

LIBRARY AND LIBRARY PROFESSIONAL IN THE DIGITAL AGE

Nur Afeqah Abdullah
Senior Librarian
Perpustakaan Tun Abdul Razak, Sarawak Branch
E-mail: nurafeqah@uitm.edu.my

Nur Syafiqah binti Hassan
Bachelor of Law (Hons), Universiti Teknologi MARA, Shah Alam
E-mail: aqmafazana7278@gmail.com

DOI: 10.24191/aclim.v1i2.12

Received: 26/11/2020/ Accepted: 15/12/2020 / Published Online: 30/11/2021

Abstract

The purpose of this paper is to explore the future vision of library and librarians in the new technology demand referring new user needs, new skills for staff and services offered. This paper applies qualitative analysis in which the secondary research approach is used in collecting the existing data in the form of texts such research paper, journal, magazine and etc. to further explains about the topic. The literature reveals that transformation of new technologies giving an implication towards library staff, library services and future user demands. It also shows that communities are still relying on libraries for a variety of services and activities. Hence, the needs for librarians to manage libraries and help users to search information are still relevant. The deliberations in this paper are encircled by perception of what the library products, services, facilities and librarians' profession will be in future libraries. Further studies are needed to investigate the opportunities and possibility for professional librarians and library to enhance their roles facing new era IR 4.0.

Keywords: *Digital Library, Embedded Librarian, Digital Marketing, Digital Resources, Collaboration*

1. INTRODUCTION

Modern and advanced technology greatly influences the dependence of users on libraries and librarians where users can easily get the information via online technology such as internet, Google, Yahoo etc. However, libraries should find ways to maintain their role as an information provider and reference services. There is research conducted to investigate the library and librarian's role in future. Yaman and Kultuca (2012) found that it is important for higher institutions to embrace the idea of digital library and electronic librarianship while rebuilding the services produce by universities thru their libraries.

The invention of information technology (IT) and its integration with communication technologies subsequently led to information and communication technologies (ICTs) which have had a significant influence on the evolution of the digital world of modern libraries.

The introduction of digital libraries is a wise move to strengthen the existence of libraries in line with the 4.0 Industrial Revolution. Industry 4.0 reflects the fourth industrial revolution as another degree

of association and command over the whole worth chain of products. It is focused on the inexorably prerequisites of individual clients (Vaidya et al., 2018). Hussain (2020), mentioned that the Fourth Industrial revolution is transforming the way we live, work and connect, such as self-driving vehicles, web-based shopping, drone delivery systems and so forth. Libraries and Librarians should be fitted with the latest technology in order to offer the effective and prompt services to the clients.

Cherinet (2018) has uncovered that some of the functions and abilities required by librarians are evolutionary, while others are transformative, but the overarching future position is to turn the knowledge development into community (to create an educated society) by re-socializing and shaping young generations. The outcome also suggested that the synergy of spirit, experience, know-how and cultural expertise has brought together librarians who match the future environment of the library.

Problem Statement

The latest technological developments have a beneficial impact to the library and libraries' role in providing better services and facilities to users. Mohd Shahrulnizam (2019) in his paper said that, is the library and librarians ready to face the challenges to remain relevant in the digital age and current economic challenges? The author also discussed what are the challenges face such as the use of internet search engines, producing great students' soft skills, the use of social media, library space and the offering of free learning resources through Open Educational Resources

Ministry of Education Malaysia (2016) has highlighted useful information for the library and library professional roles in the future. In line with the government's intention to make Malaysia as an international education hub, this opportunity gives the impression that libraries are still needed to support that goal. This is because the library is the lifeblood of a university in providing quality services and facilities.

Scope

The previous studies conducted by other researcher have revealed various factors or determinants that have a great influence towards library and library professional roles in the future. However, this paper will only focus on the four different determinants as cited by various authors. The determinants are including library, embedded librarian, digital library and library services and facilities. Therefore, the findings of this paper include only the variables described and further addressed in the next section.

This paper will be focused on the secondary research data that collected from previous research conducted. However, there are limitations in this paper where uncontrollable threat to the internal validity is occur when doing research. The researcher will try to minimize any interference of the study and focus on the scope defined only.

Objective

The objective of this paper is to investigate library and library professional roles in the digital age. Furthermore, the aim of this paper is to discover and try to understand why library and library professional are still relevant in future vision. Specifically, this paper seeks to determine what library and library professional can contribute to support the learning and teaching process in the digital age.

