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A Review of the Status of Indian Academic Libraries in the 20th Century

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Abstract
Although digital libraries hold the power to create an easily accessible repository of fossil data, remove geographic barriers, and preserve the integrity of fossils, such a library poses unique problems due to the nature of the data. These problems include how to catalog, acquire, and preserve the data, in addition to how to protect the rights of those who create and own the data (Hardesty et al., 2020). Literature about previous and existing digital fossil libraries and similar digital libraries containing 3D data provides important insight into how to create, maintain, and grow a repository of 3D fossil data moving forward.

Keywords: digital libraries, repository of fossil data, geographic barriers, library, catalog, data, digital libraries, repository

Introduction

On various aspects, university websites may even now have become available, but there has been somewhat less reporting by scholars on the evaluation of websites to determine their strengths and weaknesses, as well as their comparability with world-class university websites within the country. Some of the areas of research covered by earlier scholars can be reported as follows:

(i) Historical perspective on studies on university websites
(ii) Emergence and basic features of the World Wide Web
(iii) Accessing world-class university websites
(iv) The advent of Web 2.0 and academic websites
(v) Barriers to accessing the requisite information
(vi) Use of Web 2.0 on university websites
(vii) WIF and other features of functional university websites
(viii) Turn of the century website initiatives
(ix) Social network analysis of website content
(x) Summarized success of university websites
(xi) Studies on Indian academic websites

Thus, a review is being presented in the following paras.

Historical Perspective on Studies on University Websites

As information and communication technology has advanced, colleges have been known to effect radical transformations in society. Information systems all throughout the world have been significantly influenced (Houghton, 2000). According to Shropshire (2003) and Balas (1998), websites were intended to be used primarily as a means of marketing university products and reserving information resources.
Indeed, as noted by Bao (2000), university websites offer a new medium through which a range of services can be provided. They also provide the universities with the means to surpass rival websites in terms of performance and reach a sizable user base that includes researchers, instructors, and students (Detlor and Lewis, 2006). Also examined by Kuchi (2006) are the accessibility and ease of use of e-information sources, which have significantly changed the information landscape and the operations of higher education institutions.

Yen Hoang and Rojas-Lizana (2015) looked at how the University of Melbourne, which has been around for a long time, and Macquarie University, which is newer, build their institutional identities and relationships with potential students. They did this to find out how universities talk about themselves on their websites. Fairclough came up with a three-dimensional

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framework that the authors used for three steps of discourse analysis. The study shows that the two universities' websites have advertising language that shows how globalisation and the rise of academic marketing have affected higher education. Colleges and universities use this kind of talk to sell themselves and get more students and other resources. But if you look at the two university websites side by side, you can see that how they are portrayed isn't just based on social trends, but also on their own histories and identities.

According to Wani (2019), libraries face many problems in this electronic era because of the internet, which connects and links everyone in the world. To give their users a wide range of online services and knowledge sources, libraries are always the first to step up to new challenges. Internet libraries are hosting these completely online sources. Information seekers usually like to do their research online, and library websites give them a place to go for all of their information needs. As a result, libraries need to work together with other libraries and share resources to make things easier for users and meet their needs. However, libraries face a lot of problems in today's global society.

Emergence and Basic Features of the World Wide Web

Timothy Berner-Lee created the World Wide Web, or "Web," in 1993. Unified Resource Locators (URLs) are used to find papers and other web resources. These URIs can be linked together using hyperlinks, and the information system can be accessed over the Internet. According to Shrikhande (1997), the internet and the growth of the World Wide Web are explained. She sorted different internet apps into different types of services and gave a short explanation of each. Naturally, there is a lot more on the internet, and a lot of the information you need to understand and study the internet further is online. Hopefully, this piece gives you ideas for more surfing.

Koff (2004) and Jasek (2004) of the Elsevier User-Centered Design Group had provided detailed guidelines for web content and the design of library websites to attain maximum usability. Along with other recommendations, Jasek (2004) has emphasized the consistency in terms of the type of font, font size, and color of all pages used on the website. He suggested that the ideal web site should have a navigation bar showing the location of the user at the website, use fewer colors and minimal graphics, and also require the fewest clicks by users to get the desired information.

Fox (2006) said that evaluating web content, also known as its analysis, is the process of figuring out what kind of content is on a website. This includes audio, video, text, tools or apps, features, services, physical items, and signs. According to the author, web content analysis is usually done at the start of a task analysis, a re-architecture project, or a site move to a new platform or content management system (CMS).

