7 (9%)     | 4 (5.1%)   | 3.87 | 1.144   |              |
|                                                                                                        | Holy Child SHS                   | 9 (20.9%)  | 20 (46.5%) | 10 (23.3%) | 4 (9.3%)   | 0 (0%)     | 3.79 | 0.925   |              |
|                                                                                                        | St Augustine College             | 12 (25%)   | 16 (33.3%) | 12 (25%)   | 7 (14.6%)  | 1 (2.1%)   | 3.64 | 1.090   |              |
| There is enough time allocated to teachers and students in the training and usage of OER               | Wesley Girls' Senior High School | 4 (7%)     | 8 (14%)    | 15 (26.3%) | 24 (42.1%) | 6 (10.5%)  | 3.30 | 1.275   | 2.96         |
|                                                                                                        | Mfantsipim School                | 5 (6.4%)   | 16 (20.5%) | 21 (26.9%) | 21 (26.9%) | 15 (19.2%) | 2.69 | 1.317   |              |
|                                                                                                        | Holy Child SHS                   | 4 (9.3%)   | 8 (18.6%)  | 16 (37.2%) | 11 (25.6%) | 4 (9.3%)   | 2.93 | 1.167   |              |
|                                                                                                        | St Augustine College             | 5 (10.4%)  | 10 (20.8%) | 12 (25%)   | 18 (37.5%) | 3 (6.3%)   | 2.91 | 1.155   |              |
| There are mechanisms in place to evaluate the quality, relevance, and appropriateness of OER materials | Wesley Girls' Senior High School | 3 (5.3%)   | 17 (29.8%) | 16 (28.1%) | 16 (28.1%) | 5 (8.8%)   | 3.38 | 1.354   | 2.93         |
|                                                                                                        | Mfantsipim School                | 6 (7.7%)   | 18 (23.1%) | 17 (21.8%) | 28 (35.9%) | 9 (11.5%)  | 2.80 | 1.280   |              |
|                                                                                                        | Holy Child SHS                   | 2 (4.7%)   | 8 (18.6%)  | 14 (32.6%) | 14 (32.6%) | 5 (11.6%)  | 2.73 | 1.148   |              |
|                                                                                                        | St Augustine College             | 3 (6.3%)   | 9 (18.8%)  | 15 (31.3%) | 18 (37.5%) | 3 (6.3%)   | 2.81 | 1.081   |              |
| There are platforms for teachers and students to collaborate in the use of OER                         | Wesley Girls' Senior High School | 4 (7%)     | 15 (26.3%) | 11 (19.3%) | 18 (31.6%) | 9 (15.8%)  | 3.44 | 1.387   | 3.21         |
|                                                                                                        | Mfantsipim School                | 9 (11.5%)  | 26 (33.3%) | 18 (23.1%) | 20 (25.6%) | 5 (6.4%)   | 3.18 | 1.214   |              |
|                                                                                                        | Holy Child SHS                   | 4 (9.3%)   | 16 (37.2%) | 11 (25.6%) | 9 (20.9%)  | 3 (7%)     | 3.21 | 1.133   |              |
|                                                                                                        | St Augustine College             | 5 (10.4%)  | 13 (27.1%) | 10 (20.8%) | 18 (37.5%) | 2 (4.2%)   | 3.02 | 1.147   |              |
| Institutional policies and                                                                             | Wesley Girls' Senior High School | 4 (7%)     | 20 (35.1%) | 19 (33.3%) | 9 (15.8%)  | 5 (8.8%)   | 3.44 | 1.387   | 3.25         |
|                                                                                                        | Mfantsipim School                | 9 (11.5%)  | 26 (33.3%) | 18 (23.1%) | 20 (25.6%) | 5 (6.4%)   | 3.18 | 1.214   |              |

|                                                                                                                                                 |                                  |            |            |            |            |            |      |       |      |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|------------|------------|------------|------------|------------|------|-------|------|
| guidelines exist in the use of OER                                                                                                              | School                           |            |            |            |            |            |      |       |      |
|                                                                                                                                                 | Mfantsipim School                | 13 (16.7%) | 23 (29.5%) | 20 (25.6%) | 15 (19.2%) | 7 (9%)     | 3.26 | 1.259 |      |
|                                                                                                                                                 | Holy Child SHS                   | 5 (11.6%)  | 8 (18.6%)  | 19 (44.2%) | 10 (23.3%) | 1 (2.3%)   | 3.13 | 1.023 |      |
|                                                                                                                                                 | St Augustine College             | 4 (8.3%)   | 16 (33.3%) | 14 (29.2%) | 12 (25%)   | 2 (4.2%)   | 3.17 | 1.066 |      |
| The school has established processes and tools to gather feedback from teachers and students about the impact and effectiveness of OER adoption | Wesley Girls' Senior High School | 7 (12.3%)  | 11 (19.3%) | 17 (29.8%) | 15 (26.3%) | 7 (12.3%)  | 3.44 | 1.387 | 3.04 |
|                                                                                                                                                 | Mfantsipim School                | 10 (12.8%) | 24 (30.8%) | 17 (21.8%) | 17 (21.8%) | 10 (12.8%) | 3.09 | 1.302 |      |
|                                                                                                                                                 | Holy Child SHS                   | 4 (9.3%)   | 8 (18.6%)  | 12 (27.9%) | 15 (34.9%) | 4 (9.3%)   | 2.84 | 1.168 |      |
|                                                                                                                                                 | St Augustine College             | 5 (10.4%)  | 10 (20.8%) | 11 (22.9%) | 14 (29.2%) | 8 (16.7%)  | 2.79 | 1.243 |      |

Source: Field Survey (2023)



Moreover, the study examined whether mechanisms exist to evaluate the quality, relevance, and appropriateness of OER materials. With a mean score of ( $M = 2.93$ ;  $SD = 1.354$ ), the findings showed that respondents moderately agreed that such evaluative mechanisms exist. This suggests that while some schools have established systems for quality assurance, these mechanisms may not yet be fully developed or consistently applied. Concerning collaboration, the study investigated whether platforms exist for teachers and students to work together in the use of OER. The findings ( $M = 3.21$ ;  $SD = 1.387$ ) demonstrated that most respondents agreed that collaborative platforms are available, though their usage may vary among schools. This indicates a growing recognition of the importance of interactive and participatory environments in OER utilization. The study also explored whether institutional policies and guidelines exist to govern the use of OER. The results ( $M = 3.25$ ;  $SD = 1.387$ ) revealed that the majority of respondents agreed that such policies are in place, reflecting institutional efforts to provide structural guidance for OER adoption and integration. Finally, respondents were asked whether schools have established processes and tools to collect feedback from teachers and students regarding the impact and effectiveness of OER adoption. With a mean of ( $M = 3.04$ ;  $SD = 1.387$ ), the findings indicated moderate agreement among respondents, implying that while feedback systems exist in some schools, there is still room for improvement in ensuring consistent monitoring and evaluation of OER effectiveness.

#### **4.9.3 Availability of OER resource(s)**

The study further assessed the extent to which teachers and students have access to and can utilize Open Educational Resources (OER) within the selected schools. The results ( $M = 3.18$ ;  $SD = 1.245$ ) revealed that respondents generally agreed that teachers and students have reasonable access to discover and engage with OER.



Table : Availability of OER resources

| Statements                                                                              | School               | 5          | 4          | 3          | 2          | 1         | Mean | Std. D. | Average Mean |
|-----------------------------------------------------------------------------------------|----------------------|------------|------------|------------|------------|-----------|------|---------|--------------|
| Teachers and students have access to discover and access OER                            | Wesley Girls' SHS    | 12 (21.1%) | 18 (31.6%) | 10 (17.5%) | 11 (19.3%) | 6 (10.5%) | 3.35 | 1.245   | 3.18         |
|                                                                                         | Mfantsipim School    | 17 (22.1%) | 23 (29.9%) | 18 (23.4%) | 12 (15.6%) | 7 (9.1%)  | 3.40 | 1.211   |              |
|                                                                                         | Holy Child SHS       | 8 (17.8%)  | 15 (33.3%) | 12 (26.7%) | 8 (17.8%)  | 2 (4.4%)  | 3.42 | 1.085   |              |
|                                                                                         | St Augustine College | 7 (14.9%)  | 13 (27.7%) | 11 (23.4%) | 10 (21.3%) | 6 (12.8%) | 3.15 | 1.206   |              |
| There is a range of OER materials available to teachers and students in the school      | Wesley Girls' SHS    | 9 (15.8%)  | 20 (35.1%) | 13 (22.8%) | 10 (17.5%) | 5 (8.8%)  | 3.32 | 1.187   | 3.09         |
|                                                                                         | Mfantsipim School    | 14 (18.2%) | 26 (33.8%) | 16 (20.8%) | 15 (19.5%) | 6 (7.8%)  | 3.35 | 1.165   |              |
|                                                                                         | Holy Child SHS       | 7 (15.6%)  | 13 (28.9%) | 14 (31.1%) | 8 (17.8%)  | 3 (6.7%)  | 3.29 | 1.127   |              |
|                                                                                         | St Augustine College | 5 (10.6%)  | 11 (23.4%) | 14 (29.8%) | 12 (25.5%) | 5 (10.6%) | 2.98 | 1.172   |              |
| The available OER materials align with the curriculum standards and learning objectives | Wesley Girls' SHS    | 10 (17.5%) | 22 (38.6%) | 12 (21.1%) | 9 (15.8%)  | 4 (7%)    | 3.44 | 1.165   | 3.16         |
|                                                                                         | Mfantsipim School    | 13 (16.9%) | 25 (32.5%) | 19 (24.7%) | 13 (16.9%) | 7 (9.1%)  | 3.31 | 1.186   |              |
|                                                                                         | Holy Child SHS       | 6 (13.3%)  | 15 (33.3%) | 13 (28.9%) | 8 (17.8%)  | 3 (6.7%)  | 3.29 | 1.126   |              |
|                                                                                         | St Augustine College | 5 (10.6%)  | 14 (29.8%) | 11 (23.4%) | 12 (25.5%) | 5 (10.6%) | 2.98 | 1.162   |              |
| OER materials can be adapted, modified, or customised to suit specific needs            | Wesley Girls' SHS    | 9 (15.8%)  | 21 (36.8%) | 13 (22.8%) | 10 (17.5%) | 4 (7%)    | 3.38 | 1.159   | 3.08         |



