Exploring User Preferences for Content Organization in Digital Libraries

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Abstract

Digital library is wide range of collection of files and data which are well organized, searched well that helps in retrieving the content which are contained in the collection. Globally there are various platforms which are offering digital library services and those services are gone through the complex process of organization of contents. This research aims to explore the user preferences for the content organization in the world of digital libraries. The purpose of the study is not only to explore different latest documents or entertainment material but also in order to gain access of various rare content which are mostly not physically presents in today's market. The US and South Korea are those countries where the most of the users uses the e-book contents as their primary source with eBook market cap in US is $5,254.00m in 2023. The most preference choices of the most preferred digital library content is the EBook segment and Romance eBooks & Mystery eBooks are the most sold. This study has performed to explore the use preference for content organization in digital library and its popular preferences. With the help of data collected form peered journal literature sources and information has elaborated within the study in order to gain an empirical idea on the topic and brings forth most effective output result from the entire study. A secondary qualitative process has used to gather relevant source of data within the study and thematic analysis assists to represent most-suited output result within the study. Hence, the study has provided a comprehensive idea into user preferences for content organization in digital libraries.

Keywords

User preferences, Content organization, Digital Libraries, Online documents.

INTRODUCTION

Content organization is the process by which companies manages and uses the contents to achieve their goals. It basically includes content strategy, content calendar, and the distribution plan of all the tasks that is going to be performed. Contents in digital libraries are organized in five different ways when it comes to a digital library and those are like selection of documents & scanning, storage & management, search & access, distribution and the rights of management. Digital libraries are a collection of digital objects like audio and video recordings, magazines and books along with other different documents that are electronically accessible. Digital libraries provide access to the users to a wide range of resources such as magazines, books and other documents. The digital libraries can offer the users with access to out of the print or rare materials that can be difficult to get physically otherwise [1]. Digital libraries provides access to a wide ranges of digital resources like e-books, audio books, images, academic journals and research papers. Globally digital libraries are becoming an important part of the histories, scientist, schools and universities as tonnes of information could be stored in softcopy format. In the year 2022, the digital library had hit the mark of 522 million where the E-books were around 331 million and audio book was around 191 million [2].
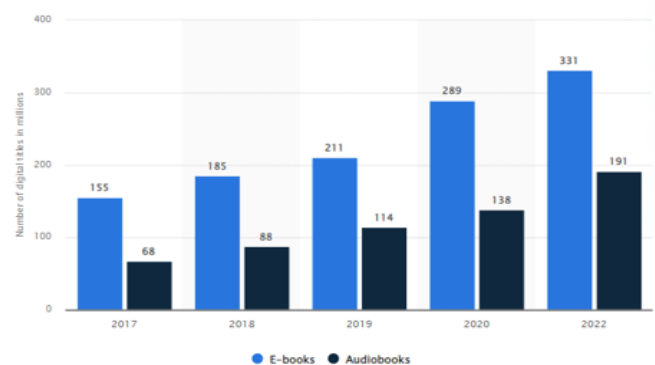

Figure 1. Digital books burrowed globally from 2017 to 2022

Digital libraries also include a range of sorting and searching features and along with it connecting features which provides opportunities for the users to connect with each other to discuss the topic. While the digital libraries are continuing to evolve new features like interactive experiences, data visualization, multimedia content are added to the software in order to make digital libraries even more helpful and engaging for the users. There are several advantages of using a digital library. First and foremost advantage of a digital library is access to an extensive collection of documents and materials [3]. A digital library offers the users a huge collection of books, magazines and other documents that can be otherwise not available physically to the user. Hence, this research aims to understand preferences which are made by the users when they are choosing contents from the digital libraries. As per

the preferences digital libraries also organizes their content which is going to be studied through this research paper. This research paper will be focused on digital libraries and its content organization while UX and content part would be given special emphasis.

Aim and objectives

The study aims to explore user preferences for content organisation in digital libraries. Considering this goal, particular objectives of this study are,

- To elaborate the concept and significance of digital libraries in recent times
- To investigate the factors that influence user preferences for content organisation in digital libraries
- To explore different user preferences regarding contents in digital libraries

MATERIALS AND METHODS

Data collection methods

The data collection can be divided into primary data collection methods and secondary data collection methods. Primary data collection is the procedure of collecting data from the first hand source directly [4]. This method includes procedures like interviews, surveys, focus groups and observations. On the other hand, secondary data is collected by anyone other than the actual user. The secondary data is already available in some of the sources and the user just analyses it. Some of the examples of the secondary data are books, journals, newspapers, magazines etc. In this study the secondary data collection method is adopted. In this study a secondary data collection method has selected to gather most suited qualitative data within the study. It helps to analysis a large set of data within the study in a quicker time.