2. LITERATURE REVIEW

Thematic viewpoint format are uses to discuss the literature review of this paper. The literature review is arranged by four determinants which are library, embedded librarian, digital library and library services and facilities.

Library

Referring to Cornell University Library (2020), libraries are not a space for reading books and journals but they also include advanced online services, including the Internet, collections of digital libraries, remote access to a variety of technology and guidance to support the teaching, learning and research activities. Most libraries offer services that focused on customer services (interfacing users to the data they required), technical services (ordering, cataloguing, and preparing materials), computers' facilities (maintaining databases of libraries, programming, web page interface) and administrative services (operation of library and services, dealing with supplies, administer library staff and budgets allocation)

Embedded Librarian

According to Meriam-Webster (2020) librarian is a specialist in the care or management of a library. A librarian is a specialist who is qualified in the information science field. Normally, librarians work at a school, public library, university, colleges or even a government institution. Librarian serves and helps users that need the informational resources and services and at the same time, managing and organizing library resources. Librarians also responsible for a variety format of information, from the conventional book and serials management to a computerized technology includes audio and video recordings and online materials.

According to Nagarkar and Murari (2010), embedded librarians are assigned to teach the user of research skills and wherever instruction is needed. There are three common categories of users which are in university, users are in the classroom or online classroom, meanwhile in business they are in the research lab or office and in hospitals, they are with doctors and nurses.

As mentioned by Cox (2020) librarians can assist academic staff create teaching syllabus, conduct teaching together, offer research consultations, organize online office hours and help identify and integrate teaching syllabus. This skill set will help the librarians to work closely with faculty and at the same time build strong collaboration. In addition, it will help promote the library services and strengthen its visibility while users gain information literacy skill.

The 'blended librarian' was described by Bell and Shank (2004) as a university librarian who combines the conventional skill set of library science with the hardware/software skills of the information technologist and the expertise of the instructional or professional designer to properly apply technology within the teaching and learning process.

Digital Library

Digital libraries are institutions that offers services and resources including expertise that helps to identify, organize, provide intellectual approach, analyze, circulate, cultivate the integrity and assure the consistency of digital collection in order to make sure that the information is available and accessible for use by the local community or special group. (Digital Library Federation, 1998).

Singh (2012) described digital library is a space which collection are housed in online formats (as disputed to print, microform, or other format) and can be accessed through computers where digital content deposit locally, or external accessed via computer networks. Ilahi et al. (2019) described the digital library is an artificial intelligence that is created as a electronic data, or are often mentioned as platform that keep data on a huge numbers and worked together with the data management system and able to display the data or information needed by the user.

Therefore, digital libraries need to sustain, keep and preserve the data and information however not envisioned conventional library set-up (Baker and Evans, 2013). Elements of digital library may include the digital conversion of current services or the development of new services such as online distribution,

databases, customized services, interactive learning modules, online references, digitized materials or digital publishing. (Poll, 2005, cited in Baker and Evans, 2013).

Library Services and Facilities

A library should provide great services and facilities to the users to ensure their roles and function are still relevant in the future. Generally, libraries provide a variety of services and facilities to satisfy different information requirements of users. One of the services that can be considered are online resources, friendly users service, and knowledgeable manpower while providing conducive and comfortable space to the users. Apart from that, digital marketing and communication also influence the visibility of library functions.

Generally, in the virtual space, libraries mostly provide e-books, audiobooks, podcasts, online courses and databases, as well as online community space through social media platforms. The New York Public Library has now revealed that it would supply digital video rentals, following the Boston, Los Angeles, and San Francisco libraries.

3. METHODOLOGY

This section justifies the method applied in producing the paper. This paper applies qualitative analysis in which the secondary research approach is used in collecting the existing data in the form of texts such research paper, journal, magazine and etc. to further explains about the topic. This paper uses secondary research approach so that thematic viewpoints format is chosen. Applying literature review technique, this paper retrieves several authentic databases subscribed by UiTM namely Web of Science, Emerald, Science Direct, Ebsco, Proquest and Google Scholar. The keyword for search were “digital library”, “library future”, “embedded librarian”, “digital marketing” and etc. The search using that keyword returns 150 related articles, in total. However, about 33 articles were used. Those papers offer the theme/subject/idea related to and conforms to ideas presented in this paper.

