

Electronic Resources in Academic Libraries and Its Contribution Towards Sustainable Development Goals

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Abstract. Electronic Resources which also known as the online resources play very important role in academic libraries each day. During the Pandemic Covid-19 especially, the use of electronic resources in academic libraries became increasingly higher. As part of technological developments provided by academic libraries, it is important to note the roles of electronic resources in contributing toward the SDGs. Academic libraries must observe electronic resources as critical components of the information delivery chain because they help to upsurge access to existing knowledge in appropriate curricula and resources for the learning of fundamental skills, including reading, numeracy, and life skills. This paper attempts to critically examine the previous literature, with the objective of identifying the main themes of research on the electronic resources in academic libraries and the contributions towards the United Nation's initiatives which is better known as the Sustainable Development Goals (SDGs). A total of 60 articles were undertaken using searches of Scopus and Web of Science (WoS) databases, were included in this review, covering three major research themes, consist of - electronic resources, academic libraries as well as Sustainable Development Goals (SDGs). Theories and framework related to electronic resources from previous research provide public libraries with a guide to the factors that may affect the Sustainable Development Goals initiatives in the academic libraries.

Keywords: Electronic resources, online resources, library resources, academic libraries, sustainable development goals, library management.

1 Introduction

Sustainable development has been characterised as the fusion of environmental preservation and economic expansion by governmental and business leaders. In order to achieve industrial sustainability, the idea of eco-efficiency has been championed as the key strategy. As part of technological developments provided by academic libraries, it is important to note the roles of electronic resources in contributing toward SDGs. Academic libraries must view electronic resources as critical components of the information distribution chain because they help to increase access to current knowledge in appropriate curricula and resources for the learning of fundamental skills, including reading, numeracy, and life skills (Gardner, 2022). (Adu & van der Walt, 2022) described electronic resource as a commercially available title that has been published with the intention of being marketed. (Pooja et al., 2022) described electronic resources as simpler resources to retrieve, display, and print for users than traditional print reserves, electronic resources are becoming more and more popular as a way for librarians to address the information demands of their clients. Therefore, switching to this service is a top priority for many libraries who want to share knowledge resources. This involves making original electronic information, such as papers that have been scanned from paper, available to its customers. Main SDG supported by electronic resources is quality education, whereby it strives to assist the academic and research endeavours of the university community by offering cutting-edge services and collections such as printed books and journals, online journals and databases, theses, dissertations, internship reports, and annual reports. This resulted in subscription to hundreds of e-journals and databases, through which library has been able to benefit towards the increase the breadth and depth of its collection. Sustainable development goals are a matter of interest to libraries since it pertains to democratic principles, education, free thought, and diversity. Libraries should incorporate sustainability into all facets of its approach, from organisational culture to daily operations and curriculum design. Academic library should provide a diverse variety of facilities and services that support the attainment SDGs. Nowadays, access to knowledge and technology is made possible by a lively and varied library community, which has an effect on how well academic library functions. Academic libraries should be able to provide people of all ages and backgrounds countless opportunities to educate themselves and take part in a culture that values media (Rosa & Storey, 2016). They support their campuses' and communities' demand for research and education. They are dependable, welcoming, and secure environments. They serve as information and support centres on campuses and in the communities, they serve, enabling individuals to pursue academic pursuits and lifelong learning. Electronic resources frequently described as future proof approach when it comes to academic library services. In truth, very few things are completely unaffected by the future. A continual cycle of replacing and updating appears to be the norm in any industry that is largely reliant on technology.

Electronic resources in academic libraries might contribute towards sustainable development goals for specific audience. At the same time, substantial effort and strategy need to be done in order to cater SDG needs for larger public audience. Electronic

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resources can be used as medium in accomplishing the SDGs for academic libraries. Therefore, it is very important to highlight and discuss the needs of electronic resources in academic libraries and its support towards SDGs. Thus, it would appear that electronic resources may be utilised by academic libraries within the parameters of the UN Agenda to help achieve the SDGs. This study's main goal is to provide an answer to the issue of what and how electronic resources in academic libraries assist the SDGs. This study's objective is to examine recently released research on the contribution electronic resources in academic libraries may make to attaining the SDGs and will cover three (3) main area:

- Electronic Resources in Academic Libraries
- Electronic Resources and Sustainable Development Goals (SDG) Contributions
- Electronic Resources Approach Towards Sustainable Goals

2 Research Methodology

This paper employed a secondary data collection by using a document analysis method. The authors have adopted a structured procedure for assortment of the suitable literature. The approach commences with the identification of the articles over a coded evaluation process in order to categorize the relevant information. A three-stage refinement process were involved in data reduction works. Stage one is to ascertain the literature through keywords and sentence strings - ("electronic" OR "online" OR "electronic resources*") AND ("academic library" OR "university library" OR "academic libraries") AND ("Sustainable Development Goals*") from Scopus and WOS databases. From this, 205 articles were identified. The kinds of literature measured were in English published between 2015 to 2023. Nevertheless, the publications dated before 2015 were accepted for studies correlated to theories and historical perspectives of electronic resources, academic libraries and sustainable development goals. Table 1 summarizes the screening criteria of literature searches.

