E-Thesis Repositories: The Asian Scenario

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ABSTRACT: Across the globe, people are trying to find out ways to make the findings of research freely available to the public through open access institutional repositories. Theses and dissertations are considered to be one of the most important sources of scholarly communication. Due to various benefits of electronic theses and dissertations over the print format, various institutions are developing their own e-thesis repositories. Various Asian countries have contributed to the development of e-thesis repositories. The present study gives an overview of the growth and development of e-thesis repositories in Asia with the data from the OpenDOAR database.

I. Introduction

The Open Access movement has gained a lot of importance and popularity among the academic and scientific institutions since the Budapest Open Access Initiative (BOAI) in 2002. The BOAI defines Open Access as "free availability on the public internet, permitting any users to read, download, copy, distribute and/or print, with the possibility to search or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself."

Across the world, institutions of higher education are developing institutional repositories to manage their education, research, and resources in a more effective way. The repositories are categorized according to the type of content archived such as e-journals, e-theses, research publications, datasets, books, patents, software, learning objects, multimedia, etc.

Theses and dissertations are often recognized as the only source for research work that does not find its way into various publication channels. Due to the various benefits of electronic theses and dissertations (ETDs), they are gaining importance over their traditional print format.

The first planning for ETDs started at a meeting in 1987 between UMI, Virginia Tech, Arbor Text, SoftQuad, and University of Michigan. Participants discussed the latest approaches to electronic publishing and whether or not they could be applied to the preparation of dissertations.

Benefits of electronic submission and archiving of theses and dissertations include:
1. The findings of research presented in theses and dissertations are more accessible to scholars all over the world via the Internet;

2. The message of a thesis or dissertation may be better conveyed in an electronic format, as it allows for color diagrams and images, hyperlinks, audios, animations, videos, spreadsheets, databases, etc.;
3. ETDs reduce the physical shelving space needed to archive the print theses and dissertations in the academic library;
4. The researcher can save on printing or copying costs.

II. Literature Review

Sheeja and Cherukodan (2011) examined the ETD Project of Cochin University of Science and Technology (CUSAT) and Mahatma Gandhi University (MGU) in India. They found that both institutions have promoted ETDs by organizing workshops, adopting open source software for ETDs, and training library staff.

Wani, Gul and Rah (2009) studied the growth and development of open repositories registered with the OpenDOAR database. The study delved deep into the Asian contributions and brought to light detailed profiles of Asia.

Asner and Polani (2008) discussed the ETD Project at the Ben-Gurion University, Negev, Israel. They described the status of Israel in the worldwide development of ETDs as reported in literature. Their study examined the attitudes of faculty and publishers towards ETDs.

Al Salmi (2008), through his research work, aimed to establish a framework for understanding the positive and negative factors affecting the adoption and development of electronic theses and dissertations with particular reference to the situation in the Arab Gulf States. He believed that most issues could be resolved by undertaking appropriate promotional and advocacy activities.

Antelman (2004) stated that scholars in diverse disciplines like philosophy, political science, electrical and electronic engineering, and mathematics are adopting open access practices since the free availability of articles have a greater research impact.

Das, Sen and Dutta (2007) explored the policy frameworks, strategic dimensions and analyses of existing ETD initiatives in India and found that national ETD initiatives are still in a developmental phase and the stakeholders are waiting for concrete policy frameworks by the national accrediting and granting agencies.

Fox and Eaton (1996) provided an overview of the NDLTD project and invited universities to unlock their resources in connection with this collaborative project.

Ghosh (2009) examined the developments of Ph.D. dissertation repositories in India. He discussed the current state of ETD repository development in the academic sector and analyzed the subject coverage, access policy, and value added services. The survey revealed that digital preservation of theses and dissertation is already in progress, though some of them are still in a preliminary stage.

Hakli (2000) reviewed the extensive development of electronic doctoral dissertations in Finland. The academic community in Finland shows a positive attitude towards scientific publications in digital format.

Vijayakumar and Murthy (2001) emphasized on the need of a digital library for Indian theses and dissertations. Their paper describes the work done by INFLIBNET so far in this direction.

Tonta (2008) reviewed the current situation of institutional repositories in Europe and chronicled the development of institutional repositories in Turkey. The researcher has recommended that awareness of faculty members towards Open Access and IRs should be increased. Research grants offered should enforce open access for research papers funded by taxpayers. The contents of those repositories should be organized according to the established standards (e.g., OAI-PMH and Open URL) so that they can be harvestable by search engine crawlers, thereby increasing the overall visibility of research carried out by the Turkish scholars.

III. Research Objectives

The objectives of the current study are to discover the composition and built of the e-thesis repositories in Asia in 6 key aspects: country, discipline, language, core content type, software, and type.

IV. Scope

The data for the present study was collected exclusively from the "Directory of Open Access Repositories", popularly known as OpenDOAR (www.opendoar.org) on e-thesis repositories developed by Asian countries.

A total of 186 Asian e-thesis repositories were identified in OpenDOAR during the period of December 21-23, 2011 and were studied according to the objectives of the study.

V. Findings and Discussions

1. E-Thesis Repositories in Asia by Country

Of the total 186 e-thesis repositories contributed by Asian countries, Japan is the front runner by contributing 55 e-thesis repositories, followed by Taiwan (30) and China (28). Vietnam, Bangladesh, and Pakistan contribute only one e-thesis repository each. A detailed representation is given below in Table 1.