|                                                                                    |                      |            |            |            |            |           |      |       |      |
|------------------------------------------------------------------------------------|----------------------|------------|------------|------------|------------|-----------|------|-------|------|
| OER materials can be found in a variety of media platforms                         | Mfantsipim School    | 12 (15.6%) | 28 (36.4%) | 18 (23.4%) | 13 (16.9%) | 6 (7.8%)  | 3.35 | 1.152 |      |
|                                                                                    | Holy Child SHS       | 7 (15.6%)  | 14 (31.1%) | 12 (26.7%) | 9 (20%)    | 3 (6.7%)  | 3.29 | 1.144 |      |
|                                                                                    | St Augustine College | 5 (10.6%)  | 12 (25.5%) | 13 (27.7%) | 11 (23.4%) | 6 (12.8%) | 2.98 | 1.174 |      |
|                                                                                    | Wesley Girls' SHS    | 13 (22.8%) | 20 (35.1%) | 9 (15.8%)  | 10 (17.5%) | 5 (8.8%)  | 3.46 | 1.211 | 3.12 |
| Available features of OER accommodate various needs of teachers and students       | Mfantsipim School    | 16 (20.8%) | 24 (31.2%) | 19 (24.7%) | 11 (14.3%) | 7 (9.1%)  | 3.40 | 1.188 |      |
|                                                                                    | Holy Child SHS       | 8 (17.8%)  | 13 (28.9%) | 14 (31.1%) | 7 (15.6%)  | 3 (6.7%)  | 3.35 | 1.116 |      |
|                                                                                    | St Augustine College | 6 (12.8%)  | 13 (27.7%) | 11 (23.4%) | 12 (25.5%) | 5 (10.6%) | 2.97 | 1.165 |      |
|                                                                                    | Wesley Girls' SHS    | 8 (14%)    | 18 (31.6%) | 15 (26.3%) | 10 (17.5%) | 6 (10.5%) | 3.22 | 1.209 | 3.03 |
| There are quality assurance processes for evaluating OER reliability and relevance | Mfantsipim School    | 12 (15.6%) | 25 (32.5%) | 18 (23.4%) | 15 (19.5%) | 7 (9.1%)  | 3.26 | 1.192 |      |
|                                                                                    | Holy Child SHS       | 5 (11.1%)  | 14 (31.1%) | 13 (28.9%) | 10 (22.2%) | 3 (6.7%)  | 3.18 | 1.122 |      |
|                                                                                    | St Augustine College | 5 (10.6%)  | 11 (23.4%) | 13 (27.7%) | 13 (27.7%) | 5 (10.6%) | 2.90 | 1.165 |      |
|                                                                                    | Wesley Girls' SHS    | 7 (12.3%)  | 16 (28.1%) | 17 (29.8%) | 10 (17.5%) | 7 (12.3%) | 3.11 | 1.235 | 2.94 |
| There are regular updates and maintenance of OER materials in the school           | Mfantsipim School    | 10 (13%)   | 21 (27.3%) | 22 (28.6%) | 16 (20.8%) | 8 (10.4%) | 3.11 | 1.201 |      |
|                                                                                    | Holy Child SHS       | 4 (8.9%)   | 12 (26.7%) | 14 (31.1%) | 11 (24.4%) | 4 (8.9%)  | 3.03 | 1.126 |      |
|                                                                                    | St Augustine College | 4 (8.5%)   | 10 (21.3%) | 14 (29.8%) | 13 (27.7%) | 6 (12.8%) | 2.88 | 1.178 |      |
|                                                                                    | Wesley Girls' SHS    | 6 (10.5%)  | 14 (24.6%) | 19 (33.3%) | 11 (19.3%) | 7 (12.3%) | 3.01 | 1.246 | 2.88 |

|                      |           |            |            |            |            |      |       |
|----------------------|-----------|------------|------------|------------|------------|------|-------|
| Mfantshipim School   | 8 (10.4%) | 18 (23.4%) | 22 (28.6%) | 17 (22.1%) | 12 (15.6%) | 2.91 | 1.249 |
| Holy Child SHS       | 3 (6.7%)  | 10 (22.2%) | 15 (33.3%) | 12 (26.7%) | 5 (11.1%)  | 2.87 | 1.159 |
| St Augustine College | 4 (8.5%)  | 9 (19.1%)  | 14 (29.8%) | 14 (29.8%) | 6 (12.8%)  | 2.73 | 1.183 |

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**Source: Field Survey (2023)**



This indicates that most schools have established some form of digital access pathways, though disparities in accessibility across institutions remain. Regarding the range of OER materials available to teachers and students, the findings ( $M = 3.09$ ;  $SD = 1.187$ ) suggest a moderate level of agreement. This implies that while a variety of OER materials exist within the schools, their diversity and comprehensiveness may not be sufficient to meet all teaching and learning needs. In examining the alignment of available OER materials with curriculum standards and learning objectives, the study recorded a mean score of ( $M = 3.16$ ;  $SD = 1.165$ ), showing that respondents largely agreed that OER resources are designed to complement the academic curriculum. This reflects ongoing institutional efforts to ensure that digital learning materials are relevant to national educational goals. Furthermore, respondents were asked whether OER materials could be adapted, modified, or customized to suit specific needs. The results ( $M = 3.08$ ;  $SD = 1.159$ ) showed moderate agreement, indicating that although flexibility in OER adaptation exists, not all schools may have the requisite technical or pedagogical support to encourage content modification. Similarly, the study investigated whether OER materials could be accessed through a variety of media platforms. The findings ( $M = 3.12$ ;  $SD = 1.211$ ) demonstrated that respondents generally agreed, reflecting the growing diversification of OER delivery through digital libraries, learning management systems, and web-based repositories.

The study also examined whether the available features of OER accommodate the varying needs of teachers and students. With a mean score of ( $M = 3.03$ ;  $SD = 1.209$ ), respondents expressed moderate agreement, suggesting that while OER design considers user diversity, additional work is needed to enhance inclusivity—particularly for learners with special needs. In exploring the existence of quality assurance processes for evaluating the reliability, accuracy, and relevance of OER, the study found a mean score of ( $M = 2.94$ ;  $SD = 1.235$ ).

This outcome indicates only moderate agreement, implying that although some schools have initiated quality control mechanisms, such processes may not be standardized or rigorously implemented. Finally, the study assessed whether there are regular updates and maintenance of OER materials in the schools. The mean and standard deviation scores ( $M = 2.88$ ;  $SD = 1.246$ ) revealed moderate agreement among respondents, suggesting that while some institutions periodically update their digital content, maintenance and version control practices remain inconsistent. Collectively, these findings underscore a growing awareness and utilization of OER across the selected schools, yet they also point to gaps in accessibility, quality assurance, and continuous improvement—areas that must be strengthened for sustainable OER integration.

#### **4.9.4 Volition of OER**

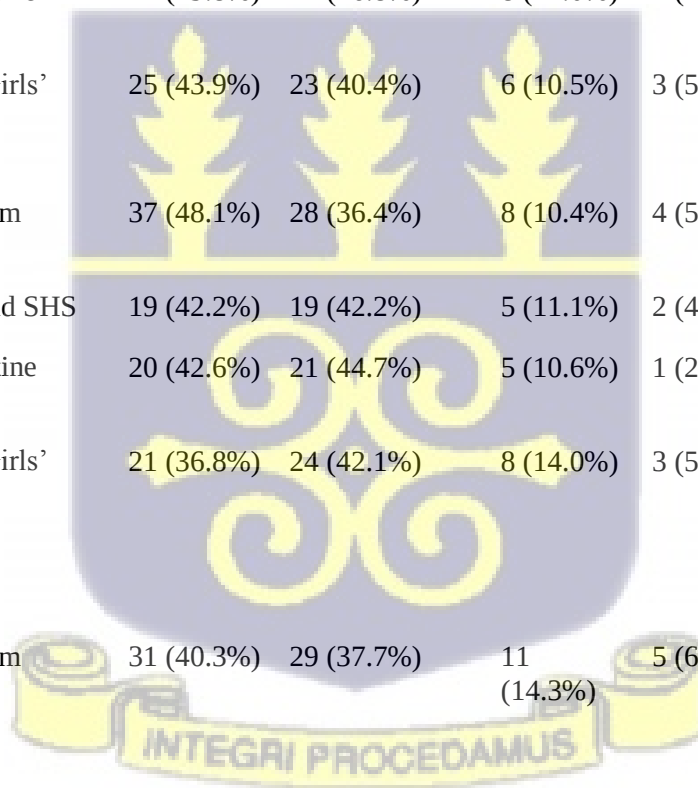
The study also evaluated the volitional factors influencing teachers' and students' engagement with Open Educational Resources (OER) in the selected schools. The findings ( $M = 3.18$ ;  $SD = 1.245$ ) indicated that respondents generally agreed that teachers and students have developed positive attitudes and belief systems that encourage the use of OER. This suggests that both groups are gradually cultivating intrinsic motivation and open-mindedness toward integrating digital resources into teaching and learning practices. However, despite the overall positive trend, the data show some variability across schools, reflecting differences in institutional culture and exposure to OER initiatives. Regarding the motivation of teachers and students to use OER materials, the results ( $M = 3.09$ ;  $SD = 1.187$ ) revealed a moderate level of agreement. This finding implies that while motivation to use OER exists, it is unevenly distributed across schools and may depend on factors such as access to ICT infrastructure, digital literacy levels, and perceived usefulness of OER.

Table

| Volition Statements                                                                             | School               | 5          | 4          | 3          | 2        | 1        | Mean | SD    | Average Mean |
|-------------------------------------------------------------------------------------------------|----------------------|------------|------------|------------|----------|----------|------|-------|--------------|
| Teachers and students have developed attitudes and belief systems that encourage the use of OER | Wesley Girls' SHS    | 22 (38.6%) | 25 (43.9%) | 7 (12.3%)  | 3 (5.3%) | 0 (0.0%) | 3.35 | 1.245 | 3.18         |
|                                                                                                 | Mfantshipim School   | 35 (45.5%) | 28 (36.4%) | 9 (11.7%)  | 5 (6.5%) | 0 (0.0%) | 3.40 | 1.211 |              |
|                                                                                                 | Holy Child SHS       | 17 (37.8%) | 20 (44.4%) | 6 (13.3%)  | 2 (4.4%) | 0 (0.0%) | 3.42 | 1.085 |              |
|                                                                                                 | St Augustine College | 18 (38.3%) | 20 (42.6%) | 7 (14.9%)  | 2 (4.3%) | 0 (0.0%) | 3.15 | 1.206 |              |
| Teachers and students are motivated in the use of OER materials                                 | Wesley Girls' SHS    | 20 (35.1%) | 27 (47.4%) | 6 (10.5%)  | 4 (7.0%) | 0 (0.0%) | 3.32 | 1.187 | 3.09         |
|                                                                                                 | Mfantshipim School   | 33 (42.9%) | 31 (40.3%) | 8 (10.4%)  | 5 (6.5%) | 0 (0.0%) | 3.35 | 1.165 |              |
|                                                                                                 | Holy Child SHS       | 18 (40.0%) | 19 (42.2%) | 5 (11.1%)  | 3 (6.7%) | 0 (0.0%) | 3.29 | 1.127 |              |
|                                                                                                 | St Augustine College | 17 (36.2%) | 22 (46.8%) | 6 (12.8%)  | 2 (4.3%) | 0 (0.0%) | 2.98 | 1.172 |              |
| Professional development opportunities are provided to support the use of OER                   | Wesley Girls' SHS    | 19 (33.3%) | 26 (45.6%) | 7 (12.3%)  | 4 (7.0%) | 1 (1.8%) | 3.44 | 1.165 | 3.16         |
|                                                                                                 | Mfantshipim School   | 30 (39.0%) | 29 (37.7%) | 11 (14.3%) | 6 (7.8%) | 1 (1.3%) | 3.31 | 1.186 |              |