Table 1: Screening criteria of literature searches

CRITERIA	INCLUSION
Publication timeline	2015 to 2023
Document type	Article (with empirical data) and review
Language	English
Disciplines of the study	Library; Library Resources; Sustainable Development Goals

The results attained from the refereed journal databases (using different combinations of the keywords) were then cross compared for possible overlaps, placed into

keyword files and checked for duplication, therefore reliability and validity can be maintained in reporting. The following process involved reviewing and screening the articles with concern to the titles and keywords. A total of 205 articles were recognized. The abstract and conclusions of those articles were reviewed to confirm criteria compliance. The reduced number of articles were 60. The information was analysed to answer the research questions. The analysed data were then used to classify the main themes concerning to the study context. As a final point, draw out a number of important implications for electronic resources in academic libraries towards sustainable development goals.

3 Thematic Review

Electronic Resources in Academic Libraries

The review of the literature on electronic resources in academic libraries generated remarkably many studies that pronounced discussions on the electronic resources management or usage. According to Bentil, Liew and Chawner (2022), electronic resources in academic libraries have turn into a universal occurrence in line to technological advancements, and these resources are shifting the anticipations of library users as well as the nature of the work of librarians. Even though there is a wide-ranging form of literature on the management and usage of electronic resources in academic libraries, a small number of researchers have engaged a complete interpretation by reviewing both notions in a solitary study to disclose how they are related. Former studies have examined only the management or usage of electronic resources as dispersed concepts. They added that, the results display the numerous ways where the management and usage of electronic resources have an effect on each other. The significance of suitable and sufficient resourcing, the marketing and demonstration of the value of electronic resources, training and usage evaluation are conferred accordingly.

As reported by Vrana (2022), location and use of information resources are critical activities associate learning, teaching and research at universities in Croatia and all over the world. Previously Habiba and Ahmed (2020) mention that, academic community generally obtains sustenance for these crucial activities from libraries using easy and swift access to information resources of all types for students, teaching staff and researchers. Despite the fact that printed information resources currently symbolize well accepted, proven, traditional information resources, electronic information resources (or shortly e-resources) are information resources that are still in expansion. At the moment, numerous arrangements of e-resources have been supplementing and, in some cases, absolutely substituting printed resources in academic daily repetitive. The worth of e-resources used in higher education normally influenced by their supplier and in the academic community university or academic libraries are supplier of e-resources. Vrana also highlights that, academic libraries universally are swiftly fluctuating towards digital platforms, implementing information and communication technology (ICT), to provide Web-based access to such resources. The outcome of the

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move is easier access to e-resources for learning and research (studying) and their countless versatility. Another element that influenced theoretically more frequent use of e-resources by the university community is the COVID19 pandemic. Library users as well as university students moved towards use of e-resources dramatically, in addition complementing and substituting unreachable printed resources with e-resources.

IGI Global (2022) describes e-resource as a resource which involve computer access or any electronic creation that distributes a collection of data, be it text referring to full text bases, electronic journals, image collections, other multimedia products and numerical, graphical or time based, as a commercially available title that has been published with an aim to being marketed. Before that Habiba and Ahmed (2020) say, e-resources are frequently categorized “as those information sources and services that users usually access through the computer network from inside the library or remotely. The sources basically published by various publishers. According to Larivière, Haustein and Mongeon (2015), generally, results demonstrate that the best commercial publishers have benefited from the digital era, as it directed to a histrionic escalation in the part of scientific literature they published. It has also headed to a grander reliance by the scientific community on these publishers. Therefore, publishing of electronic resources become increasingly expand from time to time. This positive scenario has also benefited academic libraries as they are able to provide latest and current information to the users as a whole.

