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Open access resources: A new way to learn and teach

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Abstract

In the digital age, education has transcended traditional boundaries, expanding its horizons through the proliferation of open access resources. This article explores the dynamic landscape of open access materials and their profound impact on teaching and learning. Open access resources, encompassing a wide array of educational materials, including textbooks, journals, videos, and interactive platforms, have democratized knowledge dissemination. This article examines the benefits and challenges associated with the use of open access resources in educational settings. The benefits of open access resources are multifaceted. They promote equitable access to quality educational materials, leveling the playing field for students from diverse backgrounds. Additionally, they empower educators to customize and adapt content to suit their specific pedagogical goals, fostering innovative and learner-centric teaching approaches. Furthermore, open access materials facilitate collaboration among educators and students worldwide, creating a global learning community. Moreover, it explores the role of open access resources in promoting lifelong learning and continuing education, emphasizing their potential to bridge the gap between formal education and ongoing skill development in the fast-paced, knowledge-driven society of the 21st century. Ultimately, this paper highlights the transformative potential of open access resources in education and underscores the need for educators, institutions, and policymakers to embrace and harness these resources for the betterment of teaching and learning.

Keywords: Open source, free access, academic libraries, open access, e-publishing, web resource, digital libraries, open source software, open education software

Introduction

Technology plays a pivotal role in modern education, with online publication becoming increasingly accessible due to the influence of Information and Communication Technology (ICT). ICT has also revolutionized the work practices of information professionals, prompting a shift in their approach. Library websites are now evolving into platforms for content creation and publication. Prominent libraries are establishing their web presence to serve as a central hub for all their services, leveraging this online presence as a marketing tool to attract users. Library patrons highly value the prompt dissemination of information via these websites, placing it above other library activities and services.

Open source software, institutional repositories, and libraries share common ground. The adoption of open source software within libraries empowers them to maintain greater control over their computing environment, which, in turn, supports librarians in efficiently managing their daily tasks and working towards their career objectives.

Open Access Resources (OAR) hold immense significance in the realms of education, learning, and research. In the contemporary landscape, where concepts such as learning organizations, knowledge economy, and knowledge management are gaining prominence, OAR assumes a pivotal and indispensable role in making these concepts practical. By aggregating and disseminating resources, OAR has significantly enhanced the sharing of knowledge, skills, and addressing the challenges of a dynamic world.

The emergence of Web 2.0 has further accelerated the growth of digital databases, expanding users' access to these resources. This progress has predominantly emphasized making OAR more accessible and maximizing their utilization by end-users.

Definition

A meeting held at the Howard Hughes medical institute in Chevy chase, Maryland in April

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2003, resulted in the "Bethesda statements on Open Access publishing". It stated that open access work meets two criteria; The Author (s) and Copyright holder (s) to all users a free, irrevocable, worldwide, perpetual right to access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribute of authorship, as well as the right to make small number of printed copies for their personal use.

According to Bjork (2004) ^[9] stated that open access means that "a reader of a scientific publication can read it over the Internet, print it out and even further distribute it for noncommercial purpose without any payments or restrictions" Willinsky (2003) ^[10] identified nine flavors of open access.

The flavors are:-

1. E-print archive (authors self-archive pre- or post-prints).
2. Unqualified (immediate and full open access publication of a journal).
3. Dual mode (both print subscription and open access versions of a journal are offered).
4. Delayed open access (open access is available after a certain period of time).
5. Author fee (authors pay a fee to support open access).
6. Partial open access (some articles from a journal are available via open access).
7. Per-Capita (open access is made available to countries based on per-capita income).
8. Abstract (open access available to table of contents/abstracts, and).
9. Co-op (institutional members support open access journals).

