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# Impact of National Digital Library India (NDL) portal in the field of education and research

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### Abstract
Web portal is a gateway to search and locate information of in the digital era. Portal is playing a vital role as a hub to link desired contents. A well-defined web portal facilities user to access wide variety of web enabled information resources. Here, an attempt has been made to create awareness about National Digital Library (NDL) India portal. It attempts to cover major differences between website and portals, diverse learning materials and featured sources available for different category of users. The researcher also try to highlight the significant features of NDL portal. Efforts are made to provide an overview of NDL as an online repository of learning e-resource. It provides search facility for different category of users with a single-window and it also highlights the procedures for providing access to e-content.

**Keywords:** Portal, website, e-resources, information technology, NDL, virtual repository, digital library etc.

### Introductions
Portal is a term, generally synonymous with gateway, for a World Wide Web site that is or proposes to be a major starting site for users when they get connected to the Web or that users tend to visit as an anchor site. There are general portals and specialized or niche portals. Some major general portals include Yahoo, Excite, Netscape, Lycos, CNET, Microsoft Network, and America Online's AOL.com. Examples of niche portals include Garden.com (For gardeners), Fool.com (For investors), and SearchNetworking.com (for network administrators).

A number of large access providers offer portals to the Web for their own users. Most portals have adopted the Yahoo style of content categories with a text-intensive, faster loading page that visitors will find easy to use and to return to. Companies with portal sites have attracted much stock market investor interest because portals are viewed as able to command large audiences and numbers of advertising viewers.
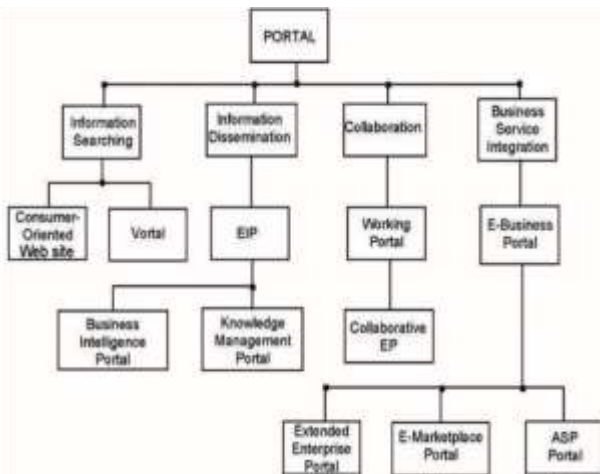
Typical services offered by portal sites include a directory of web sites, a facility to search for other sites, news, weather information, e-mail, stock quotes, phone and map information, and sometimes a community forum. Excite is among the first portals to offer users the ability to create a site that is personalized for individual interests.

Portal is a term encompasses an ocean of resources created to serve the users and save their time and guide them to appropriate sources of information in a place. There by encouraging the use of available resources to the maximum (Zala, 2006) [11]. 21st century users need a well thought out mechanism to organize, store and access information 24/7 and library portals have become a very useful and handy to provide web enabled information services. In addition, libraries are supplementing their collection with e-resources, which intern demands for a properly designed website to facilitate its maximum usage (NDL, 2019).

Library portals are playing a crucial role in improving system of education. Major advantages of the library portals are to enhance the formal education system by making information accessible to all sorts of users. Therefore, understanding the need for knowledge management techniques has become increasingly vital in an Academic library system. An academic library portal provides quicker access to wide variety of information through World Wide Web, thereby, improves the communication between information creators and users (Letha, 2006) [4]. Majority of the libraries use their portals exclusively to provide access to databases to which they have subscribed to, using the federated search, patron authentication, and link resolution a portal provides for. Generally, libraries offer very broad access to the client access catalog, special files if any created by the library, subscription

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databases, the catalogs of other libraries, and helpful Web sites selected by library staff, etc. This has been described as "everywhere" option. Some libraries even include access to specialized search engines (Mane, 2015) [6].