|                                                                                                            |                      |            |            |            |           |          |      |       |      |
|------------------------------------------------------------------------------------------------------------|----------------------|------------|------------|------------|-----------|----------|------|-------|------|
|                                                                                                            | Holy Child SHS       | 14 (31.1%) | 20 (44.4%) | 7 (15.6%)  | 3 (6.7%)  | 1 (2.2%) | 3.29 | 1.126 |      |
|                                                                                                            | St Augustine College | 15 (31.9%) | 21 (44.7%) | 8 (17.0%)  | 3 (6.4%)  | 0 (0.0%) | 2.98 | 1.162 |      |
| There is peer influence in the use of OER among teachers and students                                      | Wesley Girls' SHS    | 14 (24.6%) | 25 (43.9%) | 10 (17.5%) | 6 (10.5%) | 2 (3.5%) | 3.38 | 1.159 | 3.08 |
|                                                                                                            | Mfantsipim School    | 22 (28.6%) | 31 (40.3%) | 14 (18.2%) | 7 (9.1%)  | 3 (3.9%) | 3.35 | 1.152 |      |
|                                                                                                            | Holy Child SHS       | 10 (22.2%) | 18 (40.0%) | 11 (24.4%) | 4 (8.9%)  | 2 (4.4%) | 3.29 | 1.144 |      |
| There are incentives and recognition among teachers and students in the use of OER                         | St Augustine College | 12 (25.5%) | 20 (42.6%) | 10 (21.3%) | 4 (8.5%)  | 1 (2.1%) | 2.98 | 1.174 |      |
|                                                                                                            | Wesley Girls' SHS    | 12 (21.1%) | 19 (33.3%) | 14 (24.6%) | 8 (14.0%) | 4 (7.0%) | 3.46 | 1.211 | 3.12 |
|                                                                                                            | Mfantsipim School    | 18 (23.4%) | 28 (36.4%) | 17 (22.1%) | 9 (11.7%) | 5 (6.5%) | 3.40 | 1.188 |      |
| School leadership helps in fostering a supportive school culture that values and encourages the use of OER | Holy Child SHS       | 9 (20.0%)  | 16 (35.6%) | 11 (24.4%) | 6 (13.3%) | 3 (6.7%) | 3.35 | 1.116 |      |
|                                                                                                            | St Augustine College | 11 (23.4%) | 19 (40.4%) | 9 (19.1%)  | 5 (10.6%) | 3 (6.4%) | 2.97 | 1.165 |      |
|                                                                                                            | Wesley Girls' SHS    | 23 (40.4%) | 22 (38.6%) | 8 (14.0%)  | 3 (5.3%)  | 1 (1.8%) | 3.22 | 1.209 | 3.03 |
|                                                                                                            | Mfantsipim School    | 33 (42.9%) | 29 (37.7%) | 9 (11.7%)  | 5 (6.5%)  | 1 (1.3%) | 3.26 | 1.192 |      |

|                                                                                                                   |                      |            |            |            |          |          |      |       |      |
|-------------------------------------------------------------------------------------------------------------------|----------------------|------------|------------|------------|----------|----------|------|-------|------|
|                                                                                                                   | Holy Child SHS       | 17 (37.8%) | 20 (44.4%) | 6 (13.3%)  | 2 (4.4%) | 0 (0.0%) | 3.18 | 1.122 |      |
|                                                                                                                   | St Augustine College | 18 (38.3%) | 21 (44.7%) | 6 (12.8%)  | 2 (4.3%) | 0 (0.0%) | 2.90 | 1.165 |      |
| Peer collaborations encourage the use of OER in my school                                                         | Wesley Girls' SHS    | 18 (31.6%) | 25 (43.9%) | 9 (15.8%)  | 4 (7.0%) | 1 (1.8%) | 3.11 | 1.235 | 2.94 |
|                                                                                                                   | Mfantsipim School    | 29 (37.7%) | 30 (39.0%) | 11 (14.3%) | 6 (7.8%) | 1 (1.3%) | 3.11 | 1.201 |      |
|                                                                                                                   | Holy Child SHS       | 13 (28.9%) | 21 (46.7%) | 8 (17.8%)  | 2 (4.4%) | 1 (2.2%) | 3.03 | 1.126 |      |
|                                                                                                                   | St Augustine College | 14 (29.8%) | 22 (46.8%) | 8 (17.0%)  | 2 (4.3%) | 1 (2.1%) | 2.88 | 1.178 |      |
| The perceived positive impacts encourage teachers and students to use OER                                         | Wesley Girls' SHS    | 25 (43.9%) | 23 (40.4%) | 6 (10.5%)  | 3 (5.3%) | 0 (0.0%) | 3.01 | 1.246 | 2.88 |
|                                                                                                                   | Mfantsipim School    | 37 (48.1%) | 28 (36.4%) | 8 (10.4%)  | 4 (5.2%) | 0 (0.0%) | 2.91 | 1.249 |      |
|                                                                                                                   | Holy Child SHS       | 19 (42.2%) | 19 (42.2%) | 5 (11.1%)  | 2 (4.4%) | 0 (0.0%) | 2.87 | 1.159 |      |
|                                                                                                                   | St Augustine College | 20 (42.6%) | 21 (44.7%) | 5 (10.6%)  | 1 (2.1%) | 0 (0.0%) | 2.73 | 1.183 |      |
| Teachers' and students' understanding of OER sustainability and scalability encourage the use of OER in my school | Wesley Girls' SHS    | 21 (36.8%) | 24 (42.1%) | 8 (14.0%)  | 3 (5.3%) | 1 (1.8%) | 4.16 | 0.78  | 4.11 |
|                                                                                                                   | Mfantsipim School    | 31 (40.3%) | 29 (37.7%) | 11 (14.3%) | 5 (6.5%) | 1 (1.3%) | 4.21 | 0.74  |      |



|                      |            |            |           |          |          |      |      |
|----------------------|------------|------------|-----------|----------|----------|------|------|
| Holy Child SHS       | 15 (33.3%) | 19 (42.2%) | 8 (17.8%) | 2 (4.4%) | 1 (2.2%) | 4.14 | 0.82 |
| St Augustine College | 16 (34.0%) | 22 (46.8%) | 7 (14.9%) | 2 (4.3%) | 0 (0.0%) | 3.93 | 0.88 |

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Source: Field survey (2023)





Similarly, professional development opportunities provided to support the use of OER recorded a mean score of ( $M = 3.16$ ;  $SD = 1.165$ ). This demonstrates that although training programs are available in most schools, they may not be comprehensive or frequent enough to equip all teachers and students with the necessary skills for sustained OER utilization.

When examining peer influence in the use of OER, the study found a mean score of ( $M = 3.08$ ;  $SD = 1.159$ ), suggesting moderate agreement. This indicates that peer interactions are beginning to shape positive behavioral changes toward OER use, though such influence is yet to become a strong institutional norm. Similarly, the presence of incentives and recognition mechanisms for OER engagement yielded a mean score of ( $M = 3.12$ ;  $SD = 1.211$ ). This shows that while some schools reward OER-related initiatives, the practice is still at a formative stage, and consistent institutional recognition may strengthen participation.

Furthermore, school leadership's role in fostering a supportive culture for OER integration recorded a mean score of ( $M = 3.03$ ;  $SD = 1.209$ ). This reflects moderate support from management in promoting OER adoption; however, leadership engagement could be enhanced through clearer policy direction and allocation of resources. Peer collaborations in encouraging OER use showed a mean of ( $M = 2.94$ ;  $SD = 1.235$ ), implying that collaborative engagement around OER remains underdeveloped and requires structured mechanisms such as OER clubs or communities of practice to thrive.

The findings on perceived positive impacts of OER ( $M = 2.88$ ;  $SD = 1.246$ ) indicated moderate agreement, showing that teachers and students recognize the potential benefits of OER for improving teaching quality and learning outcomes. Yet, this perception must be translated into habitual use through institutional support and targeted awareness programs. Lastly, the study found a notably high mean score for teachers' and students' understanding of OER sustainability and scalability ( $M = 4.11$ ;  $SD = 0.78$ ). This demonstrates strong

awareness of the long-term value and reusability of OER, indicating that respondents appreciate the potential of these resources to promote equitable access to quality education.

#### 4.7 Phase Two: Qualitative Phase

The qualitative phase begins with a presentation of themes and responses of respondents using a narrative statement. With the eight participants, the Headmasters/ Headmistress were represented with H1, H2, H3 and H4. The Teacher Librarians were also represented by TL1 and TL2. In the case of School Librarians, they were represented by SL1 and SL2.

##### 4.7.1 Qualitative Response Rate

The head of Mfantipim School S.H.S (SH4) could not respond to the interview but the rest responded. This was because he was engaged in other activities even at the scheduled time. The result is presented in Table 4.8.

**Table 4.8: Qualitative Response Rate**

| Survey Response       | Frequency | Percentage |
|-----------------------|-----------|------------|
| Granted Interview     | 7         | 87         |
| Interview not granted | 1         | 13         |
| <b>Total</b>          | <b>8</b>  | <b>100</b> |

**Source: Field Survey, (2023)**

Table 4.8 depicts how the responses to the survey were retrieved. It shows that 7 interviewees were interviewed representing 87%.

##### 4.9.1 Accessibility

The study assesses the various measures the selected schools have taken to guarantee that OER is accessible to all students and teachers. All the heads confirmed that their schools provide training for teachers and students to enhance awareness of OER accessibility.

Additionally, three out of the four indicated that their schools actively engage with the wider OER community to remain informed about accessibility standards and best practices, ensuring that digital learning resources are inclusive and usable by all learners.

Both H1 and H2 indicated that

*Materials were available for teachers and students to use for teaching and learning*

H3 also mentioned that

*Accessibility of materials in the library help most of his teachers have access to OER anytime.”*

#### 4.9.2 Permission

Almost all the heads provided proper credit to the original creator. Three of the heads do not have any trouble acquiring authorization to utilize particular OER materials in their schools. None of the four heads have established written policies pertaining to the implementation and utilization of open educational resources inside their respective institutions.