Electronic Resources and Sustainable Development Goals (SDGs) Contributions

Electronic resources are the form of materials that can be retrieved online at any-time and anywhere. Essentially accessing electronic resources allow the users to access and browse the information that they required. Presently, most academic library users are more favor and prefer to access and gather information using electronic resources due to their advantages such as convenience, time-saving, ease of use, updated, storage volume, and ability to access anywhere. Due to the latest trend, most libraries currently run their business in a hybrid mode that integrates activities supported by networked digital technologies along with the traditional model (Anasi et al., 2018). Most users thought that accessing information using electronic resources is more convenient and accessible especially when Covid-19 hit the world. They added that it is proven which most organizations like libraries and information centers were affected, and electronic resource usage and user-dependent electronic resources got up surged. It can be seen in the academic field when students, lecturers, and researchers had to depend on online learning platforms and resources to support their teaching and learning process. The outcome of dependable online medium like electronic resources is the usage of library electronic resources getting higher and higher over time.

In comparison with conventional resources, electronic resources are likely more accessible and able to support learning and research from any location as long as there are internet connections available. Modern libraries normally equipped with good collections of print as well as electronic resources like e-books, e-journal, e-theses and dissertation (Prakasan, 2020). Besides, electronic resources become popular due

to their functionality, faster of accessing information, and provide number of search results compared to conventional resources. On top of that, electronic resources also enable users to search many keywords at one time, which is easy to download, and user-friendly. Likewise, electronic resources provided by the library can also be accessed anytime and everywhere without any limitation. Therefore, it results in a better user experience and comfort with library resources and services. Electronic resources proved that information can be accessed comfortably without difficulty, especially during Covid-19. The user that is aware of their health is likely to choose electronic resources to find the information they need and does not necessitate them to come to the physical library just to find the resources they need.

Therefore, the availability of the electronic resources indirectly contributes to the Sustainable Development Goals adopted by the UN General Assembly in 2005 as a new Millennium Development Goals which include 17 goals to be achieved (Anasi et al., 2018; Benson et al., 2019; Noh, 2021). It has been reported that sustainable development supports economic, social, and environmental progress which is focused on social equality, economic development, and environmental thinking (Noh, 2021). As for academic libraries, they are known as the information disseminating institutions that have the power on spreading the information and knowledge which are needed by the community, so indirectly they are promoting the actualization of the SDGs themselves (Chewe & Imasiku, 2018). Therefore, libraries should put extra efforts on providing the information to ensure the SDGs goals can be achieved. Access to information enables people to make better decision and help people improve their quality of life.

According to Garcia-Febo et al., (2017) through electronic resources, it enables the communities of the libraries to access to the current and relevant information that can help them get rid from the deficiency, inequality, improve life status, provide excellent education, and support people in health, culture and innovation. The SDGs itself are the blueprint to achieve a better future and generations which address the global challenge faced by the whole world including poverty, inequality, climate change, environmental, poor education, peace and justice. Basically SDGs are focussing on ensuring that there are no one would have left behind and as a part of important organization, academic libraries played an important role to meet the SDGs goals by the year 2030 as targeted by the United Nation (United Nations, 2019 as cited by Dei & Asante, 2022).

Electronic Resources Approach Towards Sustainable Development Goals

Electronic resources are an excellent answer to the concern of future requirement that frequently accompanies a digitization effort. A digital document that has been saved but is unavailable represents the same value as a physical document that has been stored but is inaccessible.

The selected approach towards sustainable goals have been explored in this paper. These strategy and approach includes practise and viewpoint, applicable SDG from the industries, and electronic resources framework used to support SDG's. Samantary (2017) stated distribution and integration of ICT, which ranges from basic web

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browsing tools to artificial intelligence that can extract knowledge/scholarship from contents, are essential to the effective usage and motivation for use. Koscieljew (2020) discovers electronic resources will eliminate information access gaps and assisting businesses, government, and civic society in better understanding local information demands. Advancement of digital inclusion through ICT access and committed staff members who assist individuals in learning new digital skills, acting as the hub of the academic and research community, and preserving and making accessible the rich cultural legacy of the world. Answering inquiries, providing information, providing direction and counselling, and providing training are the four input of electronic resources which will contribute in quality education. It provides users numerous benefits in terms of meeting their wants and demands. Alternative approach as mentioned by Gomes et al. (2022), providing free and open access to many types and forms of information, free download spaces to encourage participation, and chances for individualised leisure and education, electronic resources can contribute to raising the quality of education. Suthiprapa and Tuamsuk (2022) state that libraries need to utilise their marketing strategy to choose their service-provision plans because they are evaluated by their university. Educational technology as provided in electronic resources has the potential to reshape learning, reshape the student experience, and extend quality education opportunities to almost anyone with an Internet connection, anywhere in the world (Rosa and Storey, 2016). Electronic resources provider should measure and re-assess how information is delivered and how curriculum is supported. This will lead to quality education whereby the teachers are equipped with sufficient and accurate sources in creating presentations and online courses. On the other hand, Xie and Matusiak (2016) mention that local e-content is attracting greater attention and large-scale digital archives such as Google Scholar, which are coordinated with regional digital assets and archives. Special collections, research data, and institutional repositories' distinctive assets are being stewarded with more priority and resources. Digital assets must be connected in order to facilitate discovery and future usage as a result of the transition to the curation of local digital materials and digital research.