Inclusion and exclusion criteria

Table 1. Inclusion and exclusion criteria for selecting articles

Inclusion criteria	Exclusion criteria
Articles published after 2018	Articles published before 2018
Articles and journals that provide information about user preferences in digital library	Articles that are not related to the specific research topic
Articles published in English language	Doctoral dissertations and articles that are not published in English language
Articles keywords with digital library, content organisation, user preferences and others	Articles that do not includes keywords

Data analysis methods

Data analysis refers to the procedures of analysing, modelling and collecting data by using various logical and statistical techniques and methods. There are two methods by which the data is analysed; they are qualitative research and quantitative research. Qualitative data analysis is the procedure of collecting, interpreting and structuring qualitative data in order to understand what is represented by the data. Qualitative data is unstructured and non-numerical. Quantitative data analysis is all about turning numerical tables to meaningful data. This process is done by critical and rational thinking.

FINDINGS

Theme 1: Overview of digital libraries and their significance

In today's world when everything is turning digital the libraries are no longer applicable in their traditional ways. Or it can be said that traditional libraries are no longer the only options for the users [5]. Digital libraries today are a reality and more users prefer it as compared to the traditional libraries. Digital library is the cluster of reading materials and other documents such as magazines, books etc. in the digital form. These libraries can provide the users with access to hard to find materials that are unavailable physically [6]. As per the given statistics in the figure below it can easily understood the extent of digital library in the South Korea. In the year 2012, the total e-books in the South Korea library was around 4.07 million while it had become 9.7 million in the 2016 [7]. From the year 2017, the process of digitization had been started to speed up and in the year 2020 it had become 21.74 millions E-books [7]. As of the year 2022, the total e-books had reached to the mark of 36.28 million it is seemed to rise further in future as technological progress has been carried out each part of this world [7].
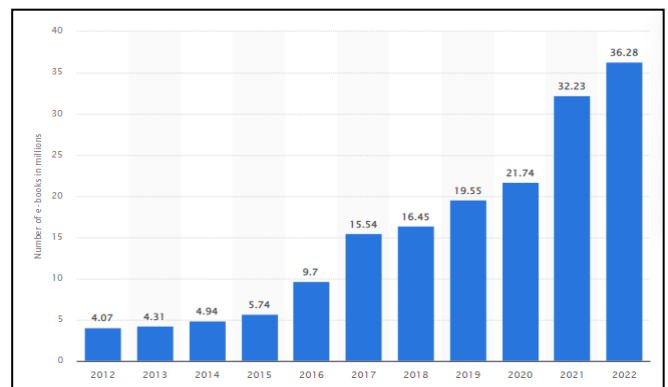

Figure 2. Total e-book in the academics of South Korea digital library

Digital library's success in depends largely upon two main part and that is User experiences (UX) and content. Digital library had provided with technical barrier less, and transcending all the barriers for examining and linking these resources together. UX of customer had been enhanced due to the introduction of digital libraries in education system as it had made the bookish contents safe and secure. It had also reduced all the barriers of learning as by a single click from any part of the world the E-books or audio books can be accessed. It also caters to a wide range of reading materials

that otherwise would not be available to the user at such a convenience. In addition to these a digital library also comes with features such as search, sorting, connecting to other users, data visualisation tools, multimedia content etc. There are several benefits in using a digital library; some of them are discussed below:

Instant access of the resources- The digital libraries are known for the instant access of the information. In a conventional library it is often a hectic task to find the right books, magazines and documents [8]. The conventional libraries are loaded with a huge amount of different books, magazines and documents. Quite often the books are misplaced and cannot be found easily. Apart from that it is quite possible that acquiring the books becomes a troublesome and time taking work. On the other hand the digital libraries provide a far quicker and convenient procedure as far as searching information is concerned. It provides the information on a mouse click. It is a far quicker option than a conventional library.

