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Open Access Electronic Thesis and Dissertation Repositories: An Assessment

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Abstract

Purpose- This study evaluates the Open Access Electronic Thesis and Dissertation (OAETD) repositories available at oatd.org , on the basis of various parameters like structure, content support, technical and operational feasibility. It highlights positive and negative aspects of select OAETD repositories and forward suggestions for the better improvement.

Design/methodology/approach- Survey method coupled with online visits is employed to obtain data from OAETD repositories besides schedule is drafted to understand various technical features.

Findings- The findings of present work further strengthen the belief that adaptation of open access procedures in different settings especially in modern day research is showing an increasing trend. Moreover there is scope for further improvement in technical and operational feasibility of OAETD repositories.

Research limitations/implications- Findings of the study will surely benefit the concerned repository hosting and managing authorities globally to take appropriate measures in improving the standards and technical aspects of OAETD repositories.

Keywords- Open Access, Electronic Thesis and Dissertation, Repositories, OAETD, ETDs.

Paper type Research Paper

Introduction and background

Openness is a concept that has come to depict and determine knowledge and communication systems, society and politics, institutions or organizations, and individual personalities. In essence, openness in all these aspects refers to be a kind of transparency which is the opposite of secrecy and most often this transparency is seen in terms of access to information especially within organization, institutions or societies **(Peters & Roberts, 2015). Singh and Chikate (2014)** one of the leaders of the Open Access (OA) movement, defines OA literature as 'digital, online, free of charge, and free of most copyright and licensing restrictions'. The Open Access research literature is unruffled of free of cost and online copies of peer-reviewed journal articles and conference papers as well as special reports, theses and working papers. In most cases there are no licensing restrictions on their use by readers. They can be used freely for research, teaching and other purposes **(Bjork, et al., 2010).**

The open access have broaden the area of openness and incorporated many concepts like open access, open content, open source, open data, open education, open access archives, open access books, open access journals, open access courseware, open access search engines, open source software and open access repositories.

Open Access Repositories

Open Access (OA) repositories are those websites which are hosted by the universities and other research organizations which allow everyone to download scientific research papers without any cost. OA repositories are not simply data stores or back-up systems, but are actively planned, curated and managed, staffed by dedicated and specialist personnel who are dealing with multiple depositors, diverse interlinked data sets, and varying formats, standards, protocols and technologies, and seek to add value and ensure continuity **(Kitchin, 2014).** OA repositories hold different content types like research papers, technical papers, unpublished works, and thesis and dissertations etcetera. Directory of Open Access repositories (Open DOAR) listed more than 1400 repositories with content type as electronic thesis and dissertations (ETDs), Registry of Open Access repositories (ROAR) listed 285 repositories with cent per cent ETDs and Directory of Open Access Thesis and dissertations (OATD) is a richest platform of theses and dissertation repositories holding 592 OATD repositories contributing form diverse institutions all over the globe.

Open Access Electronic Thesis and Dissertations (OAETD) Repositories

OAETD repositories are basically a subset of an institutions local digital repository. An institutional repository (IR), as defined by **Crow (2002)** is a digital archive of the intellectual product created by the

faculty, research staff, and students of an institution and accessible to end-users both within and outside of the institution.

OAETDs are a relatively new mode of research and scholarly communication. In the simplest terms, an OAETD is a thesis/dissertation created as an electronic document (or set of electronic documents). The electronic documents that make up an OAETD can be created using any popular word processing software program. One can also use advanced software programs to produce multimedia animations and sounds for use in an electronic version of thesis/dissertation. As a primary source of information, theses and dissertations are particularly useful to researchers. An OAETD program provides a process, standards, and software to automate functions, as well as a digital infrastructure for access and preservation (**Lynch & Lippincott, 2005**).

Review of related literature

Much literature is available regarding open Access (OA) and its varied dimensions including open access, open science, open content, open data, open education, open archives etc. Hence attention is made to highlight few studies here. **Pinfield (2009)** defines open access as a platform where digital content is completely, openly, and for all time obtainable and can be accessed and reused with fewer restrictions. Another most commonly acknowledged and compendious definition of open access literature by **Suber (2012)** is that open access should be online, digital, free of charge and from most licensing and copyright issues. Another definition of OA by **Prosser (2004)** is that OA is an unimpeded and untrammelled access to the creative writing of scholarly writers without paying a penny. The intention behind OA is, facilitate scholarly literature to both haves and have-nots of scholarly literature, it enhances research and development, supplement to the learning and dissemination of innovative ideas. **Suber (2002)** highlights the purpose of OA in such a way that the basic funda behind the OA movement is to give access of scholarly literature to the scholarly writers besides OA movement is not anti-non-OA publishers or publishing houses. On the other hand **Royal Society (2011);Ware and Mabe (2015)** are of the view that OA is the result of spending

