Information Impact

Re-Positioning University Libraries for Relevance in a Dynamic Learning Environment

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Abstract

During the COVID-19 pandemic, university libraries are characterised as highly responsive and receptive to technological innovation, and emergent teaching and learning paradigms in the educational landscape. The exploratory design was adopted to gain insight from library leaders/directors in Ghana. A purposive sampling method was used to sample library directors from four universities in Ghana. Our paper found that libraries in Ghana provide virtual services including libguides, e-resources, online chat systems, etc. to support the changing user needs in the information environment. However, major innovations instituted during the pandemic are discovery services, web 3.0-based, multimedia technology services and research data management. Our paper revealed that, major shifts in pedagogy and technology have occurred in education, demanding effective communication, collaboration, and teamwork by library staff in meeting universities' teaching, learning, and research mandate. Consequently, providing innovative library services and facilities aligned with university pedagogy must be strongly emphasised by the library leaders.

Keywords

COVID-19 Pandemic, repositioning, higher education, information services, technology,Ghana

Introduction

The evidence of health crises such as HIV, ebola, etc., has been prevalent recently (Xie, et al 2019). Towards the end of 2019, the Hubei province of China began spreading the now coronavirus disease 2019 (COVID-19) to all other parts of the world; affecting over 213 countries by June 2020 (Martinez-Alvarez et al., 2020). These global health crises have severely manifested in human development and the socio-economic status of both the developed and developing world. With uncertainty within the information environment, decision-making and organisational services are affected (Sniazhko, 2019); thus, information professionals balance the uncertainty in the delivery of library services.

As a result, students, faculty, researchers and the public within learning institutions are likely to suffer extreme information crises. However, with the support library systems, management overcomes such volatility during global health crises Soin and Paul, 2013. Rahmi et al (2019), Beaglehole and Bonita, (2010) and Koplan et al. (2009) affirm that any global health crisis is also an information crisis that requires the attention of information professionals. With this volatile environment in mind, library users need help with predictable and timely information, and aggregation and integration of information from various sources (Tan-Liem &Ngoc-Hien, 2020).The authors of this paper agree with previous studies (Rahmi, Joho & Shirai, 2019, Beaglehole & Bonita, 2010, and Koplan et al., 2009) that the accessibility and use of relevant information for timely and quality decision-making becomes affected by information crisis.

The global health crisis, a severe information crisis has become an ongoing discussion by researchers, policymakers, and the information science field. Pressing questions by some scholars in information science relate to "What specific information resources can satisfy user needs amid a dynamic environment resulting from the global health crisis?" Notwithstanding, Palen and Hughes (2018) underscored that virtual libraries rely on interactivity that allows patrons to explore information sites and use resources. A recent work by Xie, et al. (2020) revealed that virtual library service has presented libraries and librarians with alternatives in this global health crisis by providing library services to users irrespective of time and location. At the same time, users may use multiple mobile devices to access information remotely to achieve academic purposes (Palen, & Hughes, 2018). In Ghana, higher learning institutions have rolled out several virtual platforms to enable simultaneous information access during the COVID-19 pandemic (Pang, Karanasios, & Anwar, 2019).

Related Literature
University Libraries amid Dynamic Environments

Even in 2021, the COVID-19 pandemic does not seem to be a thing of the past in higher learning institutions. Consequently, university libraries and librarians find themselves in a new environment. Asif and Singh (2020) averred the need for new services and opportunities to strongly support the mandate of libraries amidst the COVID-19 era. To achieve the mandate, libraries must have strategic leaders, the latest infrastructure, information and communication technologies, and skilled personnel (ODonnell & Anderson, 2021). Unlike in developed nations, libraries in Africa cannot easily be transformed into vital information resources quickly. However, they can remain relevant by responding to the user's needs. Libraries can thus only do that by providing appropriate library products and services that aid teaching, learning, and research (Chiware, 2010:393). They must ensure that the information needs of faculty, researchers, and students are adequately addressed providing information resources such as books, journals, databases, and, above all, digital library services. In this digital era, libraries have adjusted their product lines from manual catalogues to online public access catalogues (OPAC), books to e-books, journals to e-journals, and online databases (Bakrin et al., 2020:135).

Like many universities in Ghana and beyond, the role of academic libraries has significantly been altered, and as such, a surge of online lectures, offers some challenges and opportunities. Now, libraries must be reactive and expand virtual library services. Librarians must approach the needs of virtual patrons with a measure of skills, creativity and collaborative effort (Ruppel & Vecchione, 2012) and ensure information is allowed regardless of time, technology and location. Against the backdrop of organisational system theory, the uncertainty and changes occurring in academic libraries, the exploratory paper explores university libraries' roles in response to the COVID-19 pandemic. Hence, our paper delves into the innovative approaches and library services introduced during the pandemic, a period when Ghanaian universities experienced partial lockdowns and a notable surge in online lectures. Specific questions guided our paper;

1. How are university libraries providing library services in this global health crisis?
2. What innovations are required from library staff to maintain relevance during a dynamic learning environment?
3. What strategies could be implemented to repositionuniversity libraries during the COVID-19 pandemic?

4. How beneficial are university libraries when re-positioned during during a dynamic learning environment?

Library service remains relevant by creating and promoting clear differentiators that match the patron's needs while retaining the expectations of the library service (Online Computer Library Center 2014:55–82). Re-positioning should be initiated if a brand is considered by users unsatisfactory, despite varying marketing strategies (Bjorkdhal, 2004:39). This paucity can lead to diminishing interest of users for this brand and, consequently, decrease the effect of advertisements intended to reach existing and future users of this brand (Bjorkdhal, 2004:39). The Online Computer Library Center (2010) has however reported that "brands are hard to change …" A survey by the Online Computer Library Center (2014:100) says that between 2005 and 2014, the library brand remained firmly grounded as a "book". However, books as a brand have changed to electronic, where a library is no longer a place that stores or collects books but rather an institution that provides information resources irrespective of location and time.

