

Evaluating Open Content Policy in Indonesian HEIs

Divide and Effect of Internet Based Resources

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Abstract—The University began to move towards open content, particularly in the publication of scientific work faculty and students. The purpose of this research is to evaluating the implementation of open-content in Higher Education Institution (HEI) in Indonesia. The implementation focused on three types of sub domain of websites managed by the University: digital library, electronic journal, and paper repository with 201 Universities listed in webometrics and 4icu ranking edition July 2012 as Sample. The internet based- resource proprietary are still very low, compare with the number of universities in Indonesia. Although there was no difference between the State and private universities, but in general most of the state universities already have three facilities. There is digital divide between universities in java and outside Java. Open Content Policy as one of the implications of government policy affects to the Webometrics ranking, both at the institutional and paper repository ranking. Higher Education that have a lot of internet based resource have higher webometrics rank

Keywords— open content, policy, website, internet, webometrics.

I. Introduction

Internet improvement in the 21st century has a great impact on human life. Not only affects personal life, but also the social life is affected. In government aspect, Internet gives effect in regulations issued by the government. Nowadays, Governments across the world are increasing the openness and transparency of their services, a move not only in government sector but also taking place in the education sector [1]. Hundreds of educational institutions have joined international consortia and alliances to develop and share open educational technologies, resources, and repositories, creating new models of collaboration for the production and distribution of educational resources [2]. Much of the educational materials available on the Web replicate the epistemological hegemony of higher education and the relationship between “developed” and “developing” Countries [3]. Indonesia as one of the

developing countries is the country that begins utilized Internet technology in implementing OER.

Open access-articles compared to non-open content articles remained twice as likely to be cited [4]. This condition should be utilized by the university to encourage the scientific articles of lecturers and students to be widely cited or used as a reference. This idea could be reached by implementing the policy of open content on scholarly publications through college sites, for example through the digital library, e-journal, or paper repository.

The University began to move towards open content, particularly in the publication of scientific work faculty and students. The initiative is now often known as the Open Content Initiative or as the Open Educational Resources (OER) Initiative [5].

The purpose of this research is to evaluating the implementation of open-content in Education Higher Institution (HEI) in Indonesia. The implementation focused on three types of sub domain of websites managed by the University: digital library, electronic journal, and paper repository. Analysis on the inventory of the three types of sites at universities in Indonesia that listed in the University ranking which methodology based on the open-content policy.

II. Theoretical Background

The recommended definition of Open Educational Resources is the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes [6]. OER philosophy identifies educational materials as common and public goods from which all should be able to benefit. Open Educational Resources (OER) are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits

their free use or re-purposing by others [5]. The Logic Model of Open Educational Resources could be found in fig 1.

Turning to the institution, one of the potential benefits of OER was seen to be a change in the way in which education is provided [7]. Many more resources span or are found outside the boundary, and these resources both influence and are influenced by learners in the system's environment, as well as registered students within the boundary [8]. Resources in distance teaching university could be seen in the fig 2.

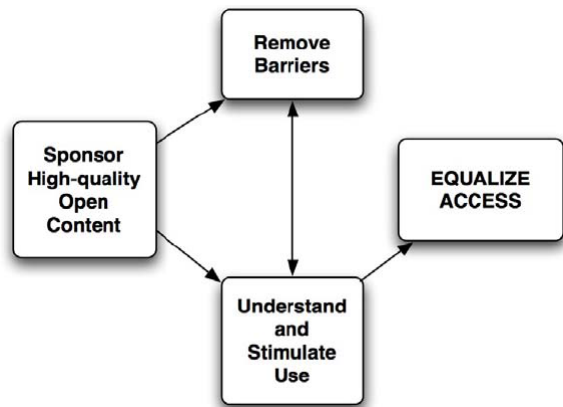


Figure 1. Current Open Educational Resources Logic Model [5]

