

# **Grey Literature (GL): Access and Use Potentials for Healthcare Education Professionals in Developing Context: Ghana as a Case**

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# **Grey Literature (GL): access and use potentials for healthcare education professionals in developing context:**

## **Ghana as a case**

### **Abstract**

The growing interest in grey literature (GL) is attributed to the fact that it constitutes a significant part of scientific production. The proliferation of alternative/complementary approaches to professional practice as well as new modes of delivery that bring in new forms of knowledge and usage have made GL more essential to inform practice and theory. Similarly, the rise of advanced and sophisticated technologies for storing, retrieving and sharing of information have also improved and encouraged the use of GL by practitioners across different practice sectors. However, majority of the research and papers on GL is cast within the context of literature review for the purposes of research and library practice (management – obtaining, storing, sharing etc). In addition, there is limited focus on how practitioners access and use GL to inform their practice. In developing contexts such as in Africa, the importance of GL has been highlighted but the main issues are that it is not adequately documented, as well as limited national and regional databases and access issues. These issues have negatively affected the use of GL in many developing contexts. This research paper assesses access and potential use of GL by healthcare education professionals in a developing context through a critical analysis of the characteristics of online repositories from 5 selected public higher education institutions in Ghana. The finding shows that the case institutions' online repositories hold large databases of GL with many items relevant to healthcare education. It also indicates that many of the repositories are accessible online and have appropriate search engines that facilitate access and retrieval of documents. These characteristics post positive potential for access and use of grey literature by professionals. However, the finding highlights issues with intermittent access to internet in some of the repositories; lack of organised access and retrieval of GL materials.

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The paper provides a few recommendations which include provision of modern IT systems and stable internet connectivity to institutions holding large GL databases.

## **1. Introduction**

Many professions such as the education profession are knowledge and practice intensive professions. For example, teachers are expected to continuously draw on relevant up-to-date knowledge on subject content, effective teaching strategies and relevant educational policies to inform their professional practice. However, it is argued that teachers seldom draw on shared knowledge-base to improve their practice (Hiebert et al, 2002; Abukari & Abubakar, 2018). This situation is attributed to the fact that some sources of knowledge, such as research, is often less related to real practice or simply challenging to translate into practice. In the healthcare education and the wider healthcare profession, research is known to closely linked to practice in a wide range of practice areas, however, the use of GL to inform practice remains a cautious endeavour (Hoffecker, 2020). Across the globe, a wide range of propositions and governmental efforts have been made to both the disciplinary content and teaching strategies to facilitate student learning. One of the areas of growing interest being explored to support education/healthcare education practitioners to improve practice is informal publishing or grey literature (GL) (White et al, 2013;) due to limitations in academic literature (Yoshida, 2024). GL is increasingly becoming an important source of information for practitioners and researchers in many educational institutions and policy making entities (Lawrence et al, 2014; White et al, 2013; Adams et al, 2016; Marsolek et al, 2018; Schöpfel & Prost, 2021). According to Myška & Šavelka (2013), GL constitutes a significant part of scientific production; this could be one of the reasons why there is

growing attention for it. The proliferation of alternative/complementary approaches to professional practice as well as new modes of delivery that bring in new forms of knowledge and usage have made GL more essential to inform practice and theory. Similarly, the rise of advanced and sophisticated technologies for storing, retrieving and sharing of information have also improved and encouraged the use of GL by practitioners across different practice sectors. However, majority of the research and papers on GL is cast within the context of literature review for the purposes of research and library practice (management – obtaining, storing, sharing etc). In addition, there is limited focus on how practitioners’ access and use GL to inform their practice. In developing contexts such as in Africa, the importance of GL has been highlighted but the main issues are that it is not adequately documented, as well as limited national and regional databases and access issues (Osayande and Ukpebor, 2012). These issues have negatively affected the use of GL in many developing contexts (Alemna, 2001; Osayande and Ukpebor, 2012). This research paper assesses access and potential use of GL by healthcare education professionals in a developing context through a critical analysis of the characteristics of online repositories from selected public higher education institutions. Although the paper focuses generally on ‘professions’, examples are drawn from the healthcare education professions due to the interrelatedness and sizes of these professions in the developing contexts. Universities are seen as the vanguards to promote and facilitate access and use of GL as demonstrated in countries such as in the UK, the US and Australia. Healthcare education practitioners

generally refer to those professionals who teach healthcare related subjects at the pre-university and university levels of the educational system in Ghana. The paper starts with an introduction, followed by a reflection on the concept of GL, opportunities and issues in using GL and an overview of the state of GL in developing countries. It describes the methodology, presents the finding, conclusions.