Re-positioning University Libraries during a Dynamic Environment
University libraries draw unexpected competition in the digital age and information seems overloaded on the web. The issue of the information explosion becomes a challenge for users to contact university libraries or web resources (Baloch & Musyani, 2020; Nakhoda, 2020). Shaw (2013) asserts that the "academic library has died". His conclusion was based on various findings: book collections have become obsolete, library instruction was not seen as necessary, disruptive changes that challenge the traditional role (for example, reference services), information technology departments have subsumed the purpose and operations of libraries and librarians. However, Tavares et al (2018) posited that these factors are still insufficient to predict the demise of university libraries. They assert that ebooks, databases, etc, cannot replace customised library instruction in dynamic and interactive academic learning environments and a general user-friendly interface for all local access problems for stakeholders. But the readiness of librarians must be essential for them to remain relevant (Tavares et al., 2018).

Regarding Ghana, Thompson et al (2015:67) reviewed two decades of academic librarianship at the University of Development Studies (UDS). The study revealed the essential role of libraries in higher learning institutions. Seeking a historical account of the UDS, key informants such as the University Librarian and secondary documents were used to gather needed data for the study. The study adopted the interview

method to trace the events from the various developmental stages (changes with staff development, issues about accommodation, collection development of the library, and providing access to digital resources) in the UDS library. Thompson, et al. (2015) identified the challenge of library leadership in the wake of re-positioning the university libraries in a dynamic environment. It was recommended that adequate attention be given to library funding, stakeholder collaboration and staff recruitment. Latham (2012) pointed out that developing countries must expand from limited or local to universal access to information resources. To achieve this, Latham (2012) argued that library management must initiate expandability, flexibility and compatibility, standard hardware and software, sufficient capacity, networking capabilities, standards such as machine-readable cataloguing or information storage and retrieval, local expertise, and a plan for the next system.University libraries must consider the centrality of understanding the user needs.

Internal and external analysis is critical in any strategic-driven agenda, providing library and university management with the foundation for any value-driven strategic plan (Wynne et al., 2016). The information from the environmental scanning offers evidentiary support for the vision, mission, goals, and tactics. Wynne et al. (2016) suggested that the library increasingly becomes relevant to different users. At the University of Leicester, the authors conducted a study to understand students' and staff's changing needs and priorities. Using the environmental scan, students scored ninety-two percent for the need for a new library service at the University of Leicester (an online resource that supports students in requesting and receiving new books directly). Furthermore, a more systematic approach was taken to gather and analyse data about using library resources and services to understand better who was and was not using the library. It was found that students from the science discipline borrowed very few physical resources per head and used the library as a learning space. On the other hand, humanities and distance learners used more digital resources on campus and remotely. In this way, embracing realignment is critical to allow libraries to meet the different needs of users at the same or different times.

Until the COVID-19 pandemic, the library primarily housed print collections but the new development is apparent, where an expansion of digital library services becomes necessary (Zhang 2018:186) to satisfy user needs (Germano et al 2012:72). Higher learning institutions have almost all moved aggressively into technology-enhanced learning during the COVID-19 era, where university libraries find themselves deeply involved in digital-driven library services (Pinfield, et al., 2017:12). The pandemic has proven to be a conduit and significant to enhancing e-services (Bennett,

2015:539). Most significantly, library users are in high demand for services from both within and outside the library building to avoid contracting the virus (Zhang, 2018:186).

Connaway et al (2013:158) conducted a three-year longitudinal study with students and scholars from different stages of the educational cycle on "engagement with the digital information environment". The findings were that;

i. In the first stage, students relied on social media (Facebook) for discussing assignments.

ii. Students choose the internet over textbooks as an information source even when they know higher quality sources are available elsewhere.

iii. The mode of accessing library service is no longer based on the physical space in which it occurs since any access to a network provides almost every aspect of library service.

The findings support the ongoing discussions on how libraries can rethink, re-structure, and re- re-organise library processes and services towards meeting user needs amid the COVID-19 pandemic. Again, not missing out on a core mandate of supporting teaching, learning, and research, at least the development of digital resources can supplement and expand the holdings of libraries. The studies by Connaway, et al. (2013) and Connaway (2015:5) have significant implications within modern university libraries in Ghana and Africa.

More than ever, digital library services have enabled university libraries to function as search engines, Google and web services. In so doing, appropriate indexing is key for discovering appropriate digital resources. It is therefore implied from the studies of Connaway, et al. (2013) and Connaway (2015:5) that re-defining libraries enhance the value and digital resources that meet the changing user needs during the pandemic. Also, Kelly (2014:154) argued that library services need to be strategically re-defined to support teaching and learning, as university libraries are inherent in the collections and programmes of the university. With the exponential growth of technology and less reliance upon traditional libraries to serve patron's research needs, college and university administrators are looking at different university libraries than they had in the past (Brantley, 2015:199). With the advent of digital resources, stakeholders for university libraries have questioned the continuous investment in books in print. The question shows a need for university libraries to deal with the changing nature of print collections and reconsider new collection development approaches (Brantley, 2015:199).

Innovations of University Libraries during Dynamic Environment

Innovation is a prominent change agent in contemporary society. Consequently, technological change has been given more attention in university libraries, and the impact of technological change. Increasingly, innovation is regarded as the engine for improved library services in universities, where new programmes, collaborations, processes and activities are implemented (Inków, 2020:2). Its purpose is to help university libraries thrive by meeting the needs and expectations of stakeholders in an uncertain and rapidly changing environment (Wójcik, 2019). Potnis et al (2020:2) postulated that if innovations are ignored, they could adversely affect the relevance and survival of university libraries. Even with enough resources, for instance, communication with external stakeholders is integral during the COVID-19 pandemic. Communication on where, how, and what information and library services could be accessible to library stakeholders (Okike, 2020).