4. FINDINGS AND DISCUSSION

In this section, findings are discussed into variety aspect which are embedded librarian, digital library, collaboration, digital marketing and communication, managing digital resources, knowledge of research and creating and managing space. Since this paper is qualitative analysis approach, so there is no statistical data are collected. All the aspect discusses are based on the result and finding from previous studies that have been uses in this paper. Hopefully, the findings will give some new ideas to conduct further research and will helps the researchers, library management, library professional and student to get some viewpoint of library and library professional roles in the digital age.

Embedded Librarianship

In general, library plays an important role to support community in teaching, learning and research activities. Without library as an information center, it's hard for the community to search information and resources that are steadily valid and relevant. Nowadays, most libraries especially academic libraries offer online services to meet their users' demands.

As mentioned by Mwaniki (2017) to cater to technological advances, librarians need to take a critical check out of the conventional library services and what they entail, then analyses the digital library and therefore the modifications or enhancements that are developed and ultimately, project what's in situ for the longer-term library system.

O'Connor (2013) mentioned that leadership is always important but it is essential times of rapid and even fundamental to change. They are individuals who will enable the library accomplish its objective; however, they can likewise be a power that rejects change by possibly breaking clear bearings. Therefore,

it is necessary to include our staff in why change is needed, to integrate the employees in the process of change, to freely and transparently inculcate their ideas into the process. However, staff is constantly receptive to this sort of consideration. For the longer term, the library management needs not only technical library expertise, but also professional expertise from other fields such as database administrator, web designers, graphic designer and marketing expert.

Farooq et al. (2016) in their research found that there is a significant gap between academic librarian's expectations of their current professional and personal competencies compared to required skills where there are not satisfied with their present level of skills. The competencies include managing information resources, personal competencies, managing information organizations, applying tools and technologies and managing information services in their routine as an academic librarian. Withal, Pakistan's academic librarians are aware of the need to transform in line with digital technology and take the opportunity to improve their potential and credibility as well it's useful for the universities management in planning the requirement, management and training of their librarians on the basis of required skills.

Previous study of Miller et al. (2020) have identified that reflective practice is a technique marketed as a strategy to enhance professional achievement and to develop competencies. Intentional reflection on working practices can contribute to a greater understanding of a particular situation, specify solutions in the future for similar scenarios, and reveal perceptions that obstruct service to employers. They also introduce the objective of intentional reflection at work which includes what it is, how it benefits and how it can be implemented in librarianship. The reflective practice comes with variety of formats that can be used with a model, combination of models, or no model depending on organization requirement.

Library Science professionals ultimately have to upgrade the skill and knowledge in order to deal with technical change user demands. In order to achieve, the existing of library science syllabus needs to be modified with the introduction of new subjects includes business and data analysis, psychology and entrepreneurial skills, aside from domain knowledge and interpersonal skills. Additionally, a collaboration between the library and the industry strategic partner is needed in research and learning process.

There is no denying that academic libraries have undergone many changes due to the increasing use of digital information as well as changes in user demands. To a certain extent, most of users relying on Google, Google Scholar and other Internet search engines when searching for information rather than refer to library resources or reference librarians and this number increasingly decreased. This situation drives Bandyopadhyay and Boyd-Byrnes (2016) investigates the continuing need for mediated reference services in the technology-driven environment in academic libraries. Mediated reference services are required to succeed in connecting integrated located customers, online learning students and library-shy communities where university libraries will provide an e-mail reference service and VRSs using chat, IMS, messaging, online video conferencing and social media platforms to get connected with the users.

Digital Library

Empowerment of digital libraries is also important in order to sustain the library existence. In line with the government's aim to make the country a hub for world education, libraries need to transform library services through increased efficiency and effectiveness of integrated services to the people (Malaysia Education Blueprint 2015-2025). Focus on improving digital implementation, offering more innovative services and expanding services that are readily available to the public.

For example, PNM Strategic Planning 2019-2023 also highlighted that strengthen of digital library as one of their core strategic planning. PNM's intention is to transform library services through increasing the efficiency and effectiveness of integrated services to the people. Therefore, the focus is on strengthening the implementation of digital libraries, providing more innovative services and expanding services that are easily accessible to the people. This strategy can be accomplished by enhancing the national information

hub, promoting the country's digital content and boosting the National Depository System (SDK) as the National Clearing House.