Johnson (2016) specifies, the development of the aforementioned structures and services, as well as the provision of additional personalised and value-added services, requires the development of cooperative mechanisms between librarians and researchers. New digital strategies for strategic teaming and collaboration have shown to be effective. Digitalised personal librarian programme has increased student engagement, particularly among new freshmen (Murphy et al., 2022). Adapting to digital tutorials and training has aided pupils in developing information literacy abilities. Balk et al. (2014) emphasize on the growth of technology and the internet, together with the abundance of digital data currently available, has also prompted new types of academic study and changes in the services that are needed. Transformation into a fully digital library under the guiding programme called the Digital Library was introduced with high standards for digital services, digital material, and infrastructure. Most common approach as mentioned by Giménez and Alsina (2020), access to various technologies has been provided, and each library team shares common organisational goals and culture, in which diversity is a strength and working to ensure true

equality of opportunity, electronic resources has also expanded the network model to include various local institutions, services, and associations. This has allowed all neighbourhoods and social classes to have access to high-quality library resources and services at the same level of quality. Glossiotis et al. (2019) underlined the effectiveness of information needs for the students, whereby library offers services and reference materials. It delivers instructional seminars to library users to help them use the accessible library resources, which are mostly electronic services, as well as services to non-affiliated students. This type of method pointing on objectives include the creation of new knowledge based on exploring the library's resources and improving search techniques. Additionally, it aims to help students comprehend search techniques and the requirement of combining printed and internet sources for school-required research tasks.

4 Conclusion

The purpose of this study was to analyse recently published literature on electronic resources in academic libraries and its contribution towards SDGs, with a discussion to identify the significant roles played by academic libraries within some of the SDGs. According to the study, electronic resources have a lot of potential contributions to make in support of the SDGs but with some caveat. This is supported by the capacity of electronic resources being able to fit on a single hand-held device makes them very portable and doesn't require purchases or license to owned. This reduces the digital gap and enables those who are less fortunate to get necessary information for free. Unfortunately, the published contents are only accessible for university enrolment, with public community only able to access through open access platforms.

As stated from the overview of the literatures, the roles of electronic resources in academic libraries to be played towards SDGs achievement should focus on strategy and approach includes practise as well as viewpoint. This is to ensure academic libraries achieve and success towards SDGs. The summary also stated that the SDGs become more of public knowledge as a result of academic libraries effective efforts to advance them by using electronic resources as platform of service delivery. Appropriate library initiatives and campaigns should thus be carried out to guarantee that those SDGs concerns and indicators are disseminated through various library strategies. As stated in the overview, information is a critical component in any development. As a result, it is critical for academic libraries to overcome information poverty as well as prevent information overload since it might affect objective towards achieving SDGs. Finally, the review emphasises the need of tailoring library electronic resources to promote lifelong opportunities for all whereby it will fit user needs and wants as well as providing an assistance to curb with global learning crisis and promoting lifeline education.

Further empirical research is required to support each of the proposals for electronic resources in academic libraries to help achieve the SDGs, as deduced from the overview. There have been many discussions regarding the benefits and advantages of electronic resources in academic libraries, but very few focusing on its relation in

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contributing toward SDGs. Furthermore, there hasn't been much research done on the potential of electronic resources in academic libraries to promote SDGs, but it is quite intriguing and obviously warrants greater study from a variety of perspectives for the near future. It is noticeable in this overview, whereby most of the studies only focusing on contribution towards quality of education due to the nature of electronic resources itself.

There has been very few research performed exclusively on electronic resources in academic libraries and its involvement toward SDGs, limiting the ability to discover clear empirical evidence. Perhaps learning more about their potential and assistance would be more fascinating especially as the key components in providing quality education. This will lead us to have a future benchmark by which we can assess how beneficial certain approach is in achieving SDGs. Better still, globally applicable criteria might be acknowledged when the data is ready. Nevertheless, the idea of it is in a state of transition.

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