## **2. Literature Review**

### **2.1 GL, its dimensions**

Since the 1978 York Seminar on GL in Europe, the meaning of the term has significantly evolved. It has been conceptualised broadly and narrowly to reflect different contexts and perspectives; the meaning varies from discipline to organisational orientations. It is argued that GL is easier to describe than to define due to the fact that it covers a wide range of materials that cannot easily be defined or pinned down (Debachere, 1995; Schöpfel, 2010; Myška & Šavelka, 2013; Adams et al, 2016). In the 12th International Conference on GL, Schöpfel (2010, p2) suggested the following definition:

GL stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body.

Although Schöpfel's definition is currently one of the most cited, it is conservative in its scope as it is limited to the realm of conventional modes and materials within organised institutions. The current technological dispensation and wide range of possibilities to

produce, share and store knowledge make any conceptualisation that excludes this trend unsustainable. Another definition, proposed by Levin (2014) seems to be all-inclusive and reflects the current diversity in what may be termed 'black literature'. Levin states:

GL usually refers to anything that has not been published in a traditional format or, in library parlance, "lacks bibliographic control" meaning it can be hard to look up. This includes things such as conference proceedings, conference posters, dissertations and theses, government/institutional reports and raw data.... Luckily, much of it is now online...Google Scholar...Government agencies...blogs, Tweets or Facebook postings. Yes, these social media tools can also be a great place to locate valuable information not found elsewhere'

Despite the difficulty in agreeing on a single definition, it is generally viewed in relation to conventional literature (white literature) in terms of standard commercial publishing; peer reviewed publication; and availability in organised/structured form such as in databases and bibliographic indexes (Calabria et al, 2008; Myška, M. & Šavelka, 2013). In other words, the term generally refers to literature or knowledge that is not published through the traditional peer-review process and not available through the conventional commercially published sources. Notwithstanding, it is important to note that there are still other perspectives that question the general view of GL as the 'opposite' to commercial publishing. It is argued that some non-profit organisations 'publish on the same basis as commercial publishers...and their publications are not grey' (Schöpfel, 2010, sec 4.2). Looking from the perspective of practice, particularly from teaching in healthcare education, this paper views GL as all non-conventional literature and written materials (may or may not be accompanied by audio, visual, audio-visual or any form of aid to

facilitate in-depth understanding) that can be drawn upon to inform practice. It may include research and non-research literature that are held by organisations, individuals, online repositories, websites, social media handles etc. This may sometimes be ephemeral in nature and a combination of different and heterogeneous materials. GL may include the following broad categories:

- *Grey research literature*: These include all unpublished research findings or reports of various kinds from individuals and groups (theses, conference proceedings etc); Organisations (organisational sponsored research findings/reports); Government (government sponsored research findings/reports on wide range of sectors); Research institutions and Professional association (professional association sponsored research reports). An example of grey research literature in the workplace/educational institution may be an organisation's/institution's unpublished research report on any of its practices that is held for example in its repository or website.

- *Grey non-research literature*: These include all unpublished literature or materials that are not an outcome of research activities. They may be contract reports of organisations; operational information, organisation codes of conduct and practice, annual reports, design templates, social media materials, websites that share good practice etc. This may also be Government guidelines and directives on a wide range of issues; and legal documents. Examples of this in the workplace may include internal company documents of all kinds. These types of GL may be in the form of hardcopies or electronic files that include online



resources (see Table 1).

**Table 1: Instantiations of Grey Literature (Source: Adams et al, 2016)**

Bibliographies	Rejected manuscripts	Publications from NGOs and consulting firms
Discussion papers	Un-submitted manuscripts	Videos
Newsletters	Conference abstracts	Wiki articles
PowerPoint presentations	Book chapters	Emails
Program evaluation reports	Personal correspondence	Blogs and social media
Technical notes	Newsletters	Data sets
Publications from governmental agencies	Informal communications	Committee reports
Reports to funding agencies	Census data	Working papers
Unpublished reports	Pre-prints	Company reports
Dissertations	Standards	Catalogues
Policy documents	Patents	Reports on websites
	Webinars	

## 2.2 Importance and challenges in using GL

GL can be a valuable resource to practitioners across a wide range of professions such as education, health and agriculture due to the combination of varied resources it can provide – these may be research-based, non-research-based and policy-based documents (Seymour, 2010; Godin et al, 2015; Paez, 2017). Evidence shows that much research across a wide range of disciplines are not published in peer-review journals (Paez, 2017; Adams et al, 2017).