Ilahi, R. et al. (2019) in their paper found that the implementation of the Digital Library is very beneficial education where people can get information easily and effectively, while students can learn and build digital library, support teaching and learning process, and the university can assist in accessing catalogues, references and research information. Apart from that, the implementation of the Digital Library vastly benefits the public in access data effectively, to retain the social and historical artifact that can be referred and used later while the organization can build a library and provides information about its products.

Yalman and Kutluca (2012) stated that providing sources of information is more important than libraries physical. However, despite the growing capacity of universities, the difficulties that libraries face with are rising day-to-day. This situation is a sign that universities needs to consider by adopting the idea of digital library, computerized librarianship and at the same time restricting the resources and services offers by universities through their libraries. Meaning that, there are hopes for libraries to stay relevant in the future by improving and enhancing the library resources and services. E-library is one of solution that can help the library maintain its existence and to make it successful, support and cooperation from top management are needed. The library must determine of e-library interface characteristics, variation, ease of use, user understanding, the benefits and drawbacks of the framework during the digital library design process. Hopefully, with the implementation of e-library, it will able to improve the quality of education and increase the use of e-library among the students.

According to Mikkelsen and McMunn-letangco (2015), the digital library must work collaboratively with academic staff and people to encourage scholarly publication and open access databases for their outcomes. Furthermore, future libraries shall encrypt anti-plagiarism software to track the student's academic research in order to avoid any academic dishonesty or replication of studies. The digital library must be configured with mobile apps where the users could reach the online public access catalogue via any smart devices (such as instant messenger to library members and blogs).

Collaboration

Library itself, have a potential to entrust its roles and visibility within the community. However, to make it real the library should actively engage with another stakeholder and the user. For example, Cornell University Library aggressively collaborates with faculty, publishers, artistic designers, students, staff, companies, and others in creating these digital projects. In addition, Cornell University Library also develops digital projects to enhance its resources and services and hires several people to organize and serve the digital collection. One of the digital projects that the library employs people is the Kinematic Models for Design Digital Library (K-MODDL). K-MODDL is a platform for leaning and teaching the principles of kinematics. This model specifically designed includes moving mechanical models. In addition, this project is supported by the National Science Foundation, Cornell University Library and listed in the National Science Digital Library (Cornell University Library, 2020).

Another project that library can collaborate is partnered with Google Inc. namely the Library Project. The Library Project allows users to flick through many books published in several different languages on Google, including books that are rare, out of print, or usually unavailable outside of the library system. For example, University of California Library carried a project called Mass Digitization of UC Library Collections in collaboration with Library Project founded by Google Inc. UC libraries have digitised numerous books since 2005 by collaborating with Google and the Internet Archive in mass digitization initiatives. Nine out of ten UC campuses and both Regional Library Facilities have been actively involved in these system-wide mass digitization projects since early 2020. (University of California Library, 2020).

Digital Marketing and Communication

Effective marketing in promoting library resources, services and facilities need to be considered as the physical libraries are starting to fade and high competition between e-libraries. Library professionals must have some marketing skills to help to tell people about your library. Marketing will also help to improve the Library's performance, achieve strategic priorities and deliver against targets.

Research shows relationship marketing provides libraries with unique benefits and could be extended to the marketing of digital library resources with particular impact. Relationship marketing is broadly about fostering effective engagement between staff and current users and sustain the relationships will retain loyal customer (Henderson, 2005). However, good in clients service is at the heart of the career meanwhile relationship marketing is a choice when considering online marketing services and use technology to meet and interact with clients more easily.

The librarian needs to decide what exactly type of online service is going to promote and which target user. For example, Library of Congress establishes American Memory and markets it to focus target users such as congress, academicians, researchers, teachers, students and public. American Memory is a doorway to develop main source focusing to the history and culture of the United States. Over 7 million electronic materials from over 100 historical collections are offered on the web.

Managing Digital Resources

Although research data management activities are plentiful but inadequacy of research data management strategies, shortage of incentive, lack of competency and inaccessibility of data infrastructure will become constraints to manage all the data. This situation shows that library has a potential to provide a holistic data research management system for collecting data. This can be achieved by sending librarian for a structured training such as data analysis, IT and software technology in order to improve and enhance their skill to cater the opportunity.