## History and development of portals
The word portal came from the Latin word portal, which is translated to gate. Anything that acts as a gateway to anything else is a portal. The portal server acts as gateway to the enterprise in a network. However, there are many different definitions of the word portal. A search of the word using Google search engine yields many thousands of references. Some consider portal to be a new name for a Web site. A portal is an entry point to the World Wide Web (WWW) and therefore, more than what a Web site does. According to Internet 101 <http://WWW.internet101.org>, a portal is a Web site linking to another Web site. Sometimes search engines have been referred to as portals. Access companies, such as Microsoft Network (MSN) and America On-Line (AOL), have often been referred to as portals. Although the definition of the word portal is still evolving, the definition we will use is a gateway, and a Web portal can thus be seen as a gateway to the information and services on the Web, more specifically to services on both the public Internet and on corporate intranets. This article aims to take the historical approach based on the development of the Web and examine the factors that have contributed to the evolution of portals. The origin of portals came about because of the need for information organisation. Users need to be provided with coherent and understandable information.

## Information Searching
A web portal requires good search engine technology to attract users because up to 50% of users' time in using the Internet is spent searching for information. Two types of portal have evolved for searching: consumer-oriented search sites and vortals. A vortal is a website that provides a gateway to information related to a particular industry or group of people sharing an interest in buying, selling, or exchanging information about that particular industry. Examples of a vortal portal are Medcast and WebMD of the medical communities, for the speedy broadcast of ground-breaking medical news and services to help with disease treatment, patient concerns, and practice management.

## Information Dissemination
Today, businesses require the coordination of multiple data sources, processes, and people, and the sharing of information among them. To achieve this effectively requires some type of business intelligence or knowledge management applications to synthesise the data. This requirement has led to the development of corporate portals, the enterprise portal (Also known as the enterprise information portal or EIP). The main aim of the corporate portal is to expose and deliver business-specific relevant information in the context of helping employees to be productive and competitive. This requires employees to have the ability to communicate with others using the obtained information. This interaction is especially important for today's knowledge workers. Corporate portals can be designed for different usages: internally or externally. Although different in usage, corporate portals are very similar with regard to information dissemination.

In the early years, portals entitled as "search engines." The search engines developed based on the concept of Boolean technique related to HTML files. Main purpose was to assist users in finding their information in the enormity of online resources.

In the next phase, "navigation sites" in finding information on wide variety of concepts like- Excite, Infoseek, Lycos, and Yahoo used to search desired content through associated links. But soon it is understood that users did not want to use navigation sites to extend professional research expertise in finding information on weather, travel and sports. To satisfy users' interest navigation sites brought in categorization function. It is a technique of filtering popular documents/sites and ordering them into predefined groups-finance, news, sports etc. In the process of improve the new phrase "portals" were introduced, and sites provided categorized content and search functionality and they have also recommended advanced features. A few features included are access to- "communities of interest" (e.g. YAHOO Financials threaded discussions), "user-specified content" (e.g., MY EXCITE), "real-time chat", and access to specialize features like- shopping networks, on-line trading, auctions, etc. (Lorcan, 2003) [5]. The main driving factor for all sorts of changes was the idea that users should get a single point access for all their online information requirements.

## Differences between portal and website
In May 2016, NDL India pilot project was started by Ministry of Human Resource Development (MHRD) under its National Mission on Education through Information and Communication Technology. And successes to become a virtual repository with a single window search facility for all learning resources, which has been dedicated to the nation in June 2018. NDL facilitates filtered and federated search to provide right information with less time and minimum efforts to the users. NDL India was developed to hold e-content of many languages.

| Portal | Website |
|---|---|
| • Describes a website & acts as a gateway or entry point to services or to information resources | • Collection of web pages, contains information regarding particular company |
| • Attempts to make information resources or services available to help users at single point | • It facilitates web pages by giving their home page address |
| • Divided into two broad groups i.e. Horizontal and vertical portal | • Segregated into two categories i.e., static and dynamic website |
| • Authentication facility provided to Logging in. | • Contains browse and navigation facilities with no log-in option |
| • User can select and organize the materials | • It allows users to search information and having no option to customize |