One of the opportunities GL provides for practitioners is access to policy documents. Teachers in the healthcare education sector and other practitioners work is mostly informed and guided by relevant policies and legal frameworks; they need access to these policy documents to inform their practice (White et al, 2013; Godin et al 2015; Adams et al, 2017).

For example, every country across the globe has its own national policy priorities on health and education. Such national policy priorities are often an outcome of a combination of internal needs and projections and international competitive drives. Policies may come in the form of programmes such as nursing education, teacher licensing, programmes targeting particular learners as well as national educational targets. These policies produce a mass of documents such as speeches, policy reports, research reports, guidelines, circulars etc which teachers and other education practitioners need to locate and use to inform their practice. This highlights the importance of GL to education practitioners in the healthcare sector.

Another importance of GL is the supplementary and complementary roles it plays. Most practitioners use (have an opportunity to use) GL as additional and complementing resources to enhance understanding, clarity or access to in-depth information about research or policy in order to facilitate the transfer of knowledge into practice (Adams et al, 2017; White et al, 2013; Seymour, 2010a & b). For example, research findings on innovation in teaching and learning are often published in academic and professional journals within limited spaces which impede detail exposition. Hence, research reports or policy documents in the form of GL provide additional information such as models, detailed tables and relevant data to teachers to make more sense of research and policy and to enable application to practice.

GL also provides greater speed in dissemination and greater flexibility in dissemination

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and access. GL provides an important platform for quick dissemination of research and other knowledge resources (Seymour, 2010a). Publishing, distributing and sharing GL is often faster and more flexible than dissemination through the conventional process of publishing and dissemination (Schöpfel, 2010; Paez, 2017). The relatively quick process of availing GL to potential users enables a timely application of new knowledge to deal with real life issues in real time. In contrast, conventional process of publishing may take some time to get to potential users due to the often lengthy peer-review process required. This may lead to situations in which practitioners miss opportunities to access and use new knowledge to deal with crucial issues in real time. Another opportunity in using GL is its characteristic of flexibility in its dissemination and access. Organisations and individuals often disseminate GL (research and non-research) through online open access websites such as organisational repositories (e.g. ministries of education publication; universities online research repositories), social media networks (e.g. LinkedIn; Researchgate; Tweeter, YouTube etc).

Furthermore, research shows that GL fills gaps in academic literature. There is evidence of limited or absence of knowledge in some key areas/fields in academic literature or white literature published in academic journals. For example, a systematic review on alternative energy sources by Albino et al (2011) found that certain key aspects that were not addressed by 'academic papers' were found in documents/GL. In the field of education, many teachers and schools often undertake small-scale practitioner research to inform practice. The

outcomes of many of these small-scale projects have been used to effectively and successfully deal with practice issues (McNiff, 2010). Many of the outcomes are not published in academic journals but kept as GL.

Research has also highlighted the importance of GL, especially in terms of how it can inform practice. These include providing practitioners with practices that are not evident in academic literature; illustrates the wisdom in and insights into practice and providing up-to-date knowledge and usage as it is usually not subject to the time consuming pre-publishing process (Marsolek et al, 2018; Adams et al, 2017; Myška, & Šavelka, 2013).

Despite the vast potential value and opportunities in GL for practitioners, research has also highlighted a number of challenges related to its quality, availability and accessibility (Yoshida, 2024). Quality and quality control (validity and reliability) are some of the challenges to GL. Some argue that because GL does not go through the traditional peer review process, coupled with the proliferation of new ways of disseminating information, its quality is difficult to control and assure (De Castro and Salinetti, 2004; Myška, 2013).

However, other views maintain that many GL materials such as medical-based research reports and master's and PhD theses go through rigorous internal review and evaluation process before they are published. De Castro and Salinetti (2004) propose a robust editorial quality from both authors and organisations to ensure that all GL disseminated is accurate (information), reliable and readable.