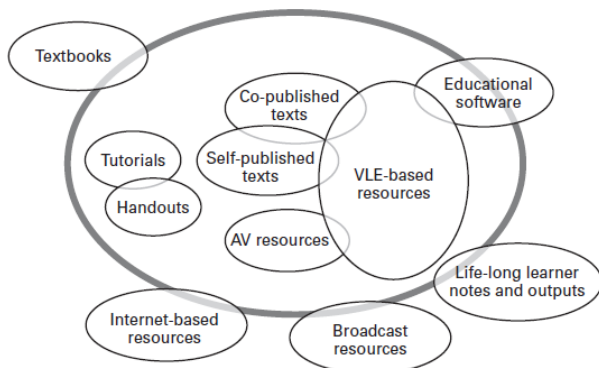


Figure 2. Distance teaching university [8]

OER initiatives need to be more effectively supported by governmental and institutional policies, structures and procedures [9]. Positive outcomes in OER policy making and practice occur where initiatives are compatible with the nature of conditions and cultures within particular contexts [10].

Open Access (OA) as a new form of distributing scientific literature is broadly accepted by scholars, but in most disciplines the realization of the paradigm is progressing rather slowly [11]. Open access publishing is a form of publishing, usually scholarly and on the Web, which provides free online access without any licensing fees [12]. The list of prestigious and high-impact journals with full or partial open access policies is growing, as is the list of less well-known publications. Journal impact factors depend heavily on how many times articles from a given journal are cited, open access

journals have a huge advantage over traditional restricted-access journals [4].

Building comprehensive collections of scholarly digital resources means incorporating resources developed by scholars and teachers [13]. Textual content is by far the most frequently shared type of content in current open educational resource collections [14]. This content takes on a variety of forms, including HTML, XML, and PDF. The Web has been used as a medium to facilitate the publication and dissemination of articles which summarize and interpret the outcome of scientific experiments [15].

III. Methodology

The research about OAR implementation focused on bibliography information systems or scientific papers published by the University's website. Objects observed include three types of open content electronic publication that are the e-library, repository paper, and e-journal on the University's website. Definition of electronic publication is description of, and links to the document with the title and author mentioned above [16]. Electronic publishing has been broadly defined as non-print material that is produced digitally [17]. Electronic publishing may be described as the use of electronic means of communication to make information available to the public [18].

This research only observe 3 kinds of website which are cover (1) the website is integrated with university website (2) the website address is a sub domain of the university website. Example: library.gunadarma.ac.id. Numbers of sample is 201 institutions/universities. The Institutions are listed in webometrics and 4ICU ranking (July 2012).

This research consists of independent and dependent variables. The independent variable is web-based resources, which are E-Library, paper repository and E-Journal. Score for each indicator are 0 and 1. 0 means the institution does not have the independent variable and 1 if it has independent variable. The dependent variable is Institution world ranked from www.webometrics.info taken from July 2012 edition. Cross Tabulation analysis with Chi-Square is used to determine the resource gap between public institution and private institution, and Gap between Institution in Java and Outside Java Island. The last part of the paper will discuss the institution ranking based on ownership of three website in order to see the implementation of open content policy in higher institution in Indonesia.

IV. Result And Discussion

A. Open Content Policy in Indonesian Higher Education

In Information era, the legibility of scientific work could be improved by uploading it to Internet. Some media that can be used to place the scientific work to internet are University



website, Online Journal, paper repository, or even personal website/blog. Online scientific paper could be read, rated, searched by public on the internet. Openness scientific work in Indonesia become one of the issues raised in Circular higher Education no. 2050/E/T/2011 dated 30th December 2011 regarding the policy of uploaded scientific papers or journals. This policy is intended to prevent plagiarism, especially among academics and students. Plagiarism is the act of intentionally or unintentionally in obtaining or attempting to obtain a grade for scientific work, quoting part or all of the work and/or scientific work of others that are recognized as their own scientific work, without mentioning the source appropriately and adequately.

Online media that observed in this research are three types of sites ranging widely used e-library, paper repository, and e-journal. Observation result of paper repository and e-journal shows that there is confusion or ambiguity about the content of three types of website in education areas. A digital library is simply an on-line system providing access to a wide variety of contents and services. The Institutional Repository as digital collection that capture and preserve the intellectual output of single or multi-university community. The term “electronic journal” is almost as ambiguous as the term “electronic publishing” [21].