Potnis, et al. (2020) elaborated on innovative services in university libraries. They argued that processes that drive improvement require repeatability and minimal variability. Innovation is about increasing variability and fostering divergent and expansive thoughts. Instead of the leadership "drive for results" that seeks rapid consensus and successful implementation, creative leaders understand issues from diverse viewpoints, take unfamiliar positions, define and evaluate their assumptions, and take risks. These leaders, while needing concentration and discipline, require focus and discipline. Such leaders allow experimentation, mistakes, and failures while requiring focus and discipline (Arumuru, 2020:9). University libraries often transform ideas into new or improved products/services to advance library services and ensure that the mission of supporting research, learning, and teaching in higher learning institutions is achieved (Nicholson, 2019). There are potentially fatal implications for university libraries that struggle to handle technologies during the COVID-19 pandemic. The minimal use of library-implemented technologies suggests a failure to drive innovations. It may contribute to university libraries' low real and perceived importance to stakeholders during the global health crisis (Potnis, et al., 2020:2). Recently, studies on innovation have increased in information and library services. Thus, the outcome of the ongoing discussion on innovation strategies encourages library management to integrate strategic perspectives into innovation. Rowley (2011) underscores that systems contribute to responding to questions as;

  i. What kind of innovations can libraries now participate in during the global health crisis?
  ii. What is the best management process for these innovations during the COVID-19 pandemic?

Considering Rowley's submission, many reasons exist why university libraries need to be innovative (Bieraugel, 2015:351; Corrall & Jolly, 2019). The assertion was confirmed by several researchers including Jiang et al. (2015:14) and Bieraugel (2015:351). For instance, Drucker (2011:161) noted that service institutions like university libraries must be innovative conscious. He stated that university libraries must assess how well innovative services succeed, and often promote such successes to stakeholders outside of the library. As mentioned earlier, Bieraugel (2015) presented the reasons for innovation in university libraries. They are responsible for gaining new users and retaining existing customers. Bieraugel (2015) supports the argument that when users' requirements are factored into innovation strategies, they become loyal and satisfied and help maintain and obtain new users for the library. Indeed, responding to changing patterns and user needs drives innovative services (new service development) with the university libraries.

To take advantage of innovative services within the university library in Melbourne-Australia, Leong (2014:108) conducted a study on ensuring purpose-driven learning for library staff. He reported that innovative approaches applied in the Royal Melbourne Institute of Technology (RMIT) University library included an effective library Cross Unit Work Experience programme; team building workshops, specific purpose groups; development of an Innovation Process Model and practical tools to improve creativity; and a Reference Competencies project.

Benefits of Library Re-positioning in a Dynamic Era
A well-positioned library amid the COVID-19 pandemic can benefit from competitive advantage, enhancing user value and positioning new library products. With well-implemented innovative strategies, university libraries can integrate fully digital technologies to support effective teaching, learning and research (Eghe-Ohenmwen 2015:50). By providing up-to-date information and library resources to lecturers and students, library users are better able to compete in scholarly communications than users without up-to-date information. University libraries that grapple with a declining market share and user value, are currently experiencing a resurgence in patron interest due to library re-positioning (Hughes 2019). Deploying re-positioning in university libraries positively affects the image, visibility and customer value because of increased visits and patron counts for information resources related to teaching, research, and learning (Germano, 2010).

Creation and enhancement of user value

To understand library users, one should consider user needs and the role the library can play in their overall information-seeking behaviours. A significant step in re-positioning is optimisingthe capacity to enhance user value. In the re-positioning process, marketing is employed to realise a strategic vision of the libraries with great value to library stakeholders. Germano et al(2012:82) postulated that the re-position process is premised upon scanning the library environment and, in the process, promotes effective customer decisions related to scarce library resources. In environmental scanning, information about the internal and external orientations uncovers daily user reactions, responses, and objections to customer contacts to establish and design a friendlier strategic library initiative. University librarians do what is suitable for the library users and what is in the best interest of the library's long-term success.

Additionally, marketing cultures are vital to promoting internal and external stakeholders. Strategic library re-positioning enables management to uncover the marketing attitude and knowledge permeating within the universities. Through library technologies, university libraries can provide a direct library service to market library products and their value to enhance usage and service delivery (Bhardwaj & Jain, 2016:119). University libraries can implement value-based strategic plans by incorporating marketing processes during user interactions. This increases the value and satisfaction levels.

Positioning new library products

Proper positioning within the parent institution is crucial for any academic library and is strongly linked to how the library can be recognised, resourced, and survive. To achieve a successful positioning, libraries must align closely with institutional strategy (Cox, 2018). As the institutions strategically refocus on global/international recognition, research impact, community engagement, and student success, they affect university libraries, hence the need to position. The onus is on the university libraries to show relevance and worth to stakeholders amidst new expectations (Gwyer 2015; Kenney & Li, 2016). According to Harland (2017), positioning library products to serve stakeholders (students, faculty, and staff) is greatly supported by technology. For instance, we answer questions in-person, by phone, or by email from central campus locations, provide quick help, or long complex answers that might stretch for over an hour. During re-positioning, personalisedservices like Blackboard, Maker spaces, etc. aim to tailor the service to new user expectations. As universities continue to alter teaching, learning and research opportunities, libraries must adapt to remain relevant to library users (Pryor, 2014). In developed and developing countries, re-positioning

provides numerous opportunities for university libraries to encompass many different teaching, research, and peer-to-peer learning modes (Jiang et al., 2015:15).

## Theoretical Framework: Organisational System Theory

The organisational theory is discussed as a foundation for managing organisational changes, including university libraries in Ghana, with the development of the COVID-19 pandemic. In line with our paper, the organisational system theory posits four variables; inputs, transformation process, outputs, and external environment. In the context of higher learning institutions, inputs stem from the various stakeholders of the university library namely students, managerial and technical knowledge, researchers, administrators, faculty, and staff. Secondly, the transformation process refers to any activity or group of activities turning organisational inputs by transforming and adding value and providing the necessary outputs for those who need them (Chikere & Nwoka, 2015:3). For university libraries, the identified inputs are converted through an effective and efficient (management strategy) manner to knowledgeable patrons.