Findability and accessibility issues are also highlighted by literature. Searching for GL can

be strenuous and a great challenge, especially online search due to the massive amount of relevant GL available. For example, a single search in Google online is likely to produce hundreds of thousands of results, which may be difficult to sieve through. One way to deal with this is to use effective search strategies such as identifying and using relevant GL databases. Difficulty in accessing GL is also noted as an important challenge. Many organisations and individuals such as government and industry have secured access to their literature resources online which makes it difficult for potential users to access the resources. In addition, Marsolek et al (2018) argue that the move from print to electronic resources has made it more difficult to locate GL. The authors argued that some GL are published on obscured “websites that are not well indexed, or it may be archived in repositories without appropriate metadata to facilitate discovery” (Marsolek et al, 2018, p4). The general diverse formats (Paez, 2017), lack of standard indexing, controlled vocabulary and archiving (Godin et al 2015) makes it difficult to access.

### **2.3 GL in Developing countries; Ghana**

As GL moves from print to electronic (Marsolek et al, 2018), searching, accessing and using it may become more challenging, especially in contexts that have underdeveloped systems to facilitate easy storage and retrieval of electronic resources. Effective information technology systems and the internet are now important variables in facilitating the search, access and retrieval of GL materials (Fanou et al, 2016; Marsolek et al, 2018). Recent studies have shown that there is rapid growth in internet penetration over the last

decade in many developing countries particularly in Africa (Nyirenda-Jere and Biru, 2015; Fanou et al, 2016; World Bank, 2019; Cariolle, 2020). For example, a study on internet development and governance in Africa shows that internet penetration in Europe was about 20 times that of Africa in 2005 and by 2014 it was less than 4 times greater (Nyirenda-Jere and Biru, 2015, p3). Despite this rapid development in internet penetration rate, data on internet access show that rates of access to internet in Sub-Saharan Africa remains far behind the rest of the globe (World Bank, 2019; Cariolle, 2020). The World Bank (2019) indicates that figures from the International Telecommunications Union (ITU) shows that in 2017 only 1 out of 5 people had access to internet in Sub-Saharan Africa. Furthermore Kpessa-Whyte, and Dzisah (2022) argue that in Ghana, internet penetration is lagging behind in many areas despite the fact that mobile phone subscription is higher than the population. Many developing contexts, particularly in sub-Saharan Africa have already recorded low patronage of GL despite the highlighted importance of GL to researchers and practitioners (Kwafo-Akoto, 1995; Alemna, 2001; Osayande and Ukpebor, 2012; Kwaghga et al, 2018). The low patronage to GL has also been attributed to issues such as lack of established databases and issues related to internet access (which currently holds large GL resources). It is also noted that many African academic libraries have historically shown very little interest in collecting GL and those who show interest focus on external materials to the detriment of internal materials (Osayande and Ukpebor, 2012). Developing countries are characteristically considered as lacking in both financial and infrastructural resources

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to support initiatives such as national and regional databases of GL to drive development (Awuni and Essegbey, 2014; Fanou et al, 2016). However, several examples from Asia have illustrated that countries can achieve real success if there is strong will power and conscientious leadership. In 2004, the Association of African Universities (AAU) launched an online Database of African Theses and Dissertations including Research (DATAD-R) with eleven pioneer universities to facilitate the acquisition, storage and organisation of GL and research. DATAD-R is currently hosted by the Academy of Science of South Africa (ASSAf) but overseen by the AAU, and currently holds about 29, 233 dissertations and 4, 759 research papers on a variety of disciplines across African countries (AAU, 2019).

Ghana has had a firm focus on developing a strong national capacity for science, technology and innovation (STI) since independence in 1957. This is because Ghana underscores the importance of STI as a bedrock in enabling effective socio-economic development. To achieve this, a number of institutions have been developed over the years; these institutions include The Ghana Academy of Arts and Sciences (GAAS), the Ghana Atomic Energy Commission (GAEC); the Kwame Nkrumah University of Science and Technology (KNUST) and the Council for Scientific and Industrial Research (CSIR). Despite this realisation and efforts, the issue of underfunding and lack of infrastructural support are still major stumbling blocks to achieve this long-term vision (Ministry of Environment, Science, Technology and Innovation, 2017). According to the current Ghana's National Science, Technology and Innovation Policy, the main strategy is to ensure

that science, technology and innovation becomes the driving force in all sectors of Ghana's economic development (Ministry of Environment, Science, Technology and Innovation, 2017). One of the important aspects of the policy objectives is the focus on improving the infrastructure for science and technology. The lack of appropriate infrastructure to support science, technology and innovation is identified as one of the major challenges in Africa (World Bank, 2019; Fanou et al, 2016). The Ghana's National Science, Technology and Innovation Policy has also noted the inadequate funding to STI and has outlined a number of strategies to increase funding – these strategies include a review of current funding of STI; establishment of STI fund; ensuring allocation of at least 1% GDP to science and technology, and a tax incentive for contributors to STI.