Origins of the open access

The origins of the open access movement can be traced back to the early 2000s, marked by the issuance of several key declarations: the Budapest Open Access Initiative (2002), the Bethesda Statement on Open Access Publishing (2003), and the Berlin Declaration on Open Access to Knowledge in the Sciences and Humanities (2003). These declarations established the fundamental principles of the modern open access movement. While certain academic disciplines had been sharing knowledge freely before these declarations, it was these three proclamations that formalized and unified open access into the organized movement it is today. Notably, all three declarations emphasized that open access should encompass both "gratis" (free of cost) and "libre" (free to use and reuse) publication of articles, although "gratis" remains more common in practice. In 2012, the Budapest Open Access Initiative recognized the importance of not delaying the achievement of "gratis" while striving for "libre" and not stopping at "gratis" when "libre" is attainable.

Who benefits from open access?

Open access benefits a wide range of individuals, including scholars, students, and the general public. It can play a vital role in preserving languages or making North American archaeological data more accessible. For those interested in topics like dinosaurs, open access offers access to the latest discoveries in dinosaur species. In academia, open access enables professors and students to access a broader body of research without the delay of inter-library loan requests. Beyond academia, open access benefits society as a whole. Local elected officials can make more informed policy decisions when they have access to studies from other cities.

Healthcare providers can offer more up-to-date medical advice and treatments by freely accessing the latest research. In essence, open access policies benefit everyone.

'Learning'

All of us understand things in the light of our past experience. This is also true of 'learning', we get our ideas of what 'learning' means from what happened to us in the past. So, for example, we may think of 'learning' as something which takes place in a school or college, in a classroom. We may think of it as a person sitting alone at night, trying to memorise a lot of facts so that s/he can pass an examination. However, a bit of reflection will show us that 'learning' is much wider than that. After all, children learn a great deal before they even get to school they learn to speak, to walk. Educational psychologists tell us that any activity which leads to a change in our behaviour is 'learning'

- Learning can be formal or informal. We learn informally from what we experience day by day: things which happen to us make us change the way we think and act. We may not even be aware that we are learning, which may cause problems for example, health workers may learn bad attitudes from the example of others. Of course, learning may also be formal: we attend a course which is planned in a structured way, in a school or college.
- People learn in different ways. Researchers have identified different 'learning styles'. Some people are 'receivers': they like to memorise what is given to them. This is a very common style, and it is reinforced by teachers who expect students to memorise, and reward them for it. Other people are 'detectives': they like to investigate what they are learning themselves, to get to understand it. Yet others are 'generators': they like to decide themselves what they want to learn, and then look for opportunities to learn those things.

'Teaching'

Once again, our understanding of what 'teaching' is, is based on our past experience. Our earliest experience was in school, where the teacher was also a 'master' or 'mistress', standing in front of the class, telling us what to do and what to learn. Some of us experienced the same kind of 'teaching' at college. Others may have experienced teaching where the 'teacher' is more of an equal, who takes account of the learner's experience and even learns from the learner. That is why Abbatt and McMahon say: 'Teaching is helping other people to learn'. They go on to say that the job of 'teaching' health care workers has four elements:

- The teacher has to *decide what students should learn*. The students may take part in this decision, but all are guided by the same principle: it is the job that people have to do, that determines what they should learn. They have to learn all the knowledge, skills and attitudes that they need to perform a specific job. They learn what they 'must know' and 'should know', not what is 'nice to know'.
- The teacher has to *help the learners to learn*. This does *not* mean that the teacher 'spoonfeeds' the students, as if they were babies. It *does* mean that the teacher's first concern should be that the students should learn as well as possible. Teaching sessions or classes have to be planned carefully, taking into account the learning styles, the language, and the background of the students. In short, the teachers must be student centered, not teacher centered.

Review of Literature

There is vast literature about the awareness and access of open access resources. Research studies are conducted to understand the importance of OAR in different fields of life, especially in the field of education. OAR are usually defined as the resources that are available online and can be freely accessed by users for their research, teaching, learning and sharing purposes.