The library then exchanges feedback regularly with its external environment. It is imperative to note that the external environment plays a crucial role in converting the inputs into outputs. Hitherto, organisations have little or no power to alter the external environment. Similarly, university libraries have no alternative but to respond to the global health crisis (Baier et al 2020). Consequently, library management adapts and improves its strategic planning, implementation, monitoring, and control of new conditions resulting from COVID-19 protocols. This increases user satisfaction and competitiveness (Babalhavaeji & Farhadpoor, 2012:5).

In applying the theory to the dynamic environment, the library as an open system blends physical and innovative library services, by interacting with technology. In the following ways, the organisational system theory significantly supported our paper on realigning university libraries during the COVID-19 era to provide library services. Firstly, university libraries are open systems characterisedby inputs, outputs, and their environment. Secondly, the organizational system theory asserts that university libraries remain very significant in the era of technology and must react proactively to the dynamic environment. This theory brings to the fore the changes affecting the library and librarians amid the COVID-19 pandemic. From the perspective of organisational theory, university management and academic librarians must redefine the roles of library staff in the wake of the COVID-19 pandemic. The conceptual framework below depicts six fundamentals of re-positioning university libraries for relevance in a dynamic learning environment. They include resources, relevance,

stakeholders, strategy, funding, and learning/teaching/research. All the factors are fundamentals as well as interconnected for better re-positioning of library services.

Fig. 1: Conceptual Framework
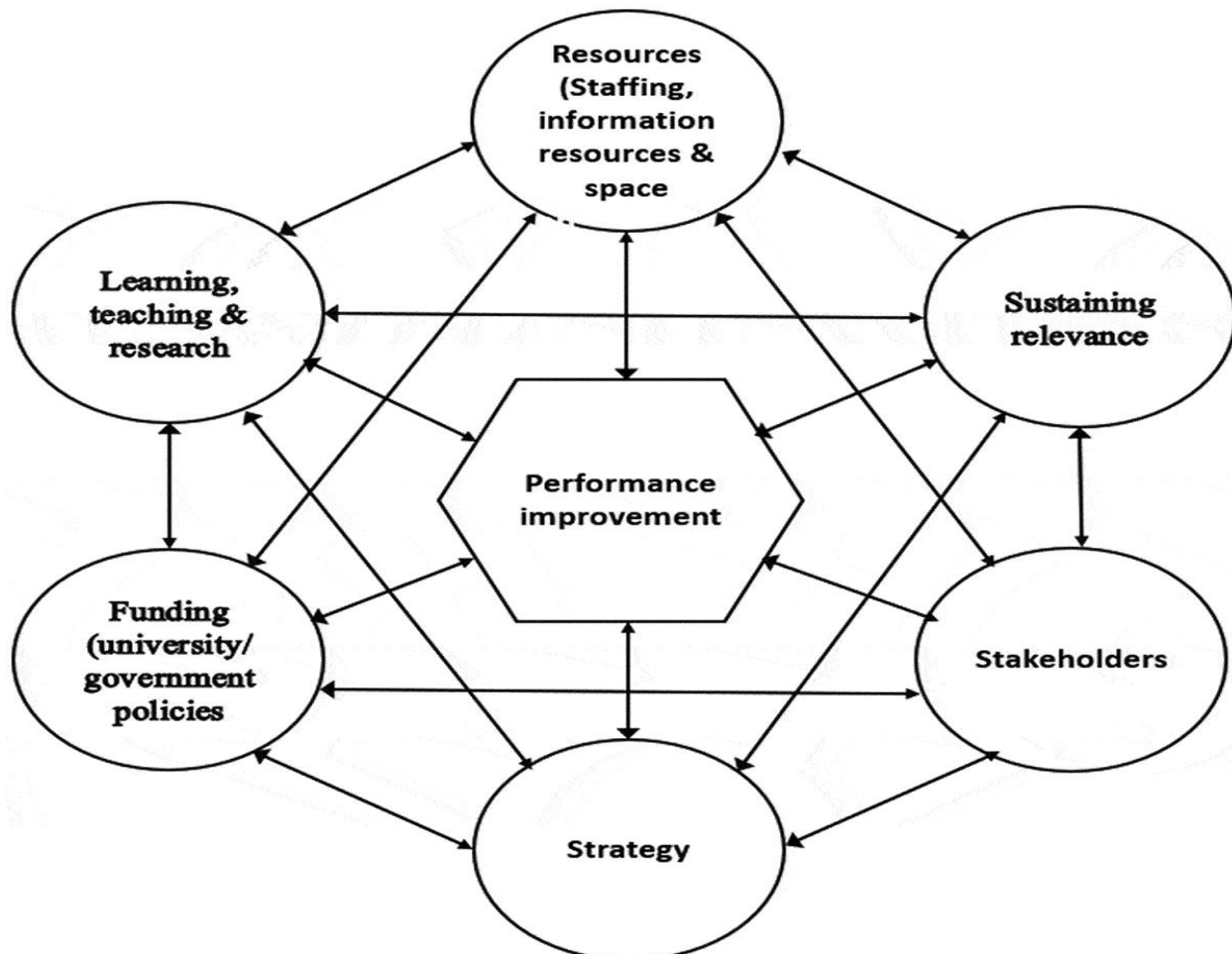
Source: Gunapala, Montague,Reynolds & Vo-Tran (2020)

Research Methodology

Taking the research questions into consideration, descriptive survey research method was used. The scope of the present study dealt with the academic libraries in India. The academic system of Ghana encompasses universities funded by government. At present, there are 13public universities in the country. The selected university libraries were preferred over the other universities in the study, considering the fact these libraries have progressive library infrastructure, skillfulness and readiness toward library changes during COVID-19 pandemic.