In the digital era, library professionals must be able to manage digital resources, such as digital copies of journals, ebook, audio book, rare, special and fragile materials. Librarians must learn how to disseminate, filter and organize digital information according to their relevance, value and formats. Before deciding to initiate such a digitization project, need to considered following issues such as the selection criteria for digitization of rare and fragile materials, appropriate digitization methods, conservation issues which must be addressed before digitization can take place and community-accepted 'good practice' for the digitization (Hughes, 2004).

Digitization and managing rare and fragile materials are challenges and expensive as we need to handling the materials in structured way without harming it. Primary resources materials in museums, archives and libraries consist of variety of rare and fragile format, many of which will present special challenges for digitization. Manuscripts of all periods and languages are represented and a variety of formats, including paper, parchment, birch bark, papyrus, lead tablets, wood, stone, aging newspapers or palm-leaf manuscript, etc are too fragile to be consulted (Hazen et al., 1998; Hughes, 2004). Digitization equipment and practices will have to be customized to deal with a range of specialized formats and unique materials that may also need special attention or conservation treatment (Hughes, 2004).

Knowledge of Research

Chawinga and Zinn (2020) in their study mentioned that researchers are regularly engaged in research operations, producing vast volume of research results. While researchers are eager to share their results, only a few follows through. They also described that data retention is low because high-risk storage of data such as laptop, flash discs, emails and external drives is used by the university. Researchers and librarians

were lacking of research data management capabilities due to lack of structured and information training opportunities.

Savedge (2017) described that the modern library is not made obsolete in a digital era but it becomes a new point of tune. The author added that Americans need access to free content from the internet as well as they do from books, and the library is there to satisfy the need and help teach us how to get it. Maybe that's why libraries are the only thing millennial doesn't wipe out.

Chawinga and Zinn (2020) said that numerous research collaborators have participate to establish preservation framework, given research data progressively been recognized as vital raw resources for current and potential scientific discoveries in the future. Yet, despite producing rich research data, Africa is lagging behind in the management of research data, possibly losing much of precious information. Hence, the exercise was performed at a Malawian public university to examine research data management activities in order to propose effective data management strategies.

National Library of Malaysia (PNM) also designed a strategic plan to empower the library research activity and development in order to support the process of new knowledge creation for academic and commercial use. This can be achieved by enhancing the study of librarianship, expanding national and international collaboration, strengthen the transformation analysis and preparing for the new knowledge creation and empowerment of library infrastructure development in Malaysia (Pelan Strategik PNM 2019-2023)

Creating and Managing Space

Providing conducive and comfortable yet interactive spaces is also important if want to stay relevant. The spaces not only for keeping the books but also provide area for discussions, reading corner plus area to serve therapy for elders and meditation for all including children interest (Mishra, 2019).

Online teaching and learning will take place in near future where variety of media platforms such as Google classroom, Zoom, Webex, Google Meet are mostly considered mediums to perform the teaching and learning processes. To extent, libraries are strategically placed to support faculty in the creation of electronic courses. Library innovative educational game is solid, with comprehensive knowledge of tutorial and interactive content production, course management systems, OER and so forth (Cox, 2020).

5. CONCLUSIONS

In overall, this paper will give some new ideas for further studies or investigation on what future vision of library and library professionals roles and what strategies that can be plan to stay relevant in the digital age. This paper may help the researcher, library management, library professional and students in the future to understand the current situation and challenges facing by the library and library professional. According to Mishra (2019), libraries have been known as a place for preserving books, providing information and reading facility for the users. Information overload rapidly changing the way of people search for information, but then still we are not sure whether the information that we search for is authentic or not and helps from the librarians are needed. This situation shows that libraries and librarians' role is still there even though users can search and access the information in digital form easily. Apart from that, libraries are encouraged to invest to provide more resources, services and facilities that meet the users' need in line with industrial revolution (IR) technology development.

The librarians must be equipped with advanced computer skills by sending them to professional trainings. For instance, providing job training, participate in workshops, seminars and conferences are a must to be considered. The academic libraries may take advantages on emerging technologies by endowing themselves with high-level expertise, analysis competency and online literacy. Librarians need skills to

analyze these subscription models to ensure the maximum usage of the resources, be able to truly comprehend the database and completely understand licensing models. This is to ensure that the future librarians are abreast with ample knowledge of advancing tech to fulfil the new user needs (Mwaniki, 2017).