Table 1: Distribution of E-Thesis Repositories in Asia

Sr. No.	Name	Number	Percent
1	Japan	55	29.57
2	Taiwan	30	16.13
3	China	28	15.05
4	India	26	13.97
5	Indonesia	14	7.52
6	Malaysia	08	4.30
7	Turkey	07	3.76
8	Thailand	04	2.15
9	Korea	03	1.61
10	Kyrgyzstan	02	1.08

11	Philippines	02	1.08
12	Singapore	02	1.08
13	Saudi Arabia	02	1.08
14	Vietnam	01	0.54
15	Bangladesh	01	0.54
16	Pakistan	01	0.54
	Total:	**186**	**100**

2. E-Thesis Repositories in Asia by Discipline

Twenty-nine subjects are covered in the e-thesis repositories. 129 e-thesis repositories are of a multidisciplinary nature, followed by 30 of them in general technology. In general, most e-thesis repositories cover science and technology. There are very few repositories devoted to social sciences, Arts, and Humanities. In many cases, these repositories host e-theses in more than one subject area.

Table 2: E-Thesis Repositories in Asia by Discipline

Sr. No.	Subject	Number
1	Multidisciplinary	129
2	Technology General	30
3	Chemistry	19
4	Science General	15
5	Health & Medicine	14
6	Chemical Technology	13
7	Physics & Astronomy	12
8	Agriculture	9
9	Food & Veterinary	9
10	Ecology & Environment	9
11	Computers & IT	8
12	Business & Economics	7
13	Mechanical Engineering	7
14	Arts & Humanities	6
15	Library & Information Science	6
16	Biology	6
17	Social Science	6
18	Biochemistry	6
19	Geography & Regional Studies	6
20	Language & Literature	5
21	Mathematics & Statistics	4
22	Education	4
23	Law & Politics	4
24	Management & Planning	4
25	History & Archaeology	4
26	Electronic & Electrical Engineering	3
27	Philosophy & Religion	3
28	Civil Engineering	2
29	Architecture	1

3. E-Thesis Repositories in Asia by Language

Being a major international language, English is the most preferred language of the e-thesis repositories in Asia. However, use of other national languages and, in some cases, even regional languages helps in making an e-thesis repository more popular among the research community of a particular region or country, ensuring maximum utilization of the repository holdings. There are many repositories that use more than one language as an interface. Table 3 shows the detailed representation of languages used in the e-thesis repositories in Asia.

Table 3: E-Thesis Repositories in Asia by Language

Sr. No.	Name	Number
1	English	148
2	Chinese	57
3	Japanese	56
4	Indonesian	8
5	Turkish	7
6	Arabic	4
7	Korean	4
8	Thai	4
9	Hindi	4
10	Malay	3
11	Malayalam	2
12	Russian	2
13	Kannada	2
14	German	1
15	Vietnamese	1
16	Persian	1
17	Sanskrit	1

4. E-Thesis Repositories in Asia by Core Content Type

Of the 186 e-thesis repositories, 16 have only collections of e-theses. The remaining 170 contain more than one content type. 150 e-thesis repositories have journal articles. 77 repositories include conference papers. The least covered content type is datasets. A detailed view of the collected data is shown in Table 4.

Table 4: E-Thesis Repositories in Asia by Core Content Type

Sr. No.	Name	Number
1	Articles	150
2	Conference Papers	77
3	Unpublished	75
4	Books	58
5	Learning Objects	35
6	References	34
7	Multimedia	34
8	Special	25
9	Patents	23
10	Datasets	05

5. E-Thesis Repositories in Asia by Software

Six open source software are used by the host organizations or institutions to create e-thesis repositories.

136 e-thesis repositories in Asia use DSpace. DSpace software is able to recognize and manage a large number of file formats and mime types. Some of the most common formats currently managed within the DSpace environment are PDF, Word, JPEG, MPEG, and TIFF files. DSpace also provides a simple file-format registry to register any unrecognized formats so that they can be identified in future.

24 e-thesis repositories in Asia use E-Prints, another open source institutional repository software.

17 e-thesis repositories use software that are not recognized by OpenDOAR and hence are grouped together under the "Unknown" category.

A detailed representation is as follows:

Table 5: E-Thesis Repositories in Asia by Software

Sr. No.	Name	Number	Percentage
1	DSpace	136	73.12
2	EPrints	24	12.90
3	XooNIps	4	2.15
4	Mitos	3	1.61
5	Digital Commons	1	0.54
6	Nitya	1	0.54
7	Unknown	7	9.14
	Total	186	100

6. E-Thesis Repositories in Asia by Type

Of the total of 186 e-thesis repositories, 178 (95.7%) are institutional, 3 (1.61%) disciplinary, and 5 (2.69%) aggregated. None of the e-thesis repositories are hosted by any governmental organizations.

Table 6: E-Thesis Repositories in Asia by Type

Sr. No.	Name	Number	Percentage
1	Institutional	178	95.70
2	Disciplinary	3	1.61
3	Aggregated	5	2.69
4	Governmental	0	0
	Total	186	100

VI. Conclusion

Theses and dissertations are a rich and unique source of information. They are often the only source of research work that does not find their way into various publication channels.

A snapshot of the current status of e-thesis repositories in Asia has been presented in areas such as subject coverage, language diversity, core content types, share of contributions by country, and software used.

Asia is one of the biggest continents on Earth. Asian countries like China, Japan and India have quality academic and research institutions. And their ICT market has been developing in high gear. It is imperative for Asian countries to increase the number of their e-thesis repositories and thus contribute more to the worldwide scholarly communications.

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