The authors employ the qualitative research approach to uncover the new library practices and experiences during the COVID-19 pandemic (Creswell, 2016). The choice

of exploratory research in this paper gave the authors new insights into strategic decisions concerning the roles of university libraries in response to a dynamic environment in Ghana. The purposive sampling technique is used to sample university librarians from University A, University B, University C, and University D. Particularly, we selected key decision makers (library directors) with the ability to undertake strategic decisions during the pandemic. To identify such participants, we first contacted the four universities. The authors aimed to explore the roles of academic libraries in the era of changing educational environments and library functions. The factors that justified the selection of the four university libraries in Ghana are based on the aims of the study, the age of the respective libraries and the willingness to respond to the research questions. After notice through a consent letter, all four directors of libraries agreed to participate in the semi-structured interview. Four parts formed the interview schedule; first University Libraries and Global Pandemic and second, the set of items measuring the innovations are required from library staff and Global Pandemic. The third section; focused on strategies to re-position university libraries and lastly benefits of university libraries re-positioning. We probe on areas such as benefits re-positioned during the COVID-19 pandemic. The items from Cox (2018) and Gunapala et al (2020) were used to how libraries managed organisational changes.

The semi-structured interview allows the authors to explore important details thatemerged during the interview due to its flexibility giving questions (Stockemer, 2019). With the required protocols and based on the literature, the authors officially informed the participants of an arranged date for the face-to-face interviews. The interviews were held in respective offices within two weeks and lasted thirty minutes each. The interviews are recorded for replays and possible clarification if need be. Data saturation principles were applied to determine sample size. Saturation is the point in the data collection when no new additional ideas or themes emerge (Jordan & Prayag, 2022). As fresh ideas kept coming to light throughout the first two interviews, data saturation was not achieved. This resulted in the second round of interviews that were previously detailed. To obtain saturation, 2 more interviews were required. We conducted four semi-structured in-depth interviews after combining the two phases. All interviews took place at Zoom, were videotaped, and then were transcribed.

The authors officially notified the participants of the face-to-face interviews and they agreed. Face-to-face interviews were carried out in their respective offices. Each interview lasted between 30 - 45 minutes. Data collected in the month of December, 2022 and was analysed thematically using thematic content analysis to reveal similarities and differences in opinions and empirical evidence on Re-Positioning University Libraries for Relevance in a Dynamic Learning Environment. None of the

respondents declined the interview. Using thematic content analysis, all text responses are collected and transcribed into common themes. Results are presented in tandem with research questions. Several additional strategies were employed to ensure data trustworthiness at the coding stage, using established techniques (Lincoln & Guba, 1985).Given that both authors have sufficient understanding of the library environment and the effects of COVID-19 on the provision of information, the validity of the data interpretation was ensured. The pre-design of the interview methodology, which was used consistently throughout the data collection process, improved the transferability of the data. The thoroughness of data interpretation was supported by a thorough assessment of participants' personal data, such as their educational background, employment history, and working experience. Furthermore, credibility was established by including comprehensive contextual information and utilising direct quotes to communicate the findings.

Results and findings

Library and information services during the global health crisis

Universities consider libraries vital to fulfilling the core teaching, research and learning mandate. The interviewees of the paper responded to the library and information services provided by libraries during the global health crisis. It was evident in responses that libraries offer technology, physical information and library services. The participants of the paper expressed the following;

> "*With the emergence of the global health crisis, libraries provide services to support the changing patron needs and changing information environment. Digital library services have significantly replaced traditional reference librarians. Technology has become the fulcrum of most library services, where users can access library collections remotely and services stored cloud based. Examples include databases, libguides, e-resources, online chat systems*" (University A, 2021).

> "*emerging trends and technologies in library and information services include Library Automation, Digitalisation, Institutional Repository and Digital Library Services, Consortia based Services, quick response (QR) code, radio frequency identification (RFID) implementation, Open Access, Outreach programs on public libraries, Reference Management, Open Science, Virtual/Digital Reference Services, Ask the Librarian and Content Management* (University B, 2021).

"Selective dissemination of information services, profiling system, discovery services, web 2.0 based services, use of social media, mobile-based library services, use of expert systems and robotics, internet of things, augmented reality tools and virtual reality tools, semantics, gamification and smart librarianship by smart involvements, etc." (University C, 2021).

Librarianship has taken on a new dimension because of technological advancements. There has never been a time in academic librarianship when libraries have become so vulnerable to becoming obsolete. Surprisingly, there are a lot of possibilities for becoming notable partners or collaborators in expanding the teaching, learning, and research mandate in HEIs. Cooke et al. (2011) noted that extending physical resources to the increasing availability of electronic resources makes the library reach users beyond its walls.

Library Innovations During the Dynamic Era

that the role of libraries due to technological lag has decreased. Yet, the prospects of library professionals have increased especially when emerging trends and technologies in the information field are closely monitored and followed. Previous studies by Corrall and Jolly (2019) and De Jong et al(2019) affirmed the position of the participants, that innovativeness is a necessary consideration in libraries to maintain relevance during any dynamic era. This was established by the fact that library directors consulted with several stakeholders involved in the library. Training library staff to respond to user needs via remote services was a prerequisite, and it also runs shift schedules at workplaces. Specific responses are captured below;

"With the COVID-19 pandemic, staff should be innovative in developing and delivering digital literacy programs to help users navigate the digital landscape effectively. Technological advancements and innovations have transformed traditional library services into smart libraries. In today's academic libraries in Ghana, libraries offer a wide range of innovative services to the users for their information needsduring the pandemic. There has been a paradigm shift in libraries in this global health crisis. The major role of library staff is providing web 3.0 based library services and the selective dissemination of information and knowledge among their users predefine the scope of libraries. Innovations in data-driven decision-making for collection development to ensure resources align with user needs." (University A, 2021).

"University Library B has transformed most functions of librarians where information and library services were offered remotely or from home. Innovations

in providing personalised services and tailored resources based on user preferences and behavior are crucial in universities. Indeed, technology was key in this transition. Most especially, internet data or access was provided to most library staff to enable continuous library services. Library staff are innovative to assist researchers with data management, open access publishing, and compliance with data sharing mandates. Due to the off-campus (EZproxy) service and EBSCO discovery services, most electronic databases were accessible to support research and learning needs at homes and remote areas" (University B, 2021).