Theme 2: Current developments and trends of digital libraries

Development and trends of digital libraries is dependent more or less of the quality of content and the type of content which are offered in digital platform. When it comes to preparation of digital contents for the libraries there are certain things that is needed to be taken into consideration and those are like it should be created in machine readable format. The format of the data is necessary and for that purposes the print text, pamphlets, manuscripts, motion pictures and recorded sound format. Digital library contents are divided into four different types and those are like legacy contents, transition contents, new digital contents and future digital contents. *Legacy content* are those contents which are prints, manuscripts, slides, maps and audio & video recordings. This digital library content is mostly non-digital content and researcher is making their full effort to make it digitalized contents once more.

Transition content it is the process of converting the content format into other format with the help of certain software. Here the images and other filed format are changed into readable format with the help of OCR software. *New digital content* is the type of content which is prepared parallel for printing and for such works the digital publishers uses XML and SGML format. *Future digital contents* these are those contents which are electronic journals, electronic books, data sets and data bases. With the progress of time there are several improvisations and upgrades that are taking place in the arena of digital libraries. The library has contributed with many major changes that will help the digital library serve better [9]. Many technologies are contributed in the field of digital libraries in order to make it more efficient and reliable. Some of the current developments in the digital libraries are discussed below.

Electronic resource management- Generally materials in digital formats like e-books, online databases, e-journals that are available electronically are considered as electronic resources. Implementation of e-resource management software can be done by the libraries to keep a track in the authorisation, access and collection of the electronic information resources of a library [10]. It can also be utilised for evaluation, usage, maintenance, selection and reservation of electronic information resources of the library. *Implementation of RFID-* Radio frequency identification (RFID) technology refers to a wireless technology which is used for automatic identification using the radio waves. It helps in tracking, identifying, detecting and thereby managing different kinds of people and objects [11]. The implementation of RFID in libraries has proved to be of extreme help. It has carried improvements such as inventory control, security of the materials of the library and automated issue return. RFID is the technology of present time that is used for theft detection and automated libraries. Electromagnetic fields are used by RFID in order to track and select tags that are attached to the library items automatically.

Cloud computing - Digital library can be called a development oriented software as well as hardware integration platform. Digital libraries all across the world are implementing the cloud computing to make the services of the library more cost efficient [3]. It is also making library services more streamlined as well. This library management system has an important role in the building of repositories or the digital libraries. *Data visualisation and big data-* Big data has proved to be very useful to digital libraries. Infect big data as well as data visualisation is the method of projecting a huge volume of data with the help of maps, graphs, charts as well as other forms that are visual [12]. This facility can help the human mind grasp the data presented more easily and effectively. It also makes it far easier to spot the patterns, outliers and trends within a large set of data.

Theme 3: Factors that influence user preferences for content organisation in digital libraries

The services which are provided by the digital library services are influenced mostly by the preferences that are made by the users. When it comes to the E-books there preferences of each individual are different around the world which includes self-help books, romance books, books based on crime, books based on mystery, books based on mystery and the books based on fantasy. Apart from this there are books on academics as well which are uploaded by the universities. Globally, the E-book which is preferred around the world the most is the romance, mystery and fantasy books. Academics books are preferred largely by those who are having academic needs that can helps them in to develop a greater understanding of their domain of study.

E-book has been growing worldwide and as of the year 2023 it had reached to the mark of 14.16 billion USD. Globally the country which is the largest consumer of digital library contents or digital book is the United States with the overall revenue of 5254 million USD as of the year 2023 [13]. The revenue growth rate for the E-book segment is 4.2% as of the year 2023 while the total number of E-books users is expected to reach the mark of 1.1 billion by the end of

the year 2027 [13]. The total revenue that was generated in the year 2017 was 11.29 billion USD while it had jumped to the mark of 13.81 billion USD in the year 2021 [14]. As per the speculation made by Statista, it can be said that as of the year 2024 the total revenue is expected to rise to the mark of 14.61 billion USD and to the mark of 15.33 billion USD as of the year 2027 [13].
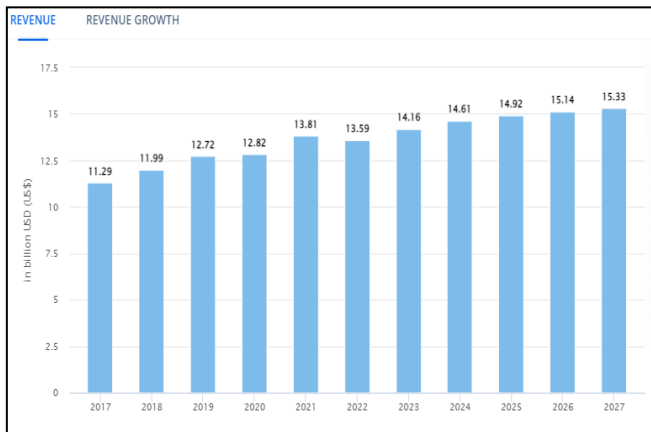