public taxpayer money in proper way. Open Archives (repositories) in the varied dimensions of open access achieved a great importance in away of holding different content types out of which ETDs are the most prominent content type. **Gentleman, Carey, Bates and Bolstad (2004)** spotlight a crystal idea of OAETD repositories. Besides defines them as digital archives, holding the intellectual and research output of researchers in every domain of information bank accessible to end users both within and outside of the institutions with negligible barriers. On other hand **Dettling, Dudiot and Hornik (2004)** highlights the essence and adequacy of OAETD repositories to research community. Related studies were carried

out by **Ranirez, Dalton, McMillian, Read and Seamans (2012)** on OAETD repositories. They highlighted the contribution of higher education institutions worldwide in a way of making ETDs publicly available in open access repositories. Further the study investigated that OAETD repositories diminish the publishing constraints of scholarly work. Similar work was carried out by **Schopfel et al. (2014)** regarding content of open repositories and it was divulged that ETDs are vital part of the contents or holdings of open repositories. **Fernandiz, Francisco, Jose and Rodero (2016)** highlights that OpenDOAR is holding more than half of repositories containing ETDs. Another related and unparalleled study was carried out by **Roy, Biswas & Mukhopadhyay (2016)** on OA repositories of

Coalition of OA Policy Institution. The study investigates that every-day one OA repositories is being included to the core databases of OA repositories viz OpenDOAR and ROAR. The study further revealed that there is inadequacy in the OA policies of OA repositories of developing institutions.Another study was carried out by **Ghosh (2008)** in India. He is of the view that India witnessed break-through in a way of ETD repositories in 1999. He also investigated the evolution of ETD in India to scrutinize use and preservation in an open access environment and exhorted the progression of ETD repositories. The study of **Sahu & Arya (2013),** leads towards different notions of open access in India and traced out less awareness of open access among academicians and research community. Similar study was carried out by **Ahmed, Alreyaee & Rahman (2014)** in subcontinent Asia regarding growth and development of OAETD repositories. They are of the view that Asian countries are at the developing phase of making their ETDs available online with the framework of open access. **Rob, Sandra & Dermot (2015)** traces the important factor regarding open access repositories and draws findings in a way that open access repositories are not wholly core funded.

Scope The scope is intended to the study of select OAETD repositories in the field of General Sciences, Arts and Humanities and Social Sciences available at (www.oatd.org).

Objectives 1. To explore and identify different types of OAETD repositories available at global level.

2. To evaluate various technical aspects like structure, content support, technical and operational feasibility and policies, accessibility and modes of interactivity.

Methodology

For objective 1. Survey method coupled with online visits was carried to identify various OAETD repositories available at www.oatd.org (OATD is a richest platform of theses and dissertation repositories holding 592 OATD repositories contributing form diverse institutions all over the globe).

For objective 2. A schedule is drafted to understand various features, duly enriched by experimental method to validate silent features.

Analysis/Discussion

Types of OAETD repositories

The analysis revealed that out of 90 repositories a maximum number of repositories 79 (87.77%) are Institutional followed by 11 (12.22%) repositories are Governmental. An in-depth analysis of data further highlights that in Arts and Humanities 28 (96.60%) repositories are institutional and only 1 (3.40%) repository is governmental. Similarly in the Social Sciences 27 (64.70%) repositories are the Institutional followed by 7 (20.60%) repositories are Governmental. Likely in General Sciences the maximum repositories 24 (29.30%) are Academic followed by 3 (11.10%) governmental repositories (Table 1).

Table 1: Repository type of select OAETD repositories

Subjects	Academic/Institutional	Governmental	Total
Arts and humanities	28 (96.60)	1 (3.40)	29 (100.00)
Social sciences	27 (64.70)	7 (20.60)	34 (100.00)
General sciences	24 (29.60)	3 (11.10)	27 (100.00)
Total	79 (87.77)	11 (12.22)	90 (100.00)

Figures in parentheses indicate percentage   N=90

ETDs Contributors of repositories

An analysis of the study investigated that out of 90 selected repositories the maximum repositories52 (57.77%) are having ETD contributors Research Scholars followed by 28 (31.10%) repositories are having ETD contributors faculty. Further analysis of data reveals that in Arts & Humanities maximum repositories 19 (65.51%) are having ETDs deposited by Research Scholars followed by 6 (20.68%) repositories having material deposited by both Faculty and Research Scholars. Similarly in Social Sciences the data reveals that the maximum 20 (58.84%) repositories are having ETD contributors Research Scholars followed by 10 (29.40%) repositories in which Faculty is ETD contributor. In General Sciences the data presents that the maximum 14 (51.9%) repositories in which ETDs are contributed by Faculty followed by 13 (57.77%) repositories in which ETDs are contributed by Research Scholars (Table 2).