Parajuli (2007) looked into how easy it is to use and what people think of the Government of Nepal's ministry websites. He discovered that only seventeen out of twenty ministries (85%) had their own websites with all the necessary details. He came to the conclusion that the government should keep changing how sites are designed to meet people's needs. But not many studies have been done on the kinds of knowledge that can be found on websites.

Caldas et al. (2008) used webometric analysis and interviews with experts to look into how people search for and acquire information on the Internet. The authors were able to find out how experts in these fields use search engines by talking to them and comparing the results from different search engines using webometric analysis to show how the top-ranked sites are grouped together and how their connections are spread out. The study's results show that the Web tends to make offline hierarchies less important for getting information, which "democratises" access to resources around the world. But it also looks like centres of knowledge become more and more specialised, reaching a "winner-take-all" status in a smaller area.

Assessing the World-Class University Websites

Rosenfield and Morville's (1998) ideas about how websites should build their search interfaces to meet the needs of users and give them diverse ways to search and browse are in line with what websites should do.

Besides that, Dala, Quible, and Wyatt (2000) said that we need "some model" to make better home sites. "A mental model is a cognitive representation or schema of the organisation of information on a website that is the result of an iterative process that represents a user's cumulative understanding of a site and is updated as learning happens," the authors write.

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Astroff (2001) in looked at the University of Michigan website and found that students often looked for library links. He believed that when schools put information on their websites, they should connect with other information providers so that students can get a wide range of information, give and receive feedback, and use other tools such as newsletters, magazines, and more.

Kennedy (2006) also said that picking the right colours, fonts, links, text pictures, and frames made for an easy-to-use and adaptable university website. As with other types of web content, Park (2003) and Foot et al. (2003) say that "hyperlinks are inscriptions of communicative and strategic decisions on the part of site producers."

Schimmel et al. (2015) did a study to find out what part the internet and university websites play in students' choices about which universities to look into and attend. The study stresses how important it is for universities to have attractive, easy-to-understand websites that have information about things like programmes, courses, location, and related accreditations. This is very important because looking at the website and what it said led to the choice to go to the campus. The study's results back up earlier research that found that more and more potential students use the internet to make decisions and choose colleges. Last but not least, the age distribution shows that younger students value using the internet more than older students.

The advent of Web 2.0 and academic websites

DiNucci (1999), an expert in electronic information design (also called "information architecture"), was the first person to use the phrase "Web 2.0."

Harvey and Hider (2004) found that controlled vocabulary was being used more and more to give people access to information tools. Also, they said that online thesauri were a big part of getting information, which made a lot of website authors improve the thesauri on their sites.

Brower (2004) looked at the material and navigational parts of academic websites. Of these, basic information about the library, library website help and tools, library services, library resources, and navigational metrics through many questions were some of the things that were looked at.

Ahmet-Mentis and Turan (2012) looked at how easy it is to use university websites. They did this by testing the Namık Kemal University (NKU) website and giving advice on how to make websites that are easier to use. The data show that five of the six factors can have a positive and significant effect on how NKU members see how easy it is to use the website. The study also shows that some of the demographic factors that were looked at, like gender and web experience, have a big effect on how different people see usability. The study also talks about the possible benefits of making websites easier to use for government and suggests ways to make websites easier to use.

Barriers to Accessing Requisite Information

Various barriers may exist to accessing the requisite information over the web. Some important studies are discussed:

According to George (2005), the students are having trouble getting information and figuring out where to go on websites. The websites for digital libraries even have navigation tools that make them very easy to use.

Burke (2005) said that university websites are unique because they use search boxes and links to let users search websites. The study shows that the search engine is an important part of how information is organised on university websites.

According to Morville and Rosenfeld (2006), history books, magazine files, diaries, and TV guides are usually set up in order of when they were written to make them easier to use.People who run search engines like Google and subject directories like Yahoo use organisation methods on their websites.

Robertson (2006) talked about how the way search systems are built gives people an A-Z list of ways to look for information on a university website. He said that the website's homepage gives the user enough information because it is well made.

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Kane et al. (2007) looked at the websites of the top 100 universities in the world that are in Asia. The purpose of this study was to look into the quality of web accessibility statements, alternative languages and text-only material, image accessibility, and accessibility standards and their levels of conformance. The study found that there were 5.93 mistakes per page in the United States, 4.81 per page in North America, 4.45 per page in Europe, and 3.28 per page in Oceania.

Mansourian and Ford (2007) said that "unavailable and irrelevant information adds to failure in the retrieval of information" from university websites that have search engine links. This is an important part of retrieval. The authors have written separate papers that go into great depth about how web users attribute the success or failure of their searches to different internal and external factors.