Research and literature relating to search, access and retrieval of GL in Ghana is scanty, probably because this is not taken seriously (Osayande and Ukpebor, 2012). However, we know that a number of attempts have been made in the past to collect and store GL in Ghana. According to Alemna (2001), the first attempt was in 1961 when the George Padmore Research Library on African Affairs was opened to collect and preserve documents and materials on the cultural heritage of the country. This followed the establishment of the Africana Collection section in 1962 in the University of Ghana Library; then later the Institute of Scientific and Technological Information who both had interest in collecting and preserve GL. However, these initiatives were abandoned or neglected for lack of funding. In recent times, a few similar initiatives have sprung up, for example, the



Consortium of Academic and Research Libraries in Ghana (CARLIGH) initiative is helping higher education institutions to access electronic databases that includes GL (Bentil, Liew & Chawner, 2021). It is noted that the challenges in the acquisition, storage and organisation of GL is generally attributed to the lack of funding for institutions that take the initiative (Alemna, 2001). Furthermore, having had extensive experience working in the Ghanaian context, the authors of the current article are aware of the large amount of very useful GL materials that are stored away or even destroyed due to lack of an effective system to manage these resources. Thankfully, recent governmental and institutional policies and strategies in Ghana have seen some movement to put in place relevant infrastructural platforms that are likely to facilitate the effective management of GL. However, the issues and stumbling blocks in most developing contexts are always the willpower to sustain these novel projects.

### **3. Methodology**

The research used a qualitative content analysis design, based on an inductive approach (Elto and Kyngäs, 2008). In qualitative content analysis design, themes and categories are derived from the content to build a model that is aimed at describing the phenomenon under study. Putting this in the context of this research, Ghana was purposively selected as a case of a developing country for this study. Within Ghana, five public universities repositories were purposively sampled out for analysis. This is because higher education institutions are considered as the touch bearers and are expected to lead in the development and

maintenance of relevant databases to hold materials such as national and international policies, historical documents, current trends in education and healthcare as well as academic and non-academic literature. Hence, to be able to assess the potentials of access to and use of these GL materials by healthcare teaching and other professionals, it was deemed essential to examine a sample of universities GL databases. Each of the 5 case universities' repositories were accessed and analysed in order to develop themes, describe the characteristics of these themes and interpret the extent to which these characteristics could potentially stimulate or inhibit access to and use of GL by teaching and other professionals in Ghana as a developing country.

#### **4. Findings, Discussion and Recommendation**

Within the context of increased access to internet and limited established databases in many developing contexts as highlighted earlier in this paper, this case study focuses on the potential to access and use GL based on existing universities and government databases. The repositories were examined based on the following emerging broader themes: Accessibility; Searchability; Size; Retrievability, and Relevance.

*The Accessibility:* Each of the repositories of the cases in the study had an online presence and can be accessed by the public. Access to all the repositories of the cases may be described as open access, this means that there is no restriction to access; any internet user does not need any password to access materials deposited in the repositories. The characteristic of open access exhibited by the institutional repositories indicates open

possibilities for potential use by healthcare education practitioners such as teachers and lecturers in the healthcare and related sectors. However, in the course of the research, there were a number of occasions in which webpages of some of the repositories were inaccessible for some reasons but were restored later.

*Searchability:* The case institutions used different formats to facilitate focused search for materials. For example, the online repository for most of the cases had a search engine (SE) that allows a search through the databases using key words or terms except for one of the repositories that had no SE (all information/items were held at one place on their website). The SE had common 'search by' (SB) features such as by 'authors' and 'Subjects', however, there were slight variations in additional 'search by' features and formats. For example, additional SB features included 'Themes', 'Title', 'Recently Added', 'Theses and Dissertations', 'Date of Issue', 'Communities' and 'Link to Other Repositories'. Case 5 had no SB options and the least organised.