Figure 3. Total revenue from EBook globally

Some of the factors that influence the user preferences for the content organisation in the digital libraries are discussed below:-

Psychological factors - Preferences of the users is one of the main factors that influence the content organisation in digital libraries. Psychological preferences are a major factor that drives the content organisation of any library. The authority is concerned with what kind of documents, books or magazines are well preferred by the readers. Therefore psychological preferences of a reader play a great role in the organisation of the content in any digital library. *Information quality -* Information is yet another factor that influences the user preferences for content organisation in the digital libraries. Information quality is an important factor that affects the content organisation in the digital libraries. Quality of information is the major factor that attracts the readers or users to the library. If the quality of the information is of good quality and effective then it is inevitable that more and more users shall attract towards it. On the other hand if the quality of the information in the library is of bad quality or does not serve the purpose of the readers then it is inevitable that the users would avoid such libraries.

Service Quality - It is one of the major factors that influence the user preferences for content organisation in digital libraries. Effective service quality is a factor that would draw in more and more users to the library. Effective service is an aspect that promotes better user experience and meets the user expectations effectively. Quality service helps the users throughout the library experience and ensures that the navigation is smooth. *Demographic factors -* It is yet another important factor that influences the user preferences for content organisation in the digital libraries. Users may be of different age groups; this factor can eminently affect the content organisation in the digital libraries. The age groups of the users can range differently. It can range from children to adolescent age groups or it can be young to middle aged groups or it can be middle to old aged groups. All these age groups will have different choices of books or other documents. Like this the demographic factors can influence the content organisation of a digital organisation. Each of these factors affects the preferences in differences ways for instances psychological factors centred to the human psychology in choosing the contents, demographic factors shows the contents which are popular in particular demography for example India preferred the contents which are specific to STEM (Science Technology Engineering Mathematics) subjects more than any other contents when it comes to E-book segment.

Theme 4: Impact of digital libraries on knowledge management

Knowledge management (KM) is the procedure of identifying, disseminating, organising and storing the information within an organisation. A knowledge management system (KMS) assesses the collective knowledge that is present in the organisation. A knowledge base supports the system. They provide a place that is centralised and which stores the information readily. The emergence of digital libraries has created an abundance of global resources that are available. When it comes of digital library the content which are provided are required to be organized the self-help contents should be separately stored. There is especially designed software which acts as a storehouse of digital library used by governments across the world and by the intergovernmental organizations. Green Stone and Dspace are that software which is used worldwide for the collection of digital content as it is stored in digital library. The Greenstone was developed by New Zealand Library project at the University of Waikato, and distributed in collaboration with the UNESCO. Dspace is yet another digital library system that is used for the capturing, storage, index, perseverance, and redistribution of intellectual outputs [14]. This digital library has been developed with the joint collaboration of MIT library and Hewlett-Packard and it had made freely available to worldwide to all the intuitions through the extended media.

Knowledge management is equivalent to the management of contents in digital library software which are mostly developed by Universities tech research teams. Audio book is yet another digital library which actively helps in the knowledge enhancement of persons [2]. The sales of audio book in the United States is around 1.8 billion USD bestselling audio book is 'Becoming' by Michelle Obama is the bestselling audio book in the digital platform with total sales of 75,352 units have been sold [15].
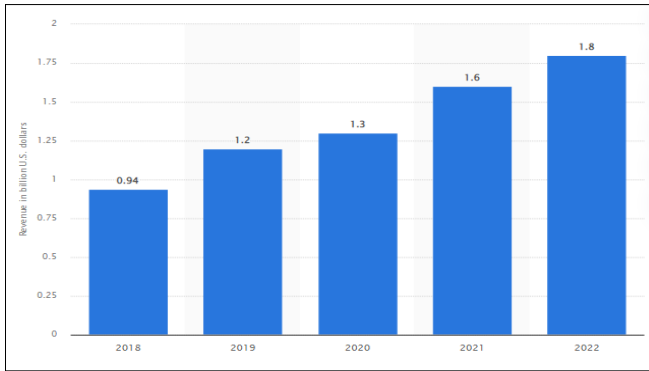
Figure 4. Audio books sales revenue in the United States