"Libraries and information services face many challenges in the information environment, most of which have occurred due to developments in electronic information resources and the evolution of the digital age. With that in mind, innovations in redesigning physical spaces to facilitate collaboration, active learning, and technology integration and forming strategic collaborations and partnerships with other institutions, organisations, and community stakeholders. are crucial. Hence, the training of library staff and library users has been enhanced and intensified. More library instructions have been embarked on by library management to enable users to use library resources remotely during the changing information environment" (University C, 2021).

Cox (2018) argued that refocusing on users rather than collections, reorganising teams and roles, building collaborations, and showing or effectively conveying value in the university are some of the changes that libraries in HEIs could undertake. Collaboration with others around campus is another important innovation for academic libraries.

Re-positioning Strategies in Managing University Libraries
As HEIs experience the environment's dynamism in the era of the COVID-19 pandemic, the position and decision-making of the university library are also affected (Cox 2018). Hence, it is time to make dramatic changes or face the possibility of being marginalised. Library directors posited the strategies as open access initiative, clearer vision and mission and effective collaborations between stakeholders and library management put in place in managing university libraries during this dynamism including realigning library services to new pedagogies in the universities.

"It was averred by the director of the University (A, 2021) that "collaborative learning and sharing styles which embed distance and regular education. Again, students' enrolment in main and regional campuses has greatly increased because of the online lectures as against the physical lectures".

"The view of library director for University B averred that "university libraries in Ghana have re-positioned through promoting research and learning. Again, a clearer strategic vision of technological support for student learning has been placed at high value during the COVID-19 era. These technologies include learning management systems, Zoom, SAKAI, Teams etc".

"Open Access Initiative is a re-positioning strategy adopted by the library to manage archiving and digital collections. During the COVID-19 era, enhancing quality campus facilities and technologies that students, faculty, and staff are competitively technology-literate. Digital technologies embedded and research data management in library services have also increased significantly"(University C, 2021).

"Despite this pandemic, library leaders are key. A dynamic team of library faculty is positioned to play a more active role in supporting academic curricula. Secondly, initiating expandability, flexibility, and compatibility, standard hardware, sufficient capacity, and networking capabilities in libraries" (University D, 2021).

It is inferred from the results that the pressure for change comes not only from the introduction of technology, but the dynamic needs of the users (Jantz, 2012, p. 3). In that sense, Jantz (2012) posited that innovation in academic libraries is no longer an option but a necessity in HEI. Some past studies have acknowledged some strategies for re-positioning university libraries. Specific re-position strategies and library innovations identified by Raju et al (2018) included skills development, clinical librarianship, reshaping organisational structures of HEI in response to rapid changes in the information environment, shifting from reactive librarianship to partnership or collaborative librarianship and lastly open scholarship and publishing.

Benefits of Re-positioning University Libraries during COVID-19 Pandemic
The interview analysis revealed that university library re-positioning is driven by user dynamics in demand and accommodating innovations, thus becoming proactive and responsive to user needs. The interviewees responded in the following manner.

"If an academic library is to succeed during the COVID-19 pandemic, re-positioning in its parent institution is critical. The stakes are high as the role of the university libraries has a direct effect on its finances and the degree of stakeholder control. The overall responses from library directors reveal that innovations in traditional roles of library function significantly help reduce costs

in the library in terms of freeing up scarce resources for investment in new areas such as technological innovations" (University A, 2021).

"The library directors stressed that digital library services added value to professional long-term library goals and enhanced scholarly communication and publishing for university stakeholders during the global health crisis" (University B, 2021).

"…realignment in the university libraries enabled users to complete academic objectives, that is, information services that greatly support teaching, learning, research, and other general outcomes of education in the universities in Ghana…" (University C, 2021).

"the innovations in library functions have helped manage the storage space better in recent times; significantly freeing up scarce resources for investment in new things such as technological innovations. This, in the end, helped the university libraries to improve productivity in traditional library activities by bringing in digital library services that include library chat with users, off-campus access services, etc". (University D, 2021).

The authors assumed that the library directors had accentuated the need for libraries to remain relevant in the era of the global health crisis by satisfying user needs. All of the participants were resolute in how university libraries must remain central to the overall teaching, learning, and research environment in the universities in Ghana.

Discussions

Our initial objective suggested that libraries play a crucial role in catering to evolving patron needs and the changing information landscape. This involves utilising various tools and approaches, including profiling systems, discovery services, web 2.0-based solutions, social media engagement, mobile-centric library services, expert systems, robotics, the Internet of Things, augmented reality and virtual reality applications, semantics, gamification, and adopting smart librarianship practices. These are the ways through which university libraries have been providing services during the ongoing global health crisis.

First and foremost, our findings confirm a link between knowledge-based dynamic capabilities and the performance of library services in universities. This aligns with the results of previous studies, which have consistently demonstrated that knowledge-based dynamic capabilities contribute to the enhancement of library services (e.g., Mele,

et al 2023; Jadhav & Shenoy, 2022; Baro et al 2019). Therefore, the ability of libraries to effectively employ and integrate information-related techniques significantly influences their ability to respond effectively to the evolving information landscape (Whitworth, 2020; Kumar, 2022). This finding carries particular significance in the context of information service organisations, especially considering that university libraries often face resource constraints. Knowledge-based dynamic capabilities can assist libraries in improving and enriching their services to cater to diverse information needs (Casali et al 2017).