Rowlands and Nicholas (2006) ^[8] stated that open access comprises three important features: i.e., it is accessible on internet; there are no financial or legal constraints to access these resources; and finally, authors use copyright only to keep the veracity of scholarly work and retain the ascription right. Open access journals [OAJ], also known as a "Gold Road" to approach quality content, research and scholarly work. Through the internet, these peer reviewed journals are made available free of any cost to the public (Harnad, 2005) ^[3].

The primary aim of Gargante, Naranjo, and Tamarit in their 2015 study was to classify the diverse ways in which teachers and students employ Information and Communication Technologies (ICT) as tools for teaching and learning in classrooms enriched with technology. Their research revealed four distinct categories of educational ICT utilization within the classroom setting: teachers' engagement in content creation and interaction, as well as students' involvement in content creation and interaction. The study offers valuable insights and suggestions that can benefit both researchers and educators.

In the 2016 study conducted by Burden and Hopkins, an investigation was carried out to assess the perceptions, attitudes, and convictions of prospective teachers regarding the use of iPods for their professional development and teaching activities during their school placements. The study classified beliefs and attitudes, which are considered as second-level obstacles, as influential factors in determining the effective utilization of mobile technologies as tools for teaching and learning. While existing research literature suggests that issues like access, infrastructure, and training are becoming less significant as barriers to technology adoption, this study revealed that primary obstacles, including these aspects, continue to pose significant challenges for aspiring teachers when it comes to learning and integrating mobile technologies into their teaching practice.

According to Molnar's research in 2015, in light of the contemporary shifts in lifestyle and society, non-conventional modes of learning are becoming increasingly significant. These non-traditional forms of learning go beyond the conventional educational settings characterized by traditional lessons, lectures, and seminars. In atypical learning, individuals pursuing education select their academic environments based on their own goals and motivations.

In Hauge's 2014 ^[5] paper, there is a clear emphasis on adopting a design-oriented approach when examining the integration of information and communication technologies (ICT) into the realm of education. The paper advocates for the critical examination and definition of teaching and learning designs at the institutional level as a means to resolve the common contradictions that emerge during ICT implementation. This design-focused approach takes a dialectical nature and aligns with the ideas of technical rationality introduced by Herbert A. Simon and the concept of the design process as a reflective action, as proposed by Donald A. Schön. The paper further illustrates the concept of design through two real-world case studies, showing how

teachers adapt and transform their approaches to teaching and learning when incorporating technologies within institutional educational practices.

Importance of open access

Open access is of utmost importance because the dissemination of research findings and ideas serves as the bedrock for future advancements in the fields of science and medicine. Open access publishing, therefore, facilitates the broader sharing of information.

- Open access signifies a transformation from the traditional publishing model, in which readers subscribe to journals through paid subscriptions, to a model where electronic access to journals is unrestricted and devoid of legal, electronic, and technological barriers.
- Open access operates within the legal framework of copyright law, ensuring that intellectual property rights are respected.
- Open access initiatives are driven by the objective of making researchers' published work readily available as part of their digital libraries.
- The core aim of open access is to establish connections with other repositories, primarily to provide researchers with a platform to disseminate their research findings.

Open access helps to ensure long-term access to scholarly articles. Unlike articles that are licensed in traditional article databases, libraries and others are able to generate local copies and repositories of these resources. Libraries, by working together to formulate repositories of open access literature, know how to ensure continued access to these scholarly publications into the distant future.