It provides interface support for leading Indian languages (at present Bengali and Hindi). Further, it is also supports all academic levels including lifelong learners, researchers from different disciplines, aids users to become competitive, differently abled learners with all popular form of access devices. This pilot was project restrained enhanced content and diversity of disciplines to serve different level of users. This project developed at IIT Kharagpur (Das, 2018) [3].

For registered members, access to the NDL portal is free. Contents are available in different varieties liketext, audio and video etc. Users are free to choose and retrieve their required information in desired format. This portal harvests information from various sources and directs its users to their respective information sources through well-defined metadata elements. Therefore, the responsibility of the content lies with the source organization not with NDL. NDL has no mechanism to authenticate the accuracy of the contents. Resources access to full text or not decision lies with source organization. An icon provided beside each source determines the access rights of the document (Strauss, 2002) [10].

NDL operates as a one-stop shop for all electronic resources because it provides single window search facility. Information available under NDL can be customized according to user education level, difficulty level in searching media, choice of language and others. It is a 'customized service' in an 'integrated environment' to serve users requirement 24 × 7.19, 845, 301 items were hosted in NDL India portal.

## Types of Learning Resources Covered in NDL (NDL, 2019)
a) Books 700000 + books by 300000 authors in 70 languages
b) Articles 300000 + articles by > 300000 authors form various publishers
c) Ph.D. Thesis Researchers from different Indian institutions submitted 95000 + thesis
d) Manuscripts Manuscripts of Vidya Prasarak Mandal, Satyajit Ray Society, and others
e) Audio lectures 262+ audio lectures in Tamil and English languages
f) Video lectures 11 institutes provided 18000+ video lectures
g) Question papers 23 institutes provided 33, 000 + question papers
h) Solved question papers From various school boards
i) Online courses Courses on physics, agriculture & other
j) Data set Data sets of South Asia library archive, OECD library, and others
k) Annual report 12 institutes provided Annual reports
l) Reports 17 institutes provided 12, 000 + reports
m) Technical report From seventeen institutes
n) Monograph From eight institutes
o) Manuals From four institutes
p) Technical manuals From four institutes
q) Albums From six institutes
r) Law judgments From two institutes

**Table 1:** Subject Domain (NDL, 2019)

| Information, Computer science and general works | Covers resources on- Library and information science, computer science, programming, and on various domains |
|---|---|
| Psychology and Philosophy | Psychology, Teleology, Metaphysics, Ontology, Logic, cosmology, Physiognomy, Ethics, Education, research and related topics. |
| Religion | Theory & Philosophy of religion, concept of god, social & ecclesiastical theology, science in religion and different areas |
| Social Sciences | Sociology and anthropology, various factors affecting on social behavior, Public administration, Political science, Economics, Law, Military science, etiquette & folklore and relate domains |
| Languages | Various International languages, linguistics, Dictionaries, Etymology, Phonetics &Phonology, Sign languages and other domains |
| Natural sciences and mathematics | Mathematics, Astronomy and related sciences, Chemistry and related sciences, Earth sciences, Paleontology, Physical sciences, Life sciences and related areas |
| Technology | Human physiology, Medicine and health, personal health and safety, Surgery, chemical engineering, Pharmacology and therapeutics and related medical specialties, agriculture technology, civil & chemical engineering, mechanical engineering and others |
| The arts; Fine and decorative arts | Landscape & Civic art, painting and paintings, Photography, Music, Recreational and performing arts architecture, sculpture, Graphic arts and decorative arts and other domains |
| Literature and Rhetoric | English and old English literatures, literatures of different languages and other allied areas |
| History and Geography | Geography & travel, History of ancient world Biography, Genealogy & insignia, and other domains |