In practical terms, this underscores the importance of library managers recognising the pivotal role of knowledge-based dynamic capabilities as the initial step in deriving value from the organisation's knowledge reservoir and the external knowledge they can access. Once library leaders acknowledge the significance of these capabilities in optimising library services, they should actively promote an open organisational system that seamlessly blends traditional and innovative library services. This might involve employing technologies to analyse customer data, utilising expert systems and robotics, harnessing the potential of the Internet of Things, employing augmented reality and virtual reality tools to facilitate knowledge dissemination, and cultivating an organisational culture that fosters information exchange among various levels and departments within the organisation (Hernández-Linares et al., 2021). As a result, it is imperative for leaders within libraries to adapt their leadership approaches to foster a culture that embraces innovation (Cawthorne, 2010; Harland et al 2017; Jantz, 2015, Jantz, 2017; Yeh & Walter, 2016). They should establish clear objectives, operational strategies, and performance metrics aimed at nurturing innovative practices within their library settings (Jantz, 2012; Koloniari et al., 2018). To summarize, leadership profoundly influences how innovation is put into practice within academic libraries. It serves as a means to overcome obstacles and establish guidelines concerning individuals, resource utilization, and procedural aspects (Harland et al., 2017; Jantz, 2015, Jantz, 2017; Yeh & Walter, 2016).

Furthermore, our findings underscore the significance of library staff innovatively crafting and delivering digital literacy programs that empower users to adeptly navigate the digital landscape. This reaffirms the critical role of innovation within information service institutions (Owusu-Ansah & van der Walt, 2021; Phiri-Chigwada & Phiri, 2021). Additionally, it is incumbent upon library leaders to tailor their leadership styles to cultivate a culture of enthusiasm for innovative practices within the library (Cruz et al & Cauchick-Miguel, 2020; Koloniari et al 2018). These findings underscore the importance of library leaders in establishing objectives,

strategies, and performance metrics that foster innovation within their libraries (Wilson, 2020). Opportunities for future research in this area are worth exploring.

The results indicate that the COVID-19 pandemic caused significant disruptions in Ghana's university libraries, leading to partial shutdowns in most cases. To address these challenges, libraries adopted robust strategies aimed at strengthening online classes and virtual library services. These new initiatives and roles were implemented to ensure that stakeholders could continue accessing essential library resources during this crisis. The third research findings suggest that university libraries can better reposition themselves during the COVID-19 pandemic by emphasising research and learning, fostering transformational leadership within the library, promoting Open Access Initiatives, and encouraging collaborative learning (Susanto et al., 2023). These strategies align with previous research that highlighted how libraries adapted their working practices, expanded their collections with e-books and databases, incorporated open-access resources, and utilised collaborative tools like Zoom, Teams, emails, and WhatsApp to facilitate easier access to information and library resources (Owusu-Ansah & van der Walt, 2021).

Lastly, in terms of the benefits of repositioning university libraries during the COVID-19 pandemic, the results indicate that innovations in library operations have significantly improved resource management, resulting in the more efficient use of limited resources and enabling investments in technological innovations (Corrall, 2014; Tise et al 2015; Cox, 2020). The evolving nature of learning environments in the 21st century has led to changes in pedagogical approaches. Notably, our study is the first to emphasise the relevance of organisational systems theory, highlighting that it offers valuable insights into how university libraries operate, adapt, and interact within the broader academic landscape (Awoyemi & Awoyemi, 2021). University libraries are an integral part of the academic ecosystem, and understanding their interactions with academic departments, faculty, students, and other stakeholders is crucial, which is where organisational systems theory comes into play.

Conclusion and recommendations

This paper discusses the new roles of university libraries in response to the dynamic library environment. The authors analysed reassessments of library services. Central among the library and information services during this era included digitalisation, institutional repository, QR code, open access, reference management services, virtual/digital reference services, ask the librarian and learning content management. Innovations have become necessary in the era of a global pandemic where academic institutions and libraries have repositioned to meet the new demands of the users. With

that, augmented reality tools and virtual reality tools, semantics, gamification and innovative librarians have become needed to support user needs and ensure that information is easily accessible irrespective of location and distance. In a changing higher education in Ghana, library staff must build the technological capacity to provide digital services. It is recommended that innovative library services and facilities are aligned with new pedagogy in universities.

Additionally, the authors identified significant shifts in pedagogy and technology that have occurred in education, demanding effective communication, collaboration, team works, in meeting the teaching, learning, and research mandate in the educational landscape in Ghana. We propose continuous instructions and training for a unique level of users and service providers. Indeed, effectiveness can be assured when library management adopts a personal approach to supporting library staff and users. Finally, our paper will be of interest and use to library leaders who desire library restructuring that reacts positively to the redefinition of new roles that strategically position academic libraries for the future. This paper interest's library and information science which may want to re-examine recent trends in a dynamic era.

References

Asif, M., & Singh, K. K. (2020). Trends, opportunities and scope of libraries during COVID-19 pandemic. *IP Indian Journal of Library Science and Information Technology*, 5(1), 24-27.

Awoyemi, R. A., & Awoyemi, R. O. (2021). A mediated approach to the virtual learning environment (VLE): Implications for academic libraries in the 21st century. *International Journal of Library and Information Services (IJLIS)*, 10(2), 1-10.

Baier, C., Beckmann, M., & Heidingsfelder, J. (2020). Hidden allies for value chain responsibility? A system theory perspective on aligning sustainable supply chain management and trade compliance. *International Journal of Physical Distribution and Logistics Management*. DOI: 10.1108/IJPDLM-02-2019-0037.

Baloch, S. M., & Musyani, Z. (2020). *Pakistan's great digital divide. The Diplomat*. Retrieved from https://thediplomat.com/2020/07/pakistans-great-digital-divide/.

Baro, E. E., Obaro, O. G., & Aduba, E. D. (2019). An assessment of digital literacy skills and knowledge-based competencies among librarians working in university libraries in Africa. *Digital Library Perspectives*, 35(3/4), 172-192.

Casali, G. L., Perano, M., & Abbate, T. (2017). Understanding roles and functions of academic libraries as innovation intermediaries within the service-dominant logic perspective: An Australian case study. *Journal of library administration*, 57(2), 135-150.

Cooke, L., Norris, M., Busby, N., Page, T., Franklin, G., Gadd, E., & Young, H. (2011). Evaluating the impact of academic liaison librarians on their user community: A review and case study. *New Review of Academic Librarianship*, 17(1), 5-30. doi: 10.1080/13614533.2011.539096.