Alkindi and Bouazza (2010) looked at why it's good for academic websites to organise and structure material.They stressed how useful the website design was and what users wanted. Some authors have also pushed for the use of blogs and RSS and made the link between these more advanced tools and finding information, retrieving information, and organising information on university websites so that students and researchers could easily find what they needed.

Use of Web 2.0 Technology on University Websites

The word "web 2.0" refers to the set of web applications that encourage sharing of information, interoperability, user-centered design, and collaboration on the Internet. These apps also let users interact and work together in a social media dialogue. Sites like social networking (SNS), blogs, wikis, video sharing sites, online services, web apps, mashups, and folksonomies are all examples of Web 2.0.

Various studies for the checklist for analysis were also conducted by Lee and Teh (2001). However, currently, there are several significant factors related to ease of navigation, prolonged access, functional speed, extent of availability of general and specific library information, vision and mission statements, connectivity with other social sites' collections, information resources and services, catalog access, electronic resources, contact information, and almost a hundred other library and web-oriented particulars.

WIF and Other Features of Functional University Websites

A Web Impact Factor (WIF) is a way to figure out how important a website is. It is calculated by dividing the number of web pages that get links from other websites by the total number of web pages that can be crawled. When someone visits a website, functionality refers to what it can do and how it works. It includes things like what steps the user can take and dynamic content and interactivity.

In 2002, Smith and Thelwall used the results of a specially built crawler that visited universities in the UK, Australia, and New Zealand to figure out how many links led to the websites of Australasian universities. They were compared to numbers from Alta Vista and All The Web, two paid search engines. Next, Web Impact Factors (WIFs) for universities in Australasia were found by dividing the number of links from the three countries by the number of academic staff at each target university. But the study's findings show that Web Impact Factors (WIFs) are strongly connected with the quality and amount of research.

Karp and Karp (2008) published some tips on how to create websites. Although not directly linked to web credibility, following those rules will make a website better. There are smart ways to use graphics and design on a web page, which are explained in these instructions.

Islam and Alam (2017) looked at the websites of private universities in Bangladesh and wanted to know how they affected people and what the web effect factor was. A study found that while some private colleges in Bangladesh have more web pages, they have very few link pages. This means that their overall WIF, self-link, external links, and absolute WIF are all lower than they should be finally, it shows that these schools didn't have a big effect on the web and weren't known around the world.

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Turn of the Century Website Initiatives

There is widespread recognition of the dangers of not paying attention to one's digital identity. The incessant media coverage of Facebook's privacy failures is the main reason for the increased interest. The people who are recurrently dropping out of social networking in 2018 have become a mass exodus. In all probability, by 2023, Facebook will be renamed Instagram, and another five years later, it will not be remembered.

Time has shown that a large part of the available information on the internet is fake. Max Read of New York Magazine (https://nymag.com/author/max-read/) in 2019 reported that less than 60 percent of the current web traffic was humans. He advocated that in the near future, patrons would require courses in Internet literacy to determine the real content; thus, more stringent monitoring of university websites is advocated so that they may carry the stamp of authenticity.

Joiner (2019), a member of ALA's Library and Information Technology Association (LITA), said in Seattle that the 5G communication explosion in the coming years would connect many devices to the Internet. The consistent speed of 5G will make for a totally Internet-augmented world. However, with the newer emerging technologies, universities and their libraries are well set to become centers of humming activity as users of all categories—students, faculty, researchers, and professionals—will be drawn to the resource-rich hub, and the magnet that will draw them is the university website.

Social Network Analysis of Website Content

Links on websites are part of information, and social network analysis (SNA) has been used to look at them. Many experts say that links are what the web is all about (Foot et al., 2003). Links are an obvious part of web pages, so they are sometimes included in studies that code and count web features (Bates and Lu, 1997).
According to Bjorneborn and Ingwersen (2004), the main areas of webometrics are web page content analysis, web link structure analysis (looking at things like the hyperlink, self-link, and external link), web usage analysis (using log files to see how people search and browse), and web technology analysis (looking at things like engine performance).

According to Michalec (2006), websites' content includes contact information, hours of operation, information about the university library's collections, the location of the library's web page on the parent organization's website, and the actual number of clicks needed to find information. Additionally, he checked to see if there were links to search engines, online subject resources, area resources, electronic databases, links to help with finding information, and other basic library-related data.

Choolhun (2009) looked at how the large amount of free legal information has changed the requirements for information literacy and study skills in the current legal setting. There are real-life examples given to show how staff at law firms caused information explosions in academic groups. Also, in most academic circles today, tools like Google and Wikipedia are seen as more reliable than official academic material.