Mwaniki, P. (2017) said that to cater to technological advances, librarians ought to take a critical look at the conventional library services and what they are encompassed, then analyze the digital library and the modifications or enhancements that have been developed and ultimately project what is in place for the future of digital library system. These had given rise to new tasks for librarians in university libraries including coordinating and promoting access to online information materials and assisting further interactive customer services as carrying out advanced literacy skills, in particular with regard to accessing and retrieving of electronic resources.

As educators, they may broaden their expert knowledge on educating their clients using an online platform, access online journals and navigate user by online technology instructions and course materials. Digital libraries should strive to meet the needs of users according to technological developments by facilitating users to communicate and gain knowledge with each other in places that stimulates participatory learning and enhance the efficacy of the information from a plethora of sources.

Todorinova (2018) in her research found that profession interest within undergrad and first year librarian in United States is limited to what the undergrad librarian did, how the job is performed on a daily basis, and the way its objective formulated and accessed. To extent, undergrad librarians also facing a variety of problems, as well as handling poorly described tasks, building their professional skills, and promoting their role within the library and to the university. Therefore, result also reveals some of the reasons why undergraduate and first year librarians were attracted to the career. They love collaborating with undergraduates, interesting profession/provides variation, the position's knowledge literacy emphasis, empathizes with experience at the undergraduate level, position encourages outlet for creativity and prior interest or background of the philosophy of education and teaching.

There are number of difficulties and challenges that libraries and future librarians encountered involving financial resources, time and emotions, frustrated by the number of tasks engaged in education and outreach programs of undergrad that are frequently required without the help from department or a team. The participants articulated a hope for further cooperation at the library with their colleagues and a lack of faculty support was perceived. A few participants claimed that they felt repressed in a creative way while often portrayed their role as having limited advancement potential. Somehow, undergraduate librarians have the daunting task of managing the priorities and obligations of their role because they are not properly and clearly formulated (Todorinova (2018).

In a nutshell, further studies are needed to investigate the opportunities and possibility for professional librarians and library to enhance their roles facing new era IR 4.0. Thus, further studies on users' perceptions towards library services and facilities also might be considered.

6. ACKNOWLEDGEMENTS

We are truly thankful in light of the fact that we figured out how to finish our paper within the time given by the organizer. This paper cannot be finished without the exertion and encouragement from our head of department, Norhayati binti Ismail and our colleagues. To wrap things up, we might want to offer our thanks to our parents and companions for the help and understanding in finishing the paper.

REFERENCES

- Baker, B and Evans, W. (2013). *A handbook of digital library economics: operations, collections and services*. Oxford: Chandos Publishing.
- Bandyopadhyay, A. & Boyd-Byrnes, M. K. (2016). Is the need for mediated reference service in academic libraries fading away in the digital environment? *Reference Services Review*. 44 (4): pp. 596-625. <https://doi.org/10.1108/RSR-02-2016-0012>
- Bell, S. J. and John, S. (2004). The blended librarian: a blueprint for redefining the teaching and learning role of academic librarians. *College & Research Libraries News*. 65 (7): pp. 372-375
- Chawinga, W. and Zinn, S. (2020). Research data management at a public university in Malawi: the role of “three hands”. *Library Management*. May 2020. <https://doi.org/10.1108/LM-03-2020-0042>
- Cherinet, Y. (2018). Blended skills and future roles of librarians. *Library Management*. 39 (1/2): pp. 93-105. <https://doi.org/10.1108/LM-02-2017-0015>
- Cornell University Library. (2020, October 07). Books & Bytes: Librarians as Information Managers: *Digital Projects*. <https://guides.library.cornell.edu/c.php?g=30898&p=198573>
- Cox, C. (2020, June 05). Changed, changed utterly. *Insider Higher Ed*. <https://www.insidehighered.com/views/2020/06/05/academic-libraries-will-change-significant-ways-result-pandemic-opinion>
- Digital Library Federation. (2020, February 01). *A working definition of Digital Library*. <https://old.diglib.org/about/dldefinition.htm>
- Farooq M.U et al. (2016). Current and required competencies of university librarians in Pakistan. *Library Management*. 37 (8/9): pp. 410-425. <https://doi.org/10.1108/LM-03-2016-0017>
- Google.com (2020). *The Library Project*. <https://support.google.com/websearch/answer/9690276?hl=en>
- Hazen, D. et al. (1998). *Selecting research collections for digitization*. Council on Library and Information Resources. <https://www.clir.org/pubs/reports/hazen/pub74/>
- Henderson, K. (2005). Marketing strategies for digital library services: digital directions. *Library Review*. 54 (6): pp. 342-345. <https://doi.org/10.1108/00242530510605467>
- Hughes, I. (2004). *Digitizing collections: strategic issues for the information manager*. London: Facet Publishing.
- Hussain, A. (2020). Industrial revolution 4.0: implication to libraries and librarians. *Library Hi Tech News*. 37 (1): pp. 1-5. <https://doi.org/10.1108/LHTN-05-2019-0033>
- Ilahi, R. et al. (2019). Digital library as learning resources. *Journal of Physics: Conference Series*. 1402(2019). <https://doi.org/10.1088/1742-6596/1402/7/077044>
- Library of Congress. (2020). *Digital Collection: American Memory*. <https://www.loc.gov/collections/>