H1 reiterated the point that

*The government of Ghana work in collaboration with the authors of these educational resources.*

H2 further added that

*The government of Ghana grants permission for the materials to be shared with schools that lack such resources.*

H3 mentioned that

*Almost all the schools have internal policies to ensure that educational resources are properly shared among ourselves.*

#### 4.9.3 Awareness

Teacher Librarians and School Librarians routinely checked educational platforms to stay current and relevant with OER's accessibility and relevance to teaching methods, while the rest did not offer a solution. The two Teacher Librarians assess courses departmentally to find programs with high-quality OER that match teachers' topics or curricula.

TL1 shared that

*I am aware that the educational materials are being used by other institutions to improve their teaching performance. I read a lot to know the type of educational resources that are free to help me improve my skills and that of the students.*

TL2 also made the point that

*I am aware of a centralized OER repository creation with expert presentations and resource libraries. Hence I constantly monitor such platforms to get the latest of open educational materials for our students.*

#### 4.9.4 Capacity

All the heads confirmed to implement collaborative tools and platforms that enable real-time among teachers and students and content creators and offer development training but not specifically towards OERs.

HM1 concluded that

*My school has initiated training programs to equip selected teachers with the technical skills required to identify and use OER materials.*

HM3 stated that

*Through training programmes, teachers are gaining the competence needed to locate relevant digital educational resources.*

H3 added that

*My school is gradually building internal capacity for effective integration of OER into teaching and learning.*

#### 4.9.5 Availability

On availability of OERs, the school heads encourage teachers to seamlessly integrate OER into their lesson plans and curriculum to promote regular use. One difficulty they had was quality assurance. To address this, there was the need to rely on reputable OER repositories or connect to quality creators. Usability testing helps to evaluate how easily educators and learners can navigate and use OER platforms and materials.

Particularly, SH3 expressed that

*The school teachers include OER materials in their teaching curriculum which makes teaching and learning easier.*

#### 4.9.6 Volition

In the context of volition, there have been a conducive environment which help to provide support and recognition of staff. They said this fosters a culture that values the knowledge –sharing and contribute to the wider educational community for the benefit of teachers and learners. Most of the heads analyzed data on performance of students, engagements, and outcomes associated with use of OER and compare the data with the traditional teaching method that help to identify any improvements.

SH2 and SH3

*Teachers were willing to share OER material with other teachers in the region. This create some sense of belonging in the educational arena of the region.*

## CHAPTER FIVE

### DISCUSSION OF FINDINGS

#### 5.1 Introduction

In this section, we looked at the findings that were produced from the analysis that was carried out in the fourth chapter. In connection with the study objectives and the theoretical framework that was selected for the investigation, it is formulated.

#### 5.2 Demographic characteristics

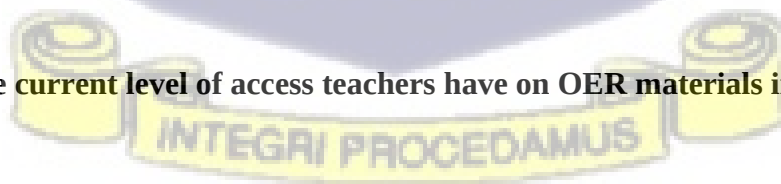
The demography of the study was made up of 170 males and 56 females respectively. More men responded to the questions than women. This corresponds to the dominance of male population in the institutions being investigated. The mean age of the respondents was 56.5 years. This indicates that teachers were mature and in the middle adulthood bracket. On the Academic rank of the respondents, it emerged that first-degree holders had inadequate knowledge of OERs. Teaching experience of respondents showed that, 42.92% of them had worked less than 10 years while 57% had served for over 10 years. This implies that majority of the respondents have experience and have provided reliable information

#### 5.3 Descriptive Statistics

This section discusses the descriptive statistics of all the closed-ended items of the study.

##### 5.3.1 Assess the current level of access teachers have on OER materials in the selected institutions

The first purpose of the study, derived from the theoretical framework, was to assess the level of access that teachers and students have to open educational resources (OER) in the selected institutions. The findings revealed that the majority of respondents agreed there is sufficient



technical infrastructure available for accessing and utilizing OER materials ( $M = 3.31$ ;  $SD = 1.30$ ). This result aligns with the findings of Abeywardena, Dhanarajan, and Lim (2013) in Malaysia, who emphasized that the establishment of adequate technological systems is essential for effective OER adoption in educational settings, as supported by the Open Educational Resources (OER) Asia and the Commonwealth of Learning (COL). Furthermore, the study found that the digital literacy of both teachers and students facilitates the effective use of OER, with a mean and standard deviation of ( $M = 3.56$ ;  $SD = 1.47$ ). This supports the work of Richter and McPherson (2012), whose study on open content and higher education confirmed that digital competence among educators enhances engagement with OER. Similarly, Tlili, Ofosu, and Zhang (2023), in a study at the University of Ghana, Legon, found that digital readiness significantly influences OER integration within institutional frameworks.

In terms of training and utilization, the study discovered that respondents agreed there is sufficient time and support provided to both teachers and students, as the organizational structure allows for effective communication across all levels ( $M = 3.28$ ;  $SD = 1.31$ ). This corroborates the findings of Azevedo and Cromley (2004), who highlighted that structured communication and institutional support are vital for continuous engagement with OER. Additionally, there was evidence of awareness and promotion of OER accessibility among the schools studied ( $M = 3.17$ ;  $SD = 1.28$ ), suggesting that institutions are making deliberate efforts to sensitize educators and learners on the benefits of OER.

Finally, the study observed that platforms exist for teachers and students to collaborate on OER initiatives ( $M = 3.41$ ;  $SD = 1.37$ ), indicating that the institutional frameworks and funding mechanisms in place support the timely implementation and sustainability of OER practices. This is consistent with Roslan et al. (2021), who found that perceived usefulness significantly influences users' intentions to adopt OER, with attitudes mediating these effects.

Similarly, Adedoyin et al. (2024) confirmed that organizational structures that foster collaboration and provide resources for technological innovation enhance OER deployment. Collectively, these findings underscore the importance of digital literacy, institutional support, and collaborative structures in facilitating effective access to OER in educational institutions.

These findings collectively suggest that while access and awareness of OER are steadily improving within Ghanaian schools, there remain the need to strengthen the systemic and cultural aspects of OER integration. Factors such as continuous teacher training, leadership commitment, and quality assurance mechanisms should be prioritized to move from mere access toward meaningful and sustained use. Additionally, the disparity across schools in technical readiness and OER engagement may be attributed to uneven distribution of ICT resources, differences in management priorities, and the absence of standardized national OER policies. Strengthening inter-school collaborations and establishing a national OER framework could therefore enhance equity and long-term sustainability in OER adoption across Ghana's educational institutions.

### **5.3.2 Permission to Use OER**

The second objective of the study examined respondents' views on permission to use Open Educational Resources (OER) at the selected Senior High Schools. The findings revealed that the majority of respondents agreed with the statement that "flexible copyright exemptions or fair use rules may make producing and distributing OER easier" ( $M = 3.30$ ;  $SD = 1.055$ ). Specifically, 22.8% of respondents strongly agreed, 47.4% agreed, 15.8% were undecided, 8.8% disagreed, and 5.3% strongly disagreed. This finding aligns with Otto (2019), whose study in North California, USA, on the adoption and diffusion of OER in education established that flexible copyright regimes enhance the creation and dissemination of open materials by lowering institutional and legal barriers.



The study further sought respondents' opinions on whether "the ability of licenses to work with other OER or proprietary materials is a crucial consideration." It was observed that the majority of respondents agreed with this statement ( $M = 3.82$ ;  $SD = 0.523$ ), with 10.5% strongly agreeing, 56.1% agreeing, 19.3% undecided, 10.5% disagreeing, and 3.5% strongly disagreeing. This supports Wiley, Bliss, and McEwen's (2014) findings on user acceptance of library technology at the University of South Africa, which emphasized the importance of interoperability and license compatibility in fostering efficient OER adoption and collaboration across platforms.

Respondents were also asked whether "the extent to which licenses allow users to modify and adapt OER to meet their unique educational needs has an impact on the permissions dimension." The majority agreed ( $M = 3.58$ ;  $SD = 0.859$ ), with 10.5% strongly agreeing, 54.4% agreeing, 28.1% undecided, and 7.0% disagreeing. This finding corroborates Cobo's (2013) study in Malaysia, which revealed that university open access repositories enhanced the librarian's role as a curator of institutional content and promoted reuse and adaptation of materials for diverse educational purposes.

As shown in Table 10, most respondents agreed that "respecting the permissions dimension requires adherence to the attribution criteria" ( $M = 3.60$ ;  $SD = 0.728$ ), with 12.3% strongly agreeing, 54.4% agreeing, 21.1% undecided, 10.5% disagreeing, and 1.8% strongly disagreeing. This finding is consistent with Almendro and Silveira (2018), whose work on organizational theory emphasized ethical and procedural compliance as central to institutional trust and accountability.

Finally, the study explored whether "it is crucial to take into account licensing that is consistent with the values and culture of institutions." The majority of respondents strongly agreed ( $M = 3.88$ ;  $SD = 0.558$ ), with 15.3% strongly agreeing, 57.9% agreeing, 14.0% undecided, 10.5% disagreeing, and 1.8% strongly disagreeing. This outcome aligns with

Butcher (2015), who emphasized that aligning licensing models with institutional values and cultural norms enhances the sustainable adoption of OER, as observed in the South African Institute for Distance Education's OER initiatives.

From the findings arrived at in the analysis, these findings collectively suggest that while Ghanaian educators increasingly recognize the legal, ethical, and institutional dimensions of Open Educational Resources (OER), variations in understanding and implementation still persist. The general agreement on flexible copyright exemptions, interoperability of licenses, and adaptability of OER reflects a growing awareness of the importance of open licensing and intellectual property management within the education system. However, limited training on copyright literacy and inconsistent institutional support may hinder full realization of these benefits. The emphasis on attribution and alignment of licensing with institutional culture further indicates that schools value ethical practices and contextual relevance in adopting OER. Yet, the uneven distribution of technical capacity and knowledge among teachers suggests that more structured professional development is required. Overall, the results imply that while the foundations for effective OER adoption exist, their sustainability depends on strengthening educators' competencies in open licensing, integrating cultural and institutional values into policy frameworks, and providing ongoing institutional and governmental support to standardize best practices across schools.