Table 2 Material deposited in select OAETD repositories

Subjects	Faculty	Research Scholars	Faculty and Research Scholars	Total
Arts and humanities	4 (13.80)	19 (65.51)	6 (20.68)	29 (100.00)
Social science	10 (29.40)	20 (58.84)	4 (11.76)	34 (100.00)
General sciences	14 (51.90)	13 (48.14)	-----	27 (100.00)
Total	28 (31.10)	52 (57.77)	10 (11.11)	90 (100.00)

Figures in parentheses indicate percentage   N=90

Collection strength of OAETD repositories

While analyzing the data it has been revealed that out of 90 select repositories 48

(53.30%) repositories are having collection strength of more than 5000 items and 42 (46.70%)

repositories are having collection strength less than 5000 items. While

making an in-depth analysis of data it presents that in Arts & humanities maximum 17 (58.60%)

repositories holdings are less than 5000 items and 12 (41.40%) repositories are having collection strength

of more than 5000 items. Likely in Social Sciences 21 (61.80%) repositories are having collection

strength above 5000 and 13 (38.20%) repositories are having collection strength below 5000 items.

Similarly in the General Sciences 15 (55.60%) repositories are having collection strength of more than

5000 items and 12 (44.40%) repositories below 5000 items (Table 3).

Table 3:Collection strength of select OAETD repositories

Subjects	Upto 5000	More Than 5000	Total
Arts and humanities	17 (58.60)	12 (41.40)	29 (100.00)
Social sciences	13 (38.20)	21 (61.80)	34 (100.00)
General sciences	12 (44.40)	15 (55.60)	27 (100.00)
Total	42 (46.70)	48 (53.30)	90 (100.00)

Figures in parentheses indicate percentage   **N=90**

Content types hosted

While analyzing the data it was revealed that out of 90 selected repositories the maximum repositories 35 (38.90%) are having content type both* followed by 28

(31.10%) repositories having only ETDs as a content type. An in-depth analysis of

data presents that in Arts & Humanities the maximum 16 (55.20%) repositories are

hosting both* followed by 6 (20.70%) repositories hosting only Research Papers as a content type. In Social Sciences the maximum 18 (52.10%) repositories are hosting both* followed by 8 (23.50%) repositories hosting others** content type. In General Sciences maximum 18 (66.70%) repositories are hosting Theses & Dissertations followed by 2 (7.40%) repositories are hosting Research Papers (Table 4).

Table 4: Content types hosted in OAETD repositories

Subject	Theses and dissertations	Research papers	Both*	Others**	Total
Arts and humanities	3 (10.30)	6 (20.70)	16 (55.20)	4 (13.80)	29 (100.00)
Social science	7 (20.60)	1 (2.90)	18 (52.90)	8 (23.50)	34 (100.00)
General sciences	18 (66.70)	2 (7.40)	1 (3.70)	6 (22.20)	27 (100.00)
Total	28 (31.10)	9 (10.00)	35 (38.90)	18(20.00)	90 (100.00)

Figures in parentheses indicate percentage   **N=90**
*Both includes 'theses and dissertations' and 'research papers'
**Others include 'technical papers', 'conference proceedings', and 'preprints'.

Repository software of OAETD repositories

The analysis investigates that out of 90 select repositories the maximum repositories 31 (34.40%) are having used dSpace software followed by 20 (22.2%) repositories using e-prints and 28 (31.30%) repositories are having used other* software types clubbed together. While making an in-depth analysis of data it shows that in Arts & Humanities the maximum 9 (31.0%) repositories are using dSpace followed by Digital Commons 6 (20.70) and eprints with 4(13.80) while the rest of the repositories are using other* software. Similarly, in Social Sciences maximum repositories 13 (38.2%) are using dSpace followed by 11 (32.4%) repositories having e-prints and also good number of repositories 9 (26.5%) are using other* software. Likewise, in the General Sciences 9 (33.30%) repositories are using dSpace followed by 5 (18.50%) repositories using e-prints software while rest are using other* software clubbed together (Table 5).

Table 5: Repository software used in OAETD repositories

Subjects	dSpace	e-prints	Digital	OPUS	Others*	Total

			Commons			
Arts & Humanities	9 (31.00)	4 (13.80)	6 (20.70)	0 (0.00)	10 (34.50)	29 (100.00)
Social Science	13 (38.20)	11 (32. 40)	1 (2.90)	0 (0.00)	9 (26.50)	34 (100.00)
General Science	9 (33.30)	5 (18.50)	2 (7.40)	2 (7.40)	9 (33.30)	27 (100.00)
Total	31 (34.40)	20 (22.20)	9 (10.00)	2 (2.20)	28 (31.10)	90 (100.00)

Figures in parentheses indicate percentage   N=90

*Others include 'MycoRe', 'VITAL' ,Digibibi, Drupal, Fedora, Greenstone.