**Table 2:** Featured Sources (NDL, 2019)

| a | National Program on Technology Enhanced Learning (NPTEL) | It is a MHRD sponsored project, hosts 10,000+ video |
|---|---|---|
| b. | National Council on Education Research and Training (NCERT) | Different subjects English and Hindi books for students from primary to 12th standard |
| c. | KRISHIKOSH | It hosts 50,000+ agricultural books, reports, journals and articles |
| d. | Information Library Network (INFLIBNET) | It hosts 38,000+ synopsis reports & thesis from different institutes authored by Indian researches |
| e. | LIBRIVOX: Free public | 200000+ audio books domain audio books |

## News and Events
It contains Special alerts and events like- Work shop, Conference information, special lectures or discussions, Press releases, etc.

## General evaluation of NDL portal
**Content organization:** Categorization and organization of information is simple and clear to help users understand every subject domain. Dublin core (Generic) metadata standards and Learning Resource Metadata Initiative (LRMI) are used to enable efficient search and retrieval of content.

**Content usefulness:** To meet the needs of present users, NDL has developed multimedia contents like text, audio, video etc. contents are available in more than 70 languages. Information made available to end users ranging from primary to PG level. It covers different subject domains like humanities, agriculture, science, technology and social sciences etc.

**Content credibility:** Information available in NDL India is trustworthy and reliable because content providers are premier institutions/ universities like- NCERT, NPTL, IITs, IIMs, IISc, and Universities from different parts of India. Though, the liability / responsibility of the information lie with the respective content providers and NDL India has no responsibility to authenticate the truthfulness of the information available on website.

**Content integration:** Content services are provided to integrate with external sources and provision of links is made available for access to external information resources. Source organization will decide/ have a control on access to document, full text or not. Though Institutions registered, are happy to provide full text data to users, sometimes they restrict access to full text data and they ask users to send request for an article directly to host institution. And some publishers like Springer asks users to buy a copy of requested article but users registered under NDL can access to some copies free of cost.

Graphical design, Technical integrity i.e., proper operation of the website is well taken care of by website development and handling technical team. Personalization of navigation mechanisms are adjusted to the needs of individual users.

Tools and services in NDL allow virtual community building by providing e-mail facility to enquire and request for required information, with information hosted institutions. Efforts are made to reach users through Facebook, Twitter, YouTube and LinkedIn. This enhances the bond between user community and information hosting institutions.

## NDL APP
NDL project is a MHRD's vital step towards creating virtual repository at national level. Different types of APP's are making users to gain vast knowledge in diverse subject areas. Without having a PC or a trainer one can learn many things through APPs. NDL APP is developed to reach out to readers who have smart phones. To reach maximum number of users NDL APP is being made use of by many users successfully. This APP can be downloaded through 'Google play store' and 'app store'.

## Some observations of NDL portal
1. Promotional activities need to extent to all academic institutes to make users aware of NDL.
2. Training is required from school to university level. Since, NCERT to INFLIBNET vast range of resources are available in the NDL portal. Librarians have to take major initiative in this regard.
3. NDL portal is easy to access and understandable, but it becomes easier if users can get instant help by someone whenever they face problem in accessing resources.
4. NDL app is available to download in any smart phones and it will enable access to rich digital content of libraries across the country.
5. All kinds of institutions/individuals can contribute relevant content to NDL.

## Conclusion
Needs of users are increasing with the time; each and every user expects to get right information at the right time. Librarians are inventing more and more innovative ways to reach users. In this technological era, web portals are one of the means to make users alert about newly generated information and information available within their institutes. Portals are enriching learning and research activities by providing electronic information at one stop.

An effort of MHRD in providing vast electronic resources through the NDL is a great initiative in open access environment. Large number of users is the beneficiaries of NDL resources. With this innovative step resource sharing has taken new heights without any boundaries and economic commitments from the institutes or by the users.

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