### 5.3.3 OER Awareness

This study sought to assess teachers' knowledge of key features of Open Educational Resources (OERs) to determine their level of awareness and familiarity with such materials. The results, as presented in Table 7, revealed that teachers generally exhibited a high level of awareness of OERs ( $M = 3.86$ ,  $SD = 0.904$ ). Across the four schools, most respondents strongly agreed that teachers' knowledge significantly facilitates the effective use of OERs, with consistently high mean scores across Wesley Girls' SHS ( $M = 3.97$ ,  $SD = 1.209$ ),

Mfantsipim School ( $M = 3.94$ ,  $SD = 1.114$ ), Holy Child SHS ( $M = 3.87$ ,  $SD = 0.946$ ), and St. Augustine's College ( $M = 3.76$ ,  $SD = 1.082$ ). This finding supports the study by Bossu, Brown, and Bull (2011) at Athabasca University, which explored institutional policies for OER practices in Australia and found that increased teacher awareness plays a crucial role in promoting OER adoption.

Teachers in the present study also agreed that open educational resources are materials that can be reused, adapted, and integrated into classroom teaching to enhance learning outcomes. This was reflected in high mean values ( $M = 4.18$ ,  $SD = 0.964$ ;  $M = 4.10$ ,  $SD = 0.951$ ;  $M = 3.95$ ,  $SD = 0.982$ ; and  $M = 4.05$ ,  $SD = 0.897$ ) across the four schools. Furthermore, teachers demonstrated strong awareness of the role of collaborative networks in facilitating collective knowledge sharing about OERs ( $M = 4.08$ ,  $SD = 1.089$ ). In addition, respondents showed an appreciable understanding of how institutional policies and feedback mechanisms influence the quality and adoption of OERs ( $M = 3.74$ ,  $SD = 1.061$ ;  $M = 3.83$ ,  $SD = 0.985$ ). However, slightly lower levels of awareness were observed in the incorporation of OERs into teaching practices and in promoting student involvement in OER use, which recorded total means of 3.72 ( $SD = 1.238$ ) and 3.56 ( $SD = 1.250$ ), respectively.

From a researcher's perspective, these findings provide valuable insight into the growing institutional and pedagogical recognition of OERs in Ghanaian secondary schools. The generally high level of awareness among teachers suggests that most schools have made notable progress in integrating digital education practices and fostering professional development that emphasizes the use of open content. This may be attributed to increasing national and global advocacy for open access learning, as well as the availability of digital infrastructures that support resource sharing and online collaboration among educators.

The high mean scores observed across the four schools could also be linked to the proactive attitudes of teachers who see OERs as cost-effective tools that improve lesson delivery and enhance student engagement. Teachers' participation in professional learning communities and training workshops may have also contributed to their improved awareness and competence in identifying, adapting, and applying OER materials. This aligns with the assertion by Bossu, Brown, and Bull (2011) that institutional support and awareness initiatives are key drivers in successful OER implementation. The researcher also observes that the slightly lower awareness regarding the incorporation of OERs into classroom practices and student involvement may stem from limited hands-on exposure or insufficient institutional strategies for promoting OER-based teaching. In some cases, teachers may be aware of OERs conceptually but lack the necessary pedagogical frameworks or incentives to fully integrate them into the curriculum. Moreover, variations in digital literacy levels, inadequate ICT infrastructure in some schools, and inconsistent access to reliable internet connectivity may hinder practical engagement with OERs.

#### **5.3.4 Institutional Capacity for OER**

As evidenced by the mean and standard deviation ( $M = 3.02$ ;  $SD = 1.525$ ), the findings of this objective demonstrated that the majority of respondents agreed that their institutions possess appropriate technical infrastructure essential for accessing and utilizing open educational resources (OER). This finding supports the study conducted by Shukla (2022) in Tanzania, which examined the role of technological readiness in educational settings. Furthermore, the study sought to determine whether teachers' and students' digital competence facilitates the effective use of OER. The results ( $M = 3.77$ ;  $SD = 1.255$ ) indicated that most respondents agreed that the digital literacy of users significantly enhances their ability to access, adapt, and integrate OER into teaching and learning activities. This aligns

with the findings of Armah and Mereku (2018), who emphasized the importance of digital skills in developing effective OER in Ghana.

The respondents were also asked to indicate whether sufficient time is allocated for training and using OER. The findings ( $M = 2.96$ ;  $SD = 1.275$ ) suggested that respondents were generally neutral or slightly in disagreement, implying that limited time allocation remains a notable constraint to the effective utilization of OER within the schools. This observation echoes Moon et al. (2021), who highlighted how time management and organizational structures influence educational resource adoption. Additionally, the study assessed whether awareness and promotion of OER within the schools supports their utilization. The results ( $M = 3.17$ ;  $SD = 1.238$ ) showed that most respondents agreed that awareness initiatives are in place, which is consistent with McBride and Abramovich (2022), who noted that awareness is critical for successful OER adoption.

Finally, the study examined the existence of platforms for collaboration between teachers and students in the use of OER. With a mean and standard deviation of ( $M = 3.44$ ;  $SD = 1.387$ ), the majority of respondents strongly agreed that organizational structures and systems in place facilitate timely and effective adoption of OER. This suggests that institutional support mechanisms, including collaborative platforms, are instrumental in promoting sustainable OER integration and enhancing teaching and learning outcomes across the selected schools.

From a researcher's perspective, the findings suggest that institutional readiness and digital competence are key enablers for the effective adoption of Open Educational Resources (OER) in the selected schools. The presence of adequate technical infrastructure indicates that schools have invested in digital tools and systems, creating a foundational environment for OER integration. Complementing this, the demonstrated digital literacy of teachers and students highlights the importance of user skills and confidence in leveraging these resources effectively. These factors collectively facilitate the adaptation, integration, and meaningful

use of OER in teaching and learning activities. However, time allocation for training and OER utilization emerged as a notable constraint, likely due to rigid school schedules, competing academic priorities, and insufficient incorporation of OER-focused professional development. This limitation may impede the full realization of OER's potential despite adequate infrastructure and skills. Additionally, while awareness initiatives and collaborative platforms exist, ongoing advocacy and structured opportunities for teacher-student interaction are essential to promote sustained engagement and knowledge sharing.

### 5.3.5 Availability of OERs

The findings suggest that while schools have made significant strides in establishing digital access pathways, disparities in accessibility persist, reflecting uneven institutional capacity and investment in technology infrastructure. The moderate agreement on the availability and adaptability of OER materials indicates that, although resources exist, their diversity, flexibility, and comprehensiveness are not yet sufficient to meet all pedagogical needs. This aligns with Aaltonen and Ikävalko (2002), who emphasize that successful implementation of strategies requires not only infrastructure but also ongoing adaptation to organizational realities.

The alignment of OER with curriculum standards demonstrates institutional efforts to ensure relevance, but moderate scores on inclusivity and media accessibility highlight gaps in addressing diverse learner needs. Abeywardena, Dhanarajan, and Lim (2013) similarly observe that OER adoption is often constrained by the lack of tailored content and technical support, which limits broader usage. Quality assurance and regular updates of OER materials scored only moderately, indicating that mechanisms for monitoring accuracy, reliability, and currency are either absent or inconsistently applied. Almendro and Silveira (2018) note that rigorous quality frameworks are essential for sustaining OER effectiveness, while Huang et



al. (2020) emphasize that ongoing maintenance ensures continued relevance and usability. From a researcher's perspective, these findings suggest that while awareness and initial adoption of OER are growing, institutional strategies must strengthen content diversity, quality assurance, inclusivity, and continuous improvement to ensure sustainable OER integration (Luo et al., 2020; Wolfenden et al., 2012).

### 5.3.6 Volition of OERs

The findings reveal that volitional factors, including attitudes, motivation, and perceived benefits, play a crucial role in shaping teachers' and students' engagement with Open Educational Resources (OER). Respondents' generally positive attitudes toward OER ( $M = 3.18$ ;  $SD = 1.245$ ) suggest that both groups are developing intrinsic motivation and a willingness to adopt digital resources in teaching and learning. Aaltonen and Ikävalko (2002) argue that the successful implementation of innovations depends not only on infrastructure but also on cultivating favorable mindsets, which aligns with the observed moderate yet encouraging engagement. Motivation to use OER, professional development opportunities, and peer influence all recorded moderate scores, reflecting that while the foundation for OER adoption exists, it is inconsistently applied across schools. Abeywardena, Dhanarajan, and Lim (2013) emphasize that limited exposure, uneven training, and institutional disparities can constrain the uptake of OER, supporting these findings. Similarly, the presence of incentives and recognition mechanisms remains nascent, indicating that behavioural reinforcement through rewards and acknowledgment could further enhance participation.

Leadership's role and collaborative engagement, though moderately rated, highlight the need for structured strategies to embed OER use into school culture. Almendro and Silveira (2018) underscore that organizational support and communities of practice are critical for sustaining OER adoption, particularly for fostering peer learning. Respondents' recognition of OER's

potential impacts and strong awareness of sustainability and scalability ( $M = 4.11$ ;  $SD = 0.78$ ) indicates appreciation of long-term educational benefits. Luo et al. (2020) and Wolfenden et al. (2012) reinforce that awareness of OER reusability and scalability is a driver for equitable access and institutionalization, but habitual integration depends on consistent policy, incentives, and professional support. Overall, these findings suggest that while cognitive and attitudinal foundations for OER use are present, systemic and structural enhancements are required for sustainable engagement.

#### **5.4 Discussion of Qualitative Data Analysis**

Interview guides given to the participants in the study were analyzed in this section.

##### **5.4.1 Accessibility**

Seventy-five percent (75%) of the heads agreed that their school provided training for teachers and students to create awareness. Three out of the 4 said their schools engage with the OER community to stay informed to ensure best practices. These findings corroborate quantitative findings of the theoretical framework where teachers agreed that there is adequate infrastructure to guarantee the use of OER in their institutions.

##### **5.4.2 Permission**

About 75% of the heads provide proper credit to the original creator in the second objective. Three of the headmasters do not have any trouble acquiring authorization to utilize particular OER materials in their school. All the four heads do not have any written policies yet with regards to their institution having policies or procedures in place to ensure the proper acquisition and use of open educational resources. This finding corroborates quantitative findings of the theoretical framework used for the study where three out of the four schools engaged in the OER community to stay informed to ensure best practices.



### 5.4.3 Awareness

From the third objective, 50% of the heads stay up to date with OER's accessibility and applicability to teaching methods by regularly checking educational platforms to stay current and relevant, while the rest did not come out with any remedy with regards to the above statement. All the 4 heads do departmental review of courses to know of any programme (s) that offer details on high-quality OER that suit teacher's topic area or curriculum. Most of the heads confirm to have expert presentations and resource libraries to create centralized repositories of OER materials. This finding corroborates the theoretical framework as applied in this study where teachers agreed that they are aware of the difference between the existence of OER materials and other materials.

### 5.4.4 Capacity

From the fourth objective, 100% the heads confirmed to implement collaborative tools and platforms that enable real-time among teachers and students and content creators and offer development training but not specifically towards OERs. They also observe their abilities and seek for feedback and give support regularly. This finding corroborates quantitative findings of theoretical framework where teachers agreed that they have the requisite expertise to use OER materials.