- National Library of Malaysia (2020, October 04). *PNM Strategik Plan 2019-2023*. <https://www.pnm.gov.my/index.php/pages/view/150>
- Ministry of Education Malaysia. (2016, January 17). Executive Summary: Malaysia Education Blueprint 2015-2025 (Higher Education). <https://www.mohe.gov.my/muat-turun/awam/penerbitan/pppm-2015-2025-pt/5-malaysia-education-blueprint-2015-2025-higher-education>
- Merriam-Webster. (2020). Librarian. In *Merriam-Webster.com dictionary*. <https://www.merriam-webster.com/dictionary/librarian>
- Mikkelsen, S. and McMunn-letangco, E. (2015), "Think like a researcher: integrating the research process into the introductory composition curriculum", in Ragains, P. and Sandra, W.M. (Eds), *The New Information Instruction: Best Practices*, Rowman & Littlefield, London, pp. 1-12.
- Miller, Jolene M. et al. (2020). Elevation through reflection: closing the circle to improve librarianship. *Journal of Medical Library Association*. 108 (3). <https://jmla.pitt.edu/ojs/jmla/article/view/938/1118>
- Mishra, S. (2019, January 15). New Trends: Are libraries still relevant in a digitised world. <https://timesofindia.indiatimes.com/home/education/news/new-trends-are-libraries-still-relevant-in-a-digitised-world/articleshow/67537397.cms>
- Mohd Shahrulnizam (2019, April 25). Peranan sebuah perpustakaan akademik dalam meningkatkan nilai perkhidmatannya di era letusan maklumat dan ekonomi semasa. *Persatuan Pustakawan Malaysia*. <https://beritappm.wordpress.com/2019/04/25/perananpustakaakademik-eraletusan/>
- Mwaniki, P. (2017). Envisioning the future role of librarians: skills, services and information resources. *Library Management*. 39(1/2): pp2-11
- Nagarkar, S. and Murari, D. (2010). Embedded Librarian: a new role for library and information professionals. *Proceedings of the National Conference- on Empowering library professionals in managing the digital resources and providing extension activities held at the St Agnes College, Mangalore, Jan 18-19, 2010*. pp 375-381.
- O'Connor, Steve (2013). Leadership for future libraries. *Library Management*. 35 (1/2): pp. 78-87. <https://doi.org/10.1108/LM-06-2013-0047>
- Poll, R. (2005). Measuring the impact of new library services. *World Library and Information Congress: 71st IFLA General Conference and Council, Oslo, 14-18 August*.
- Savedge, Jenn. (2017, August 25). Are Libraries Still Relevant? Of course, They Are. <https://www.treehugger.com/are-libraries-still-relevant-yes-yes-they-are-4868502>
- Singh, P. K. eds. (2012). *Libraries in digital environment*. London: Koros Press Limited.
- Todorinova, L. (2018). A mixed-method study of undergraduate and first year librarian positions in academic libraries in the United States. *The Journal of Academic Librarianship*. 44 (2018): 207-215

University of California Library. (2020, February 25). *Publishing, Archives and Digitization: Mass Digitization*. <https://cdlib.org/services/pad/massdig/>

Vaidya, S. et al. (2018). Industry 4.0 – a glimpse. *Procedia Manufacturing*. 20: pp. 233-238

Yalman, M and Kutluca, T. (2012). Future of e-libraries in universities. *Procedia-Social and Behavioral Sciences*. 47(2012): 2225-2228