Furthermore, apart from Case 5, each Case's repository was further sub-divided into categories denoting specific groupings, sources and/or combinations. For example, whilst Case 4 had the most extensive categorisation of items (14) which included categories such as Africa Leadership Lectures, Inaugural Lectures, Lecture Notes and Teaching Resources, Special Collections, and Speeches, Case 2 had the least categories of items (4 categories) and Case 5 database was not categorised; it had all the items placed in one location without any groupings or organisation of the items into identifiable or searchable categories.

**Table 2: Characteristics and Size of Institutional Repositories**

<b>Case 1</b>		
<b>CATEGORY</b>	<b>Number</b>	
Conference Proceedings	105	<u>Searchability</u> SE: organised by Themes; Authors; Title; Subjects; Recently Added; Date Issued; ‘Has Files’ (with docs or just summaries)  <u>Relevance and Retrievability:</u> Repository had a wide range of information relevant to a wide range of professions including Health and Education
Heritage Materials	653	
Book Chapters and Reviews	143	
Journals	403	
Lectures and Speeches	376	
Policies, Newsletters and Newspapers	246	
Reports and others	113	
Research Articles	15310	
Theses	7753	
United Nations	259	
Work in Progress and others	72	
Total	25, 432	
<b>Case 2</b>		
<b>CATEGORY</b>	<b>Number</b>	<b>Comments</b>
Research Data	13	<u>Searchability</u> SE: Authors; Subject; Date Issued; Theses & Dissertations; Past Questions; e-Books; University Publications; Other repositories  <u>Relevance and Retrievability:</u> Repository had a wide range of information relevant to a wide range of professions including Health and Education
Research Output	1318	
Theses/Dissertations	4101	
University Publications	3260	
Total	8, 692	
<b>Case 3</b>		
<b>CATEGORY</b>	<b>Number</b>	<b>Comment</b>
Conference Proceedings	331	<u>Searchability</u> SE: Issue Date; Author; Title; Subject; Community; Link to other Repositories  <u>Relevance and Retrievability:</u> Repository had a wide range of information relevant to a wide range of professions including Health and Education
Kumasi Centre for Collaborative Research	70	
Journal of Science and Technology	369	
Speeches	338	
Research Articles	1806	
Theses/Dissertations	8387	
Total	11, 301	

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<b>Case 4</b>		
<b>CATEGORY</b>	<b>Number</b>	<b>Comment</b>
Conference Proceedings	32	<u>Searchability</u> SE; Author; Subject; Date Issue; Communities; Other repositories <u>Relevance and Retrievability:</u> Repository had a wide range of information relevant to a wide range of professions including Health
Africa Leadership Lectures	4	
Book and Book Chapter	18	
Centre for Distance and Continuing Education	0	
Inaugural Lectures	0	
Lecture Notes and Teaching Resources	1	
Reports and Policies	4	
Repository Policies	1*	
Research Articles	928	
Seminars	5	
Special Collections	48	
Speeches	2	
Theses	720	
University Journals	281	
Total	2, 044	
<b>Case 5</b>		
<b>ITEMS</b>	<b>Number</b>	<b>Comment</b>
General data	*	Not categorised/indexed

*Size, Relevance and Retrievability:*

Whilst the cases have varying number of resources in their repositories, the general indication is that there is a relatively sizable number of GL resources covering a wide range of subjects and professional areas including health and education. Examples of GL materials in the repositories include conference proceedings, theses and dissertations, book chapters, Inaugural Lectures, lecture notes and teaching resources, work in progress, and speeches. For example, Case 1 which has the largest number of resources (25,432) has a total of 10,122 GL resources held in its repository, Case 3 had at least 8,000 GL whilst Case 5 had no searchable facility to allow the researchers to determine the size and

characteristics of its repository (see Table 2). Many of these GL materials are important yet have not found their way into formal publishing systems. The GL resources were generally relevant to a wide range of professionals, particularly the dissertation and thesis, reports and policies, and teaching/lecture resources to support teaching at higher education sector. Although varied from one case to another, there were a good number of resources relevant to the healthcare and education professions. In terms of ability to retrieve or download GL resources from the repositories, some documents allowed full download while others allowed only abstract download. For example, the document: ‘State of the Nation's Health Report’ in one of the repositories allowed full download whilst the document titled ‘Pharyngoesophagoplasty for Patients with Benign Intractable Pharyngoesophageal Stricture: The Daunting Task of Restoring Deglutition’ only allowed abstract download. Notwithstanding, there were intermittent or irregularities in the access pattern of the repositories online. For example, while some of the repositories showed no issues related to access and/or download throughout the research period, some of the repositories had intermittent offline or ‘no access’ cases. For example, at the time of write-up of the research report, a final check was made to access the webpages of the repositories. The results were that whilst Case 1 and Case 3 were still accessible, Case 2 had changed its web address to a new accessible web address. Repeated attempts to access Case 4 and Case 5 consistently provided the following messages respectively: “Hmmm... can't reach this page. www.\*\*\*\*\* took too long to respond”, and “The requested page could not be found”. The