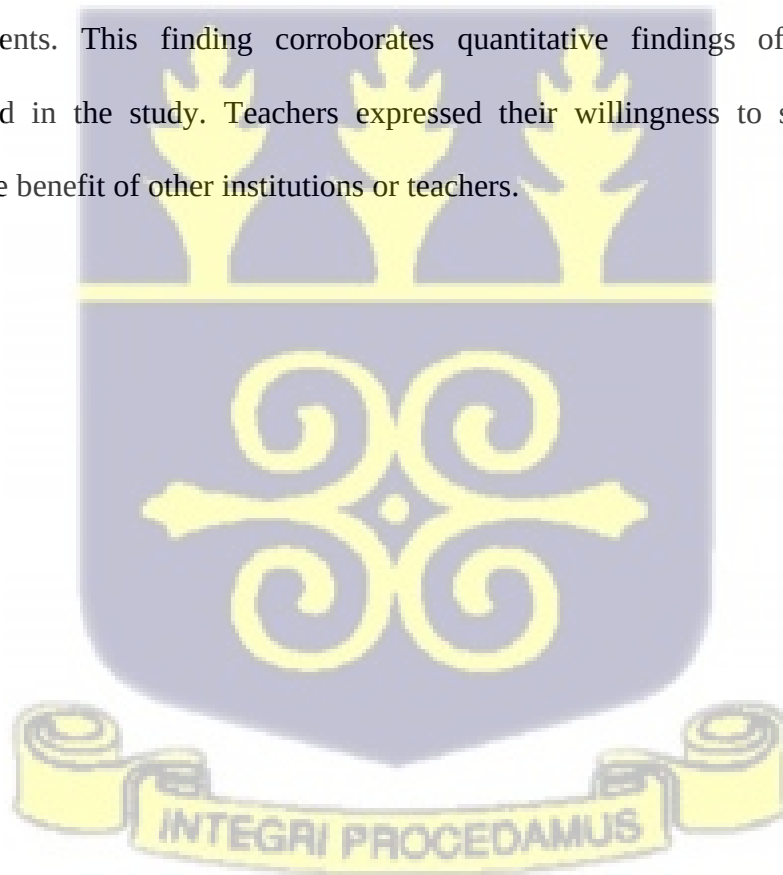
### 5.4.6 Availability

On availability of OERs as it was investigated in the fifth objective, 100% heads encouraged teachers to seamlessly integrate OER into their lesson plans and curriculum to promote regular use. One difficulty they had was quality assurance. To address this, there is the need to rely on reputable OER repositories or connect to quality creators. Additionally, usability testing helps to evaluate how easily educators and learners can navigate and use OER platforms and materials. This finding refutes the quantitative findings of the theoretical

framework used for the study where the teachers indicated that they do not have any policy regarding the use of OER in their institutions

#### 5.4.7 Volition

The sixth objective is volition. Most of the heads have a conducive environment which help to provide support and recognition of teachers and staff which help increase enthusiasm. They said this fosters a culture that values the knowledge –sharing and contribute to the wider educational community for the benefit of teachers and learners. Most of the heads analyzed data on performance of students, engagements, and outcomes associated with the use of OER and compare the data with the traditional teaching method that help to identify any improvements. This finding corroborates quantitative findings of the theoretical framework used in the study. Teachers expressed their willingness to share their OER materials for the benefit of other institutions or teachers.



## CHAPTER SIX

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 6.1 Introduction

Within this chapter, a summary of the research on Open Educational Resources as well as the theories that were utilized to explain and carry out the research is presented. This chapter presents the most important findings, implications, conclusions, and suggestions that were derived from the study. In addition to this, it recognizes the contribution that the study has made to knowledge as well as potential research fields.

#### 6.2 Summary of Findings

##### 6.2.1 Access to OER

The survey findings indicate that respondents generally perceive their schools as having adequate infrastructure and support for Open Educational Resources (OER). Most agreed that sufficient technical infrastructure exists to access and utilize OER ( $M = 3.31$ ;  $SD = 1.30$ ), and that digital literacy among teachers and students facilitates effective OER use ( $M = 3.56$ ;  $SD = 1.47$ ), including the availability of licensing and copyright mechanisms. Respondents also noted that organizational structures enable both vertical and horizontal communication to support OER integration ( $M = 3.28$ ;  $SD = 1.31$ ). Awareness and promotion of OER materials were similarly recognized as present within the schools ( $M = 3.17$ ;  $SD = 1.28$ ). Furthermore, the majority agreed that platforms and institutional mechanisms exist to support teacher-student collaboration, timely implementation, and sustainable use of OER ( $M = 3.41$ ;  $SD = 1.37$ ).

##### 6.2.2 Permission to Use OER

In accordance with the findings, on the permissions dimension of Open Educational Resources (OER) at the selected Senior High Schools indicate that respondents generally

recognize the importance of licensing flexibility and adherence to copyright principles. Most respondents agreed that flexible copyright exemptions or fair use rules facilitate the production and distribution of OER ( $M = 3.30$ ;  $SD = 1.055$ ), highlighting support for legal mechanisms that enable resource sharing. The ability of licenses to be compatible with other OER or proprietary materials was also strongly acknowledged as important ( $M = 3.82$ ;  $SD = 0.523$ ), suggesting that interoperability is a key consideration for effective OER use.

Respondents further agreed that licenses permitting modification and adaptation to meet unique educational needs significantly impact OER permissions ( $M = 3.58$ ;  $SD = 0.859$ ), reflecting the value placed on customization for teaching and learning. Adherence to attribution criteria was seen as essential for respecting permissions ( $M = 3.60$ ;  $SD = 0.728$ ), emphasizing ethical and proper use of shared resources. Finally, the majority strongly agreed on the necessity of aligning licensing practices with institutional values and culture ( $M = 3.88$ ;  $SD = 0.558$ ), indicating a recognition that permissions should reflect contextual and cultural appropriateness. Overall, these findings suggest that respondents appreciate both the flexibility and ethical considerations in licensing OER to maximize usability and alignment with institutional standards.

### 6.2.3 OER Awareness

In general, teachers across the four selected Senior High Schools demonstrate a high level of awareness and knowledge of Open Educational Resources (OERs). Overall, respondents showed strong agreement that teachers' knowledge facilitates effective OER use ( $M = 3.86$ ,  $SD = 0.904$ ), with consistently high mean scores across Wesley Girls' SHS, Mfantsipim School, Holy Child SHS, and St. Augustine's College. Participation in training programs was found to significantly enhance teachers' OER knowledge, with mean scores ranging from

3.95 to 4.18, indicating that professional development initiatives play a critical role in equipping educators with necessary skills.

Teachers also recognized the value of collaborative networks in promoting collective knowledge sharing on OERs ( $M = 4.08$ ,  $SD = 1.089$ ), highlighting the importance of peer interactions and institutional support for effective resource utilization. Awareness of the role of institutional policies and feedback mechanisms in influencing OER quality and adoption was similarly strong ( $M = 3.74$ – $3.83$ ), suggesting that teachers understand the structural factors supporting sustainable OER integration. Slightly lower awareness was noted regarding the incorporation of OERs into teaching and student engagement ( $M = 3.56$ – $3.72$ ), implying some gaps in practical application. Overall, the findings indicate that teachers possess substantial understanding of OER principles, practices, and supporting frameworks, positioning them to effectively leverage these resources in teaching and learning.

#### **6.2.4 Institutional Capacity for OER**

The findings indicate that the selected schools generally possess the institutional capacity to support Open Educational Resources (OER), though some gaps remain. Respondents agreed that adequate technical infrastructure exists to facilitate OER access and use ( $M = 3.02$ ;  $SD = 1.525$ ), suggesting that the basic technological requirements are largely in place. Digital literacy among teachers and students was identified as a key factor in effectively utilizing OER, with most respondents agreeing that higher competence enhances integration into teaching and learning ( $M = 3.77$ ;  $SD = 1.255$ ). However, limited time allocation for training and OER use was noted as a constraint, with respondents expressing neutral to slightly negative views ( $M = 2.96$ ;  $SD = 1.275$ ). Similarly, while mechanisms for evaluating the quality, relevance, and appropriateness of OER exist, they are only moderately developed and inconsistently applied ( $M = 2.93$ ;  $SD = 1.354$ ). Collaboration platforms were acknowledged

as available ( $M = 3.21$ ;  $SD = 1.387$ ), indicating institutional recognition of interactive OER environments, though usage varies across schools. Institutional policies and guidelines to govern OER adoption were also recognized ( $M = 3.25$ ;  $SD = 1.387$ ), reflecting efforts to provide structural support, while feedback systems for monitoring OER impact showed moderate presence ( $M = 3.04$ ;  $SD = 1.387$ ), highlighting the need for more systematic evaluation. Overall, the findings suggest that while institutional capacity exists, enhancing time allocation, quality assurance, and feedback mechanisms is essential for sustainable OER integration.

### 6.2.5 Availability of OER

Teachers in the selected schools generally have reasonable access to Open Educational Resources (OER) ( $M = 3.18$ ;  $SD = 1.245$ ), although disparities in accessibility exist across institutions. Respondents reported moderate agreement regarding the diversity and range of OER materials available ( $M = 3.09$ ;  $SD = 1.187$ ), suggesting that while resources exist, they may not fully meet all teaching and learning needs. The alignment of OER with curriculum standards and learning objectives received a slightly higher agreement ( $M = 3.16$ ;  $SD = 1.165$ ), reflecting ongoing efforts to ensure educational relevance. Flexibility for adapting, modifying, or customizing OER materials was acknowledged to a moderate degree ( $M = 3.08$ ;  $SD = 1.159$ ), indicating that support for content adaptation varies among schools. Similarly, the use of multiple media platforms for accessing OER received general agreement ( $M = 3.12$ ;  $SD = 1.211$ ), showing growing diversification in delivery methods. The extent to which OER accommodates the varying needs of teachers and students, including inclusivity considerations, received moderate agreement ( $M = 3.03$ ;  $SD = 1.209$ ), highlighting areas for improvement, particularly for learners with special needs. Quality assurance processes for OER were moderately recognized ( $M = 2.94$ ;  $SD = 1.235$ ), suggesting that evaluation

mechanisms exist but are not yet standardized or consistently applied. Regular updating and maintenance of OER materials also received moderate agreement ( $M = 2.88$ ;  $SD = 1.246$ ), indicating that while some schools periodically refresh resources, systematic maintenance and version control remain limited.