Corrall, S. (2014). Designing libraries for research collaboration in the network world: An exploratory study. *Liber Quarterly*, 24(1), 17-48. Available at http://d-scholarship.pitt.edu/21993/4/Corrall_%282014%29_LIBER_Q.pdf.

Corrall, S., & Jolly, L. (2019). Innovations in learning and teaching in academic libraries: Alignment, collaboration, and the social turn. *New Review of Academic Librarianship*, 25(2-4), 113-128. DOI: 10.1080/13614533.2019.1697099.

Courtney, M., & Wilhoite-Mathews, S. (2015). From distance education to online learning: Practical approaches to information literacy instruction and collaborative learning in online environments. *Journal of library administration*, 55(4), 261-277.

Cox, J. (2018). Positioning the academic library within the institution: A literature review. *New Review of Academic Librarianship*, 24(3-4), 217-241. DOI: 10.1080/13614533.2018.1466342.

Creswell, J. W. (2016). Essential skills for the qualitative researcher. Sage Publications.

Cruz, K. F. S., Mendes, G. H. S., Lizarelli, F. L., & Cauchick-Miguel, P. A. (2020). Antecedents and consequences of library service innovation: An investigation into Brazilian academic libraries. *The Journal of Academic Librarianship*, 46(6), 102235.

de Jong, M., Munnik, M. E., & Will, N. U. (2019). Innovation Opportunities for Academic Libraries to Support Teaching Through Open Education: A Case Study at TU Delft, The Netherlands. *New Review of Academic Librarianship*, 25(2-4), 392-407. DOI: 10.1080/13614533.2019.162118.

Gunapala, M., Montague, A., Reynolds, S., & Vo-Tran, H. (2020). Managing change in university libraries in the 21st century: An Australian perspective. *Journal of the Australian Library and Information Association*, 69(2), 191-214.

Ikenwe, J. I., & Udem, O. K. (2022). Innovative Digital Transformation for Dynamic Information Service Sustainability in University Libraries in Nigeria. *Folia Toruniensia*, 22, 67-86.

Jadhav, D., & Shenoy, D. (2022). Building dynamic capabilities of an academic library: A research agenda. *The Journal of Academic Librarianship*, 48(4), 102502.

Karunarathna, H. M. P. P. (2015). Use of electronic resources by Law degree students at Anuradhapura Regional Centre of the Open University of Sri Lanka. *Journal of the University Librarians Association of Sri Lanka*, 18(2).

Koloniari, M., Vraimaki, E., & Fassoulis, K. (2018). Fostering innovation in academic libraries through knowledge creation. *Journal of Academic Librarianship*, 44, 793-804.

Koplan, J. P., Bond, T. C., Merson, M. H., Reddy, K. S., Rodriguez, M. H., Sewankambo, N. K., & Wasserheit, J. N. (2009). Towards a common definition of global health. *Lancet*, 373(9679), 1993–1995. https://doi.org/10.1016/s0140-6736(09)60332-9.

Kumar, S. (2022). Social Media in Strategic Management of Library and Information Services. *The Changing Landscape for the Libraries and Librarians: Issues & Challenges*, 176.

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic Inquiry*. SAGE Publications.

Maes, G., & Hootegem, G. V. (2019). A systems model of organizational change. *Journal of Organizational Change Management,* 32(7), 725-738. DOI: 10.1108/JOCM-07-2017-0268.

Martinez-Alvarez, M., Jarde, A., Usuf, E., Brotherton, H., Bittaye, M., Samateh, A. L., … Roca, A. (2020). COVID-19 pandemic in West Africa. *The Lancet Global Health*, 8(5), e631–e632. https://doi.org/10.1016/S2214-109X(20)30123-6.

McGuigan, G. (2012). Addressing Change in Academic Libraries: A review of classical organizational theory and implications for academic libraries. *Library Philosophy and Practice.*

Mele, G., Capaldo, G., Secundo, G., & Corvello, V. (2023). Revisiting the idea of knowledge-based dynamic capabilities for digital transformation. *Journal of Knowledge Management.*

Nakhoda, A. (2020). *Bridging the digital divide in Pakistan. The Express Tribune*. Retrieved from https://tribune.com.pk/story/2252437/bridging-digital-divide-in-pakistan.

O'Donnell, P., & Anderson, L. (2021). The University Library: Places for Possibility. *New Review of Academic Librarianship*. DOI: 10.1080/13614533.2021.1906718.

Okike, B. I. (2020). Information dissemination in an era of a pandemic (COVID-19): librarians' role. *Library Hi Tech News*, 9, 1-4. DOI: 10.1108/LHTN-04-2020-0040.

Owusu-Ansah, S., & van der Walt, T. (2021). Responding to COVID-19 Pandemic: Applying the Dynamic Capability Framework in University Libraries. In Handbook of Research on Library Response to the COVID-19 Pandemic (pp. 56-74). *IGI Global*.

Palen, L., & Hughes, A. L. (2018). *Social media in disaster communication*. In H. Rodriguez, W. Donner, and J. E. Trainor (Eds.), Handbook of disaster research (2nd ed., pp. 497–520). Cham, Switzerland: Springer.

Pang, N., Karanasios, S., & Anwar, M. (2019). Exploring the information worlds of older persons during disasters. *Journal of the Association for Information Science and Technology.* https://doi.org/10.1002/asi.24294.

Phiri Chigwada, J., & Phiri, J. D. (2021). Innovations and Use of Assistive Technologies in Libraries of Institutions of Higher Learning. *IGI Global.*

Rahmi, R., Joho, H., & Shirai, T. (2019). An analysis of natural disaster-related information-seeking behavior using temporal stages. *Journal of the Association for Information Science and Technology*, 70, 715–728.

Scott, R. W. (2014). *Organizations and Organizing: Rational, Natural, and Open Systems Perspectives.* Routledge: Pearson.

Whitworth, A. (2020). *Mapping information landscapes: new methods for exploring the development and teaching of information literacy.* Facet Publishing.

Wilson, D. E. (2020). Moving toward democratic-transformational leadership in academic libraries. *Library Management*, 41(8/9), 731-744.

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