Major open resources in India

- E-prints eIISc of the Indian Institute of Science, IISc, Bangalore-http: //eprints.iisc.ernet.in
- Librarians Digital Library (LDL)-http: //drtc.isibang.ac.in
- DSPACE @ INFLIBNET-http: //dspace.inflibnet.ac.in;
- Vidyamidhi Project of the University of Mysore-http: //www.vidyamidhi.org.in/home/index/asp
- Indian Medical Center (IMC) offer e-prints achieve Open Med @ NIC-http: //openmed.nic.in
- IIA repository of Indian Institute of Astrophysics, Bangalore-http: //prints.iia.res.in
- D Space at INSA-Indian National Science Academy-http: //61.16.154.195
- National Chemical laboratory (NCL)-http: //dspace.ncl.res.in
- National aerospace Laboratories (NAL)-http: //nal_ir.nal.res.in
- Indian Institute of Technology, Delhi-http: //eprint.iitd.ac.in/dspace/;
- DSpace @ NITR National Institute of Technology Rourkela
- http: //dspace.nitrkl.ac.in
- Eprints@IIIT, Indian Institute of Information Technology, Allahabad-http: //eprints.iiita.ac.in
- C.B Pant University of Agricultural and Technology-http: //202.141.116.205/dspace

Notable free open source tools for libraries

- www.alfresco.com/index-al.html
- www.audacity.sourceforge.net
- www.clamwin.com

- www.dansguardian.org
- www.htdig.org
- <http://library.unc.edu/sitemap>
- www.dimdim.com
- www.drupal.org
- <http://open-ils.org>
- www.gimp.org
- www.docs.google.com

Open source software (oss)

Open source software (OSS) made its debut in 1983. In 1998, a group of proponents suggested replacing the term "free software" with "open source software (OSS)" as it was perceived as a more clear and business-friendly expression. OSS, in essence, empowers individuals to create new iterations of software, adapt it for different operating systems and processor architectures, share it with others, or even commercialize it. The fundamental goal of open source is to enhance the software's comprehensibility, modifiability, replicability, reliability, and accessibility while keeping it marketable.

Key features

OSS possesses several distinctive features, and the mechanisms that underpin open source projects enabling these features are as follows:-

- One of the most appealing aspects of OSS is the availability of its source code.
- It allows for the customization of specific software applications to meet local requirements.
- Users have the flexibility to modify the software to suit their needs. This includes making improvements, rectifying bugs, enhancing functionality, and scrutinizing its operations.
- The software can be shared with other users, who can, in turn, adapt it to their own requirements. This sharing can be either free of charge or involve a predetermined fee.

Benefits of open source systems

- Empowers librarians and libraries to exert greater influence over their information systems and services.
- Offers the tools to explore and execute innovative approaches to librarianship, reducing dependence on software vendors.
- Demonstrates the potential of librarianship in expanding library services and collections beyond traditional book lending.
- Equips libraries to adapt swiftly to the evolving information requirements, preferences, and anticipations of their users.

Open Educational resources

The OER movement aims to break down barriers, such as teaching material locked up behind passwords within proprietary systems or filed in personal drawers and enable sharing content freely (OECD, 2007)^[7],

The openness of OER refers to:-

- The freedom to use the work and enjoy the benefits of using it.
- The freedom to study the work and to apply knowledge acquired from it.
- The freedom to make and redistribute copies, in whole or in part, of the information expression.

- The freedom to make changes and improvements, and to distribute derivative works.

Educational means that the material is produced for use in informal educational settings, although open educational resources can well be used for informal or non-formal learning outside formal educational settings. An open educational resource can be.

- Learning content (e.g. courses, modules, learning objects, exercises, references to collections and archives).
- Software (e.g. development tools, tools for organizing content, simulation tools)
- Hardware (e.g. electronics prototyping platforms such as Arduino).
- An implementation resource (e.g. creative common licenses, best practice design principles).
- An interoperability standard (e.g. the sharable content object reference model SCORM the IMS content packaging specification).
- Media (e.g. images, audio recordings, videos).

Conclusion

The Open Source society has had a profound impact on the Information society, especially in the context of the Digital Library Environment where Information Systems and services are evolving. This transformation has enabled Library and Information Centers to enhance their User Interface, delivering web-based services to their users. Through their support for open access resources, libraries are not only able to better serve their current and future patrons, but they also gain easier and more extensive access to scholarly research. In doing so, they contribute to other libraries worldwide, ensuring widespread access to valuable scholarly research.

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