### 6.2.6 Volition of OER

The study's findings on volitional factors influencing teachers' and students' engagement with Open Educational Resources (OER) reveal several key points. Respondents generally agreed that both teachers and students have developed positive attitudes and beliefs that encourage OER use ( $M = 3.18$ ;  $SD = 1.245$ ), reflecting growing intrinsic motivation and openness to integrating digital resources into teaching and learning. Motivation to use OER materials was moderately agreed upon ( $M = 3.09$ ;  $SD = 1.187$ ), though it varied across schools depending on factors such as ICT access, digital literacy, and perceived usefulness. Professional development opportunities showed moderate support ( $M = 3.16$ ;  $SD = 1.165$ ), indicating that while training exists, it may not be sufficient or frequent enough to fully equip all users. Peer influence ( $M = 3.08$ ;  $SD = 1.159$ ) and incentives or recognition mechanisms ( $M = 3.12$ ;  $SD = 1.211$ ) were also at moderate levels, suggesting that social and institutional reinforcement for OER engagement is emerging but not yet robust. School leadership's role in fostering a supportive OER culture was moderately acknowledged ( $M = 3.03$ ;  $SD = 1.209$ ), while collaborative engagement among peers remained underdeveloped ( $M = 2.94$ ;  $SD = 1.235$ ), highlighting the need for structured communities of practice or OER clubs. Respondents moderately recognized the positive impact of OER on teaching and learning outcomes ( $M = 2.88$ ;  $SD = 1.246$ ). Finally, there was strong awareness of OER sustainability and scalability ( $M = 4.11$ ;  $SD = 0.78$ ), showing that teachers and students understand the long-term value and potential for equitable access to quality education.



### 6.3 Qualitative Data Summary

Interview guides given to the participants in the study were analyzed in this section.

#### 6.3.1 Accessibility

Every single headmaster was in agreement that their institution offered training for both the teachers and the students in order to raise awareness. It was reported by three out of the four that their educational institutions participated in the open educational resource (OER) community in order to maintain awareness and assure the implementation of best practices.

#### 6.3.2 Permission

A significant majority of the headmasters gave the original author the credit that was due to them. Three of the headmasters do not have any problems gaining authorization to use certain open educational resources (OER) at their school; nonetheless, they do respond to them by advising them to contact the creator for assistance if they are able to do so. All four of the headmasters do not currently have any formal policies in place about their institution's policies or processes that are in place to ensure the appropriate purchase and utilization of open educational resources inside their respective institutions.

#### 6.3.3 Awareness

However, only two of the four headmasters were aware of the accessibility of open educational resources (OER) and its relevance to various teaching methods. These headmasters kept themselves up to date by routinely reviewing educational platforms in order to remain current and relevant. The remaining headmasters did not provide any solution to the problem described above. Each of the four heads of departments conducted a departmental review of the courses in order to identify any program(s) that provided information on open educational resources (OER) of a high quality that were suitable for the



subject matter or curriculum of the teachers. In order to establish centralized repositories of open educational resource materials, the majority of the heads indicated that they have expert presentations and resource libraries.

#### **6.3.4 Capacity**

It was affirmed by every headmaster that they would install collaborative tools and platforms that would allow for real-time communication between teachers, students, and content creators. Additionally, they would provide development training, although not explicitly for open educational resources (OERs). In addition, they should keep an eye on their capabilities, as well as solicit comments and provide help on a consistent basis.

#### **6.3.5 Availability**

Concerning the availability of open educational resources (OERs), they urged educators to include OERs into their lesson plans and curricula in a seamless manner in order to encourage frequent use. Maintaining quality control was one of the challenges they faced. In order to address this issue, it is necessary to rely on open-access repository sites that have a good reputation or to establish connections with creators of high quality. They stated that usability testing is helpful in determining how readily Open Educational Resources (OER) platforms and resources can be navigated and utilized by instructors and students.

#### **6.3.6 Volition**

The majority of the departments had an atmosphere that was favorable, which helped to provide support and recognition to the staff and teachers, which in turn helped to promote excitement. According to them, this helped to cultivate a culture that placed a high value on the exchange of information and made a contribution to the larger educational community for the betterment of both educators and students. As a result of analyzing data on student

performance, engagements, and results linked with the usage of open educational resources (OER), the majority of these heads contrasted the data with the traditional teaching technique, which assisted in identifying any improvements that could be made.

#### **6.4 Conclusion**

Within the setting of Ghana, this study investigated the key factors necessary for the effective utilization of Open Educational Resources (OER) in Ghanaian second cycle schools, focusing on access, permission, awareness, institutional capacity, availability, and volition. These factors encompass both individual and institutional dimensions and are critical for advancing the integration of digital resources to enhance teaching and learning across the country. The findings demonstrate that while teachers and students generally have reasonable access to OER, possess substantial awareness, and show positive attitudes and motivation toward using these resources, significant gaps remain in institutional planning, policies, and structural support.

Specifically, the survey revealed that schools possess adequate technical infrastructure and digital literacy levels to facilitate OER use, and that licensing mechanisms and organizational structures support collaboration and resource sharing. Teachers are well-informed about OER principles, and professional development initiatives enhance their knowledge and capacity. Respondents also recognized the importance of flexible licensing, ethical usage, and cultural alignment of OER, as well as the potential benefits of OER for improving teaching and learning outcomes. Strong awareness of OER sustainability and scalability further indicates an understanding of the long-term value of these resources.

However, despite these positive trends, the study found that most institutions lack formal policies, strategic plans, and structured programs for the systematic adoption and deployment of OER. Institutional capacity is present but requires strengthening, particularly in the areas

of quality assurance, feedback mechanisms, time allocation, and collaborative engagement. Variations in access, resource diversity, and the practical integration of OER into curricula highlight the need for more coordinated efforts across schools. Qualitative insights further underscored that while heads of institutions and departments recognize the potential of OER and provide support, formal structures and centralized systems for management, evaluation, and sustainable implementation are largely absent.

## 6.5 Recommendations

1. The Ghana Education Service should incorporate Open Educational Resources (OER) concept into pre-service and in-service teacher training programs by stakeholders such as Ghana Education Service. This will ensure that future educators are trained to use open educational materials effectively in their classrooms and are aware of their availability.
2. The Ghana Education Service (GES) should implement a formal OER integration policy that standardises the use, adaptation and sharing of digital resources across all departments in SHS. Such a policy could provide clear guidelines on resource accessibility, quality assurance, copyright adherence and teacher-student collaboration, ensuring that the existing infrastructure and digital literacy are fully leveraged for sustainable OER adoption.
3. Leadership of the Senior High Schools should implement a comprehensive OER licensing and permissions policy. This policy would provide clear guidelines on copyright compliance, fair use, resource adaptation, interoperability and attribution, ensuring that OERs are used ethically, legally, and in ways that align with the schools' educational objectives and cultural context.

4. The Ghana Education Service (GES) should implement a national professional development policy on OER integration, ensuring all teachers receive regular, structured training on OER use, collaborative teaching practices, and effective student engagement strategies. This policy would institutionalize continuous capacity-building, promote best practices, and bridge the gap between OER awareness and practical application in classrooms.
5. The Ghana Education Service (GES) should collaborate with the respective SHS to develop and implement a comprehensive institutional OER support policy that mandates dedicated time for teacher and student training, establishes standardized quality assurance procedures, and introduces formal feedback mechanisms. This would strengthen institutional capacity, ensure consistent OER adoption, and promote sustainable integration across all senior high schools.
6. The Ghana Educational Service should develop a national OER accessibility and inclusivity policy that ensures equitable access to diverse and curriculum-aligned resources across all senior high schools. This policy should mandate regular updates, quality assurance, and support for adapting OER to meet diverse learner needs, including those with special educational requirements.
7. The Ministry of Education should Implement a teacher and student engagement strategy that promotes intrinsic motivation and sustained OER use. This could include structured professional development programs, peer mentoring networks, recognition or incentive schemes, and the establishment of OER clubs or communities of practice to foster collaborative learning and strengthen OER adoption culture.

## 6.6 Contribution to Knowledge

In order to investigate the utilization of open educational resources (OER) by senior high school teachers in the Cape Coast Metropolis, this study utilized a mixed method approach. The innovation of open educational resources (OER) is very new on the continent, and there are not many research on them. To begin, this study is distinguished from other studies that have been conducted by the implementation of a novel methodology. While the majority of previous research on the utilization of open educational resources (OER) has relied on qualitative, quantitative, and quasi-experimental design survey approaches, the present investigation utilizes an explanatory sequential mixed method study approach. Utilizing open educational resources (OER) at Ghana's second-cycle educational institutions is the purpose of this methodological choice, which was made on purpose with the idea of obtaining comprehensive information. In addition, there is a significant gap in the Ghanaian literature about the absence of a framework that explains the implementation of open educational resources (OER). This study tackles this scarcity by adopting the Open Educational Resource (OER) Pyramid paradigm, which highlights concerns of access, permission, awareness, capability, availability, and volition in relation to the use of OER in Ghanaian second-cycle institutions. With this contribution, the current body of knowledge on the acceptance and use of open educational resources (OER) is expanded, and clarification is provided on the factors that could make the implementation of OER in Ghana's second-cycle institutions a successful endeavor.

## 6.7 Areas of Future Studies

It is of great importance to keep in mind that if this study were to be repeated in different districts, the outcomes might be different. With regard to this subject, it is possible to conduct a comparative research on two or more metropolitan areas in order to investigate the variances that may result in various impacts as a result of the deployment of open educational

resources (OER) in second cycle institutions in Ghana. The study could be conducted using the entire nation as a case study in order to investigate the degree to which the nation is prepared to adopt open educational resources in the institutions that are part of the second cycle. Consequently, this study must to be repeated in virtually all of the secondary schools across the nation, and it should not be restricted to just those in the Cape Coast Municipality.