Researchers Choudhury and Choudhury (2010) have looked into "Identifying the Characteristics of E-Commerce Websites." Although some of these traits have been found in studies of other types of websites, it is important to note that these traits are special to e-commerce websites. Nevertheless, the writers believe that e-commerce websites should have certain features in order to draw in users and buyers.

Islam (2011) says that university websites are very important for their users in this day and age of the internet, and their ranking needs to be looked at. Bibliometric and informetric methods are used to study the quantitative parts of how information resources, structures, and technologies on the Web are built and used. It includes all studies on communication over networks that uses information metrics or other quantitative measures. In the future, webometrics could be one of the most interesting areas of study for the huge amount of electronic information that can be found on the web that anyone can search.

Gures, Arslan, and Yalcın (2013) looked at the websites of flight companies to find out how effective their marketing was. Khan et al. say that the website also works as a digital platform for e-marketing. The study's results show that good website design is very important for any organisation that has an online presence. Websites are one type of service that you can find on the Internet.

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Erdem and Gezen (2014) have used content analysis to categorise employment ads from businesses in the tourism industry according to a number of different parameters.

An investigation was undertaken by Ertugul and Ozcil (2018) to assess the efficacy of the Internet pages maintained by business departments of Turkish universities. Content analysis and cluster analysis were applied to the business department websites of universities operating in Turkey as part of the study's scope. Twenty-one universities were included in the sample, which was determined using the cluster sampling technique. Thus, the ranking of universities according to their effective utilisation of Internet pages is an additional widely utilised method of evaluation.

Harinarayana and Raju (2008) selected 57 universities from the Times Higher Education Website's list of the 100 top-ranked universities in order to examine the Web 2.0 functionalities present on university library websites. According to the findings of the research, RSS feeds are utilised by 37 university libraries to distribute library news, events, and announcements; additionally, 15 university libraries offer blog space for patrons. Wiki is the least implemented Web 2.0 technology, being utilised by only one university. Conversely, instant messaging is among the most widely implemented features, having been adopted by 37 libraries that have already begun offering reference services via it. Nevertheless, it was observed that podcasts and video presentations were not widely utilised among the resources accessible via university library websites.

A study conducted by Joicy and Rekha (2014) examined the content of the websites of 45 central universities in India. The findings indicated that the majority of the universities offered useful hyperlinks to resources such as staff profiles, contact information, copyright information, news, events, and historical information.

Singh and Gautam (2016) did a study for "Content Analysis of Websites of Central University Libraries in Delhi," primarily to evaluate the use of web technology in the context of university library content analysis. According to the study, most library websites are properly built and designed, and they are rich in e-resources. According to the grading criteria, the Jawaharlal Nehru University Library Website is the best and the South Asian University Library Website is the worst in this study. The study states, "university libraries play a key role in higher education, research, and development activities by successfully spreading information resources and services through their websites."

Dhiman and Bhakal (2018) used a survey to investigate the level of information literacy in non-technical university libraries in Kota (Rajasthan), namely the University of Kota (Rajasthan), Vardhman Mahavir Open University Kota (Rajasthan), and Agriculture University of Kota (Rajasthan). The information literacy levels of respondents (students), knowledge of students in using information technology tools, and areas where they lack the required information literacy were assessed, and it was reported that university libraries were the most preferred and popular sources of information. According to their findings, the majority of users used the internet to gather various forms of information, with Google being the most used search engine. A substantial percentage of the students desired information in digital format. However, there was a significant need for practical training on how to access journals and other information on the internet, as well as how to use the OPAC, which should be reflected on different websites.

MorphoSource from Duke University is a digital repository that contains several anthropological models, however the metadata and browsing tools make discovery challenging for non-experts (Hall et al., 2019). Platforms like Sketchfab and Thin givers, on the other hand, provide greater discoverability for non-experts but lack the metadata to serve the research community (Hall et al., 2019). Despite these challenges, the usage of digital libraries gives an accessible means to construct a collection of 3D data and fossil scans that can be accessed by different audiences all over the world.

Conclusion

As a result, since the development of websites began in 1993, when the world's first web browser was published (Brower, 2004), a number of websites have risen and continue to expand daily from various types of organisations engaged in marketing, service, and academic research. University websites play a significant role in promoting many sorts of communication. Some websites have been built or are being developed in accordance with industry standards, providing important and necessary information, while others have not. It is the role of a web content manager in the online world to be more thorough in presenting material on university websites, bearing in mind the expanding needs of the user community.

The review of available literature on the subject is presented here to show how only a few studies have been carried out to study the websites of different universities in the country, but not much is done, particularly for the study of the websites of government universities in northern India. Such research should begin as soon as possible.

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