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Institutional websites for Cases 4 and 5 were visited to determine whether the issues of access were institution-wide or just limited to the web pages of the repository. The evidence shows that the issues were limited to the repositories as their (case institutions) websites were up and running.

As a starting point, the open access nature exhibited by the case or institutional repositories logically indicates potential open possibilities for potential use by healthcare education practitioners such as teachers, lecturers and other professionals in the healthcare and related sectors. Within the context of the current increasing access to internet in Ghana, it is logical to posit that potential for access to and use of GL by professionals may be positively impacted, more particularly, if employers provide free internet access and resources to facilitate effectiveness and efficiency at the workplace. Potential access and use are also contingent on healthcare professionals' awareness of the existence of such online repositories and their willingness to engage and to draw from them to inform their practice. Furthermore, the searchability characteristics of the cases in relation to potential for access to GL by professionals provides some evidence to show that many of the repositories have some degree of organisation of the databases to facilitate easy and systematic search process. They allow search by titles, authors, subject content and other relevant attributes. Although, a few of the cases had limited search options or had no search engines, the overall searchability attribution presents a positive scenario that has the potential to encourage access to GL by enthusiastic professionals. However, the main setback for the

repositories is the wide variation in the organisation and approach to presenting the data. While diversity in approach could be a plus to the searchability and organisation of the repositories, the breadth and depth and user friendliness of the SE would be essential to improve the potential for access and use of GL.

In addition, the fact that the databases had some materials relatively relevant to the practice of healthcare practitioners and other allied professions shows a good potential to access and use GL. However, the extent to which materials in the repositories are directly relevant to and inform the practical day to day practice of professionals in a timely fashion is indeed a crucial factor to aid and increase access and use of GL.

The major issues related to the potential for access and use of GL are unstable internet connectivity and underdeveloped IT systems. The intermittent or interruptions in the access of some of the repositories due to unknown causes was an important factor that could negatively affect potential access and use of GL. This is consistent with several perspectives that consider effective information technology systems and the internet as important variables to facilitate the search, access and retrieval of GL materials (Fanou et al, 2016; Marsolek et al, 2018).

Based on the findings and ongoing discussions, the paper puts forward the following recommendations to improve potential access and use opportunities for GL in Ghana and the developing contexts as a whole:

- Governments in developing contexts should develop and support GL policies that are



appropriate to their contexts

- The policies on GL should be supported by relevant IT systems and internet connectivity and sustained funding regimes for institutions holding large GL materials to enable them to effectively facilitate access and use of materials. Research has already shown that internet penetration is lagging behind in many areas in Ghana (Kpessa-Whyte, and Dzisah, 2022).
- Higher education institutions should be the beacons and centres to hold, facilitate and promote the use of GL by professionals. This should include holding seminars, conferences and workshops to promote awareness of the benefits of GL to professionals.

## **5. Conclusion**

This paper has assessed the access and potential use of GL by healthcare education professionals in a developing context through a critical analysis of the characteristics of online repositories from selected public higher education institutions in Ghana. As universities are seen as the vanguards to promote and facilitate access and use of GL, the paper generated data from the online repositories of 5 public universities in Ghana. The finding shows that the case institutions' online repositories hold large databases of GL with many items relevant to healthcare education. It also indicates that many of the repositories are accessible online and have appropriate search engines that facilitate access and retrieval of documents. These characteristics post positive potential for access and use of grey literature by professionals. However, the finding highlights issues with intermittent access

to internet in some of the repositories; lack of organised access and retrieval of GL materials.

The paper provides a number of recommendations which include provision of modern IT systems and stable internet connectivity to institutions holding large GL databases.

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**Useful Websites:**

<http://ugspace.ug.edu.gh/>

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