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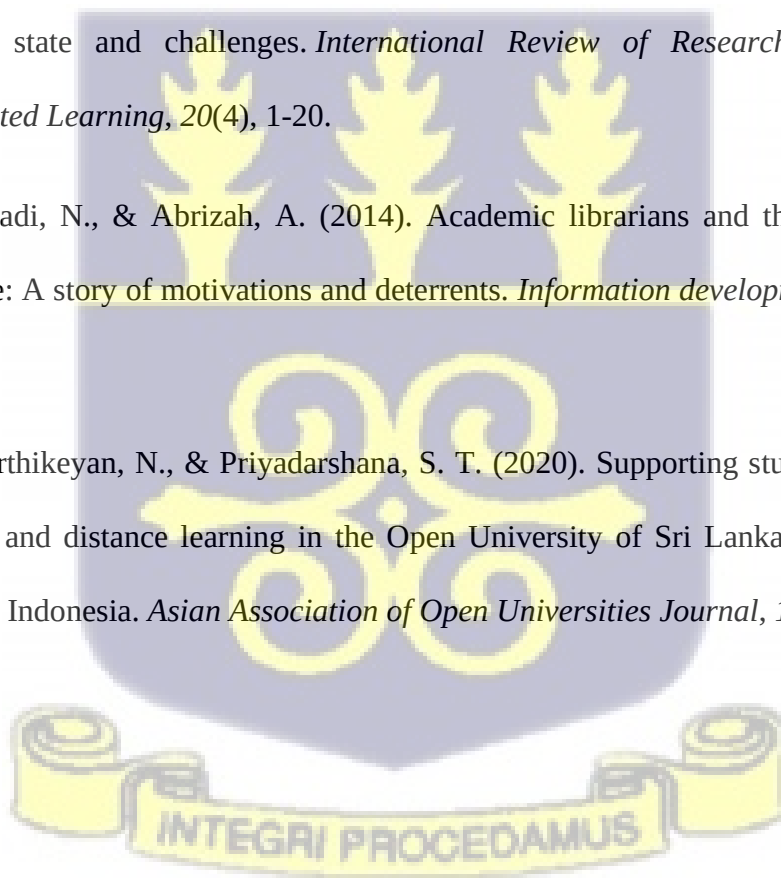


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## APPENDIX I

### QUESTIONNAIRES AND INTERVIEW GUIDES

***Questionnaire For Post Graduate Student On The Topic: “Use Of Open Educational Resources Among Senior High School Teachers In The Cape Coast Metropolis” The Case Of Some Selected Senior High Schools In Ghana***

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Dear sir/ Madam

My name is Rex J. Donkor, a student researcher pursuing an MPhil at the University of Ghana and currently conducting a study on the topic “use of open educational resources (OER) among senior high school teachers in the cape coast metropolis. This topic aims to reduce cost, create awareness, collaboration, sharing and improving innovation and creativity among teachers in the Cape Coast metropolis.

I will therefore be grateful if you could spare me a bit of your time to answer these questions to enable me achieve the objectives of the study. You are encouraged to be objective in your assessment as the findings of the study will assist forecast, explain and increase teachers’ acceptance of OER.

This is purely an academic exercise and you can be assured that the information you give will be treated with the utmost degree of confidentiality.



**SECTION A**

**Demographic Characteristics**

**Please tick (✓) as appropriate**

1. Your gender

Male ☐

Female ☐

2. Age

20-29 ☐

30-39 ☐

40-49 ☐

50-59 ☐

3. What is your level of education?

Diploma ☐

1<sup>st</sup> Degree ☐

Masters' Degree ☐

PhD ☐

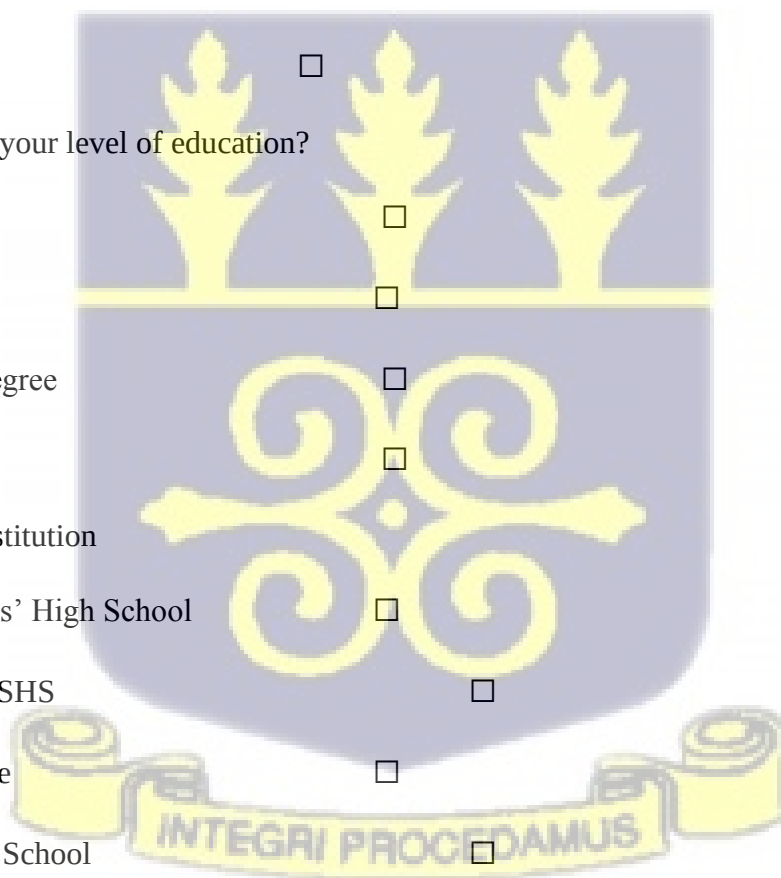
4. Your institution

Wesley Girls' High School ☐

Holy Child SHS ☐

St Augustine ☐

Mfantsipim School ☐



### Section B: Access to use OER

To what extent do you agree with the following statements that access influence use of OER?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| No | Access to use OER Access                                            | 1 | 2 | 3 | 4 | 5 |
|----|---------------------------------------------------------------------|---|---|---|---|---|
| 1  | The available license and copyright facilitate usage of OER         |   |   |   |   |   |
| 2  | There is proper infrastructure in place to facilitate OER access    |   |   |   |   |   |
| 3  | OER are localized through languages that are easily understandable  |   |   |   |   |   |
| 4  | There is massive awareness and promotion in accessing OER materials |   |   |   |   |   |
| 5  | The school has an institutional support for policies on OER         |   |   |   |   |   |
| 6  | There is funding to sustain OER in my school                        |   |   |   |   |   |



### SECTION C: Permission to Use OER

To what extent do you agree with the following statements concerning the permission to use of OER?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| NO | Permission to OER materials                                                                                                                         | 1 | 2 | 3 | 4 | 5 |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | Flexible copyright exemptions or fair use rules may make producing and distributing OER easier.                                                     |   |   |   |   |   |
| 2  | The ability of licenses to work with other OER or proprietary materials is a crucial consideration.                                                 |   |   |   |   |   |
| 3  | The extent to which licenses allow users to modify and adapt OER to meet their unique educational needs has an impact on the permissions dimension. |   |   |   |   |   |
| 4  | Respecting the permissions dimension requires adherence to the attribution criteria.                                                                |   |   |   |   |   |
| 5  | It is crucial to take into account licensing that is consistent with values and culture of institutions                                             |   |   |   |   |   |
| 6  | The license information linked with OER content must be clear and easily accessible.                                                                |   |   |   |   |   |



### SECTION D: Awareness of OER

To what extent do you agree with the following statements concerning awareness of OER in your institution?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| No | OER Awareness                                                                                           | 1 | 2 | 3 | 4 | 5 |
|----|---------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | Teachers' knowledge assists in the use of OER                                                           |   |   |   |   |   |
| 2  | Information sources provide updates and resources related to OER use.                                   |   |   |   |   |   |
| 3  | Participation in training programmes can enhance knowledge of OER                                       |   |   |   |   |   |
| 4  | Teachers seek and engage with information sources that provide updates and resources of OER             |   |   |   |   |   |
| 5  | Collaborative Networks contribute to the collective knowledge and resources related to OER.             |   |   |   |   |   |
| 6  | The presence of policies or guidelines at the institutional level can promote the use of OER            |   |   |   |   |   |
| 7  | The effectiveness, applicability, and quality of OER are improved by evaluation and feedback.           |   |   |   |   |   |
| 8  | The degree of OER incorporation into the curriculum can be used to improve learning and teaching.       |   |   |   |   |   |
| 9  | How well-informed and involved students are with OER resources promotes and facilitates student access. |   |   |   |   |   |

### SECTION E: Capacity

To what extent do you agree with the following statements concerning Institutional Capacity for OER in your institution?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| No | Institutional Capacity for OER                                                                                                                  | 1 | 2 | 3 | 4 | 5 |
|----|-------------------------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | There is adequate technical infrastructure necessary for accessing and utilizing OER                                                            |   |   |   |   |   |
| 2  | The digital literacy of teachers and students facilitate usage of OER                                                                           |   |   |   |   |   |
| 3  | There is enough time allocated to teachers and students in the training and usage of OER                                                        |   |   |   |   |   |
| 4  | There are mechanisms in place to evaluate the quality, relevance, and appropriateness of OER materials                                          |   |   |   |   |   |
| 5  | There are platforms for teachers and students to collaborate in the use of OER                                                                  |   |   |   |   |   |
| 6  | Institutional policies and guidelines exist in the use of OER                                                                                   |   |   |   |   |   |
| 7  | The school has established processes and tools to gather feedback from teachers and students about the impact and effectiveness of OER adoption |   |   |   |   |   |



### SECTION E: Availability

To what extent do you agree with the following statements concerning the availability of OER in your institution?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| No | OER Availability                                                                                                                  | 1 | 2 | 3 | 4 | 5 |
|----|-----------------------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | Teachers and students have access to discover and access OER                                                                      |   |   |   |   |   |
| 2  | There is a range of OER materials available to teachers and students in the school                                                |   |   |   |   |   |
| 3  | The available OER materials align with the curriculum standards and learning objectives                                           |   |   |   |   |   |
| 4  | OER materials can be adapted, modified or customised to suit the specific needs and preferences of teachers and students          |   |   |   |   |   |
| 5  | OER materials can be found in a variety of media platforms                                                                        |   |   |   |   |   |
| 6  | Available features of OER can accommodate the various needs of teachers and students                                              |   |   |   |   |   |
| 7  | There are quality assurance processes for evaluating the reliability, accuracy, and relevance of OER materials used in the school |   |   |   |   |   |
| 8  | There are regular updates and maintenance of OER materials in the school                                                          |   |   |   |   |   |

### SECTION F: Volition

*Volition refers to the act of making a conscious and deliberate choice or decision to engage with and utilize open educational resource (OER)*

To what extent do you agree with the following statements concerning the volition of OER in your institution?

Where 1=strongly agree, 2=agree, 3=Neutral, 4=disagree, 5=strongly disagree

| No | OER Volition                                                                                                      | 1 | 2 | 3 | 4 | 5 |
|----|-------------------------------------------------------------------------------------------------------------------|---|---|---|---|---|
| 1  | Teachers and students have developed attitudes and belief systems that encourage the use of OER                   |   |   |   |   |   |
| 2  | Teachers and students are motivated in the use of OER materials                                                   |   |   |   |   |   |
| 3  | Professional development opportunities are provided to support the use of OER                                     |   |   |   |   |   |
| 4  | There is peer influence in the use of OER among teachers and students                                             |   |   |   |   |   |
| 5  | There are incentives and recognition among teachers and students in the use of OER                                |   |   |   |   |   |
| 6  | School leadership help in fostering a supportive school culture that values and encourages the use of OER         |   |   |   |   |   |
| 7  | Peer collaborations encourage the use of OER in my school                                                         |   |   |   |   |   |
| 8  | The perceived positive impacts encourage teachers and students to use OER                                         |   |   |   |   |   |
| 9  | Teachers' and students' understanding of OER sustainability and scalability encourage the use of OER in my school |   |   |   |   |   |