The digital library consumption has increased sharply in the year 2019 and the year 2020 during the time of pandemic. During the time of pandemic when everything had shifted to the digital mode the studies also shifted to the digital mode and this has given rise to the consuming contents from the digital library. Digital libraries can improve the knowledge of a person which can improve skill in the purpose or organizational sector and been in the educational sector. In The recent times students and teachers are mainly based on, studying through e-books platforms which are performed best way to make knowledge about a particular subject. These types of learning are the technological up-gradation which makes perfection on certain implementations on growing idea but any subject. A person can easily grow kedge from e-book learning wither any cost. The digitalisation and up-gradation of technological innovation makes increasing rate of such platform which ultimately improves knowledge development. Hence, form this it can be said that digital library had widely impacted the digital knowledge enhancement of consumer especially during the pandemic when digital mode of library was preferred over the offline mode of library. The impact of digital library has been positively on the process of knowledge management whether it is for audio driven content or video driven contents.

DISCUSSIONS

A digital library is a cluster of reading materials like magazines, books, video recordings, audio recordings etc. in electronic form. Digital libraries give the users access to a wide range of resources. The digital library is often used by the students, working professionals, researchers or even general public to enhance their knowledge. Digital libraries provide the users an access to rare materials that are out-of-print. These resources in real and conventional libraries would have been hard to find and impossible to locate. The digital libraries also comes with features like sorting and search, it also comes with features alike social media that helps the users to connect with each other. A digital library is a trustable provider of information; it provides information's that is authentic as well as efficient at the same time. One of the major advantage of the digital libraries are it provides instant access to resources. In a conventional library it is not possible to get an access to reading materials in an instance.

There are several procedures to access in a conventional library. But in a digital library a user can access the materials in an instance from the computer. With the changing trends the digital libraries are also developing and transforming.

Numerous features are connected to the system to make it more fast and effective. One of the features that have been connected with the digital libraries is that of big data. It is the method of projecting a large volume of data with the help of chart, maps, graphs and other forms that are visual. Through this human mind can grasp the information more easily and effectively. Moreover it can also spot the pattern, trend and information of the chart more accurately. Mobile based library services are yet another way to reach to the users by the library. Cloud computing is yet another important aspect in the arena of the digital libraries. As it is a fact that dramatic changes has been brought by the technological development in each and every field [16]. The arena of libraries is no exception. Libraries today are updating themselves in the technology of cloud computing in order to upgrade the digital libraries. Cost efficiency is one of the major aspects associated with cloud computing that are drawing more digital libraries to implement cloud computing in them. Due to cost efficiency more and more digital libraries are adopting to cloud computing.

There are certain factors that influence user preferences towards the content organisation in the digital libraries. User preferences are a major factor that influences the digital libraries. One of the important aspects that influences the user preferences are psychological factors. The psychological traits of the users play a great role in the content organisation in the digital libraries. Knowing and understanding the specific preferences of the group of users in a digital library is essential for the authority [17]. They need to identify the necessity of the users and in order to make the library more communicative. Secondly, information quality is another major aspect that influences the user preferences in the content organisation in a digital library. The quality of information is an important factor that significantly affects the user preferences. In order to draw users towards the library the quality of the information of the library has to be of superior quality. If the information quality is of inferior quality then it is inevitable that less number of users will be drawn towards the libraries. Another essential factor that affects the user preferences is that of service quality. Service quality is yet another factor that decides whether the users shall stay in the library or choose some other libraries. It is inevitable that the libraries that provide better quality of service would draw more users towards it. On the other hand the libraries that provide inferior quality of services would draw fewer users.

CONCLUSION

This study aims to ponder upon the user preferences for the content organisation in the digital libraries. A digital library is a library in which the collection of the documents is stored in the electronic or digital format. This kind of libraries can

be accessed through computers or electronic devices. The digital libraries are also called digital repositories, internet libraries or online libraries. It is an online database regarding digital objects which includes images, audio, video, books and digital documents. The digital library is accessible through internet. In this study firstly introduces the background of the research, secondly it discusses the aims and objectives of the study. Thirdly it discusses the methods of the study; fourthly it discusses the findings of the study. The findings of the study discusses four themes, the first theme is overview of the digital libraries and their significance. The second theme discusses the current developments and trends in the digital libraries. A factor which affects the user preferences in the content organisation in the digital libraries has been explained. The fourth theme discusses the impact of digital libraries in knowledge management. After that the study presents a brief discussion.

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