Metadata standards in OAETD repositories

While analyzing the data it has been revealed that out of 90 selected repositories the maximum 58 (64.44%) repositories are having Metadata Standard Dublin core

followed by 14 (15.55%) repositories are having MARC. Further study reveals that in Arts and Humanities maximum repositories 23 (79.31%) are having Dublin Core Metadata Standards followed by 3 (10.34%) repositories having MARC Metadata Standard. In Social Sciences maximum 20 (58.82%) repositories are having Dublin core Metadata Standards followed by 6 (17.64%) repositories having MARC. In General Sciences the maximum 15 (55.55%) repositories are having Dublin core Metadata Standard followed by 5 (18.51%) repositories are having MARC (Table 6).

Table 6: Metadata Standards support facility available in OAETD repositories

Subjects	**Dublin core**	**MARC**	**Others***	**Total**
Arts & Humanities	23 (79.31)	3 (10.34)	3 (10.34)	29 (100.00)
Social Science	20 (58.82)	6 (17.64)	8 (23.52)	34 (100.00)
General Science	15(55.55)	5 (18.51)	7 (25.92)	27 (100.00)
Total	58 (64.44)	14 (15.55)	18 (20.00)	90 (100.00)

 Figures in parentheses indicate percentage   N=90

*others include MODS and METS.

Managing bodies of OAETD repositories

The analysis of data highlights that out of 90 selected repositories the maximum 42 (46.70%) repositories are managed by administrators followed by 21 (23.3%) repositories by libraries and 15 (16.70%) repositories by Academic Departments. Further analysis reveals that maximum 14 (48.3%) repositories in Arts and Humanities are managed by libraries followed by 11 (37.9%) repositories

managed by administrators. Likely in the Social Sciences maximum 13 (38.2%) repositories are managed by Administrators, followed by 11 (37.9%) repositories managed by academic. Furthermore in the field of General Sciences maximum 18 (66.7%) repositories are managed by Administrators followed by 4 (14.8%) repositories are managed by Libraries (Table 7).

Table 7: Hosting and managing departments of OAETD repositories

Subjects	Library	IT Department	Administration	Academic Department	Others*	Total
Arts & Humanities	14 (48.30)	1 (3.40)	11 (37.90)	2 (6.90)	1 (3.40)	29 (100.00)
Social Science	3 (8.80)	1 (2.90)	13 (38.20)	11 (32.40)	6 (17.60)	34 (100.00)
General Science	4 (14.80)	3 (11.10)	18 (66.70)	2 (7.40)	0 (0.00)	27 (100.00)
Total	21 (23.30)	5 (5.60)	42 (46.70)	15 (16.70)	7 (7.80)	90 (100.00)

Figures in parentheses indicate percentage   *N=90*

* Others include those repositories where details are not clearly shown

Findings

Open access has greatly influenced the modern way research and development activities world over government establishments, organizations, universities and research institutes are supporting and promoting open access to scholarly content. The findings of present work further strengthen the belief that adaptation of open access procedures in different settings especially in modern day research is showing an increasing trend.

➢ The availability of research products especially theses and dissertation in open access mode can be visibly viewed by the availability of good number of OAETD repositories (592) on oatd.org. These repositories are hosted from across the globe.

➢ The study further reveals that most of the OAED repositories are hosted by institutions like universities and research centers and few belong to government establishments. Faculty members and research scholars are actively involved in depositing their content to the repositories in all the three subject areas chosen for the study.

➢ The collection strength of these repositories shows a positive trend with maximum repositories having more than five thousand collection items.

➢ The major content type in all the three subject areas includes theses and dissertation followed by research papers.

- Most of the repositories are using dSpace software followed by e-prints and digital commons.
- While analyzing metadata standard supported in the repositories it is evident that Dublin core is predominantly being used followed by MARC.
- Most of the repositories are managed by the administrative section of institutes followed by academic departments. This scenario clearly shows the active involvement of administration in providing support for hosting OAETDs.

Conclusion

The study clearly shows the strengths and weaknesses of OAETD repositories globally in terms of various features. Many features of OAETD repositories depict positive nods with respect to their presence in maximum repositories. There is a need for developing new features in the open software of repositories for making them user friendly. There is a dearth of finance faced by these repositories and it can be overcome by the support of different funding agencies throughout the globe.

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