The differences among those three website seem to overlap. There is a website called the E-Journal, but after more detail observations, the website is more appropriately called institutional repository. There are some institutions that call their own site as “e-journal” but the actual content is paper repository. This work uses name “true e-journal” for a website which consist of electronic version of scientific journal that is managed and published by the Institution. This work gets 45 websites from 45 institutions in Indonesia that meet the requirement.

Higher institutions in Indonesia begin to join open content system by using various platforms, such as OJS (Open Journal system), DSpace, E-Print, etc. The most widely used platform is e-print, there are 29 website use E-Print as their platform, followed by OJS and DSpace for each 10 and 7 websites. The rest use a variety of other platforms such as DOAJ, Slims, OPAC, and their own development system. Open content policy also increase the files numbers that is indexed by search engine.

This work found an interesting phenomenon, most of universities with high ranked in webometrics uploaded their paper or scientific work of the academics and students to one of three observed website. It also the impact of government policies that obligates students to upload their papers to the internet and as well as the policies for the professors scientific publication that should be tracked electronically over internet. The policies of open content will eventually improve the ranking of university “openness” in webometrics ranked.

B. Digital Divide

There are 131 Institutions which have one of those three websites or 65.17% of total samples. 63(31.34%) institutions

with only library website, 51 (25.37%) institutions only have paper repository and 56 (27.86%) institutions that only has e-journal website. The website ownership composition can be seen in the fig. 3.

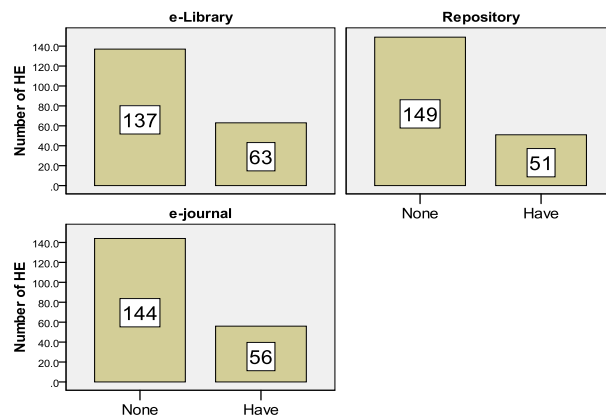


Figure 3. Website Ownership Composition

In this research, there is no difference between public institutions and private institutions. This work classify the university by the location, in java and outside java island. The result shows significant differences between universities in Java and universities outside java when we use E-Library as comparison point, it can be seen in crosstab table and Chi-square in table 1 and 2 below.

TABLE I CROSSTAB E-LIBRARY COMPARISON

		Location		Total	
		Java	Outside Java		
e-Library	None	Count	94	44	138
		% within e-Library	68.1%	31.9%	100.0%
		% within Location	64.4%	80.0%	68.7%
	Have	Count	52	11	63
		% within e-Library	82.5%	17.5%	100.0%
		% within Location	35.6%	20.0%	31.3%
Total	Count	146	55	201	
	% within e-Library	72.6%	27.4%	100.0%	
	% within Location	100.0%	100.0%	100.0%	

TABLE II CHI-SQUARE E-LIBRARY COMPARISON

	Value	df	Sig. (2-sided)
Pearson Chi-Square	4.527 ^a	1	.033
Continuity Correction	3.831	1	.050
Likelihood Ratio	4.783	1	.029
Fisher's Exact Test			
N of Valid Cases	201		



The results above indicate that there is a digital divide between Java and outside Java Island. Higher institution that has E-Library concentrated in Java. The government should comprehend that digital divide is not just about the inequality between those who have access and those who do not, and therefore, providing access is not the only policy needed to close the digital divide [22]. One of the alternative solutions is together developing electronic library with resource sharing from each university. In that idea, there are server facilities that will be used together among the universities. It will help the institution with human resources problem. Digital divide is not proven to the ownership or E-Journal and paper repository.

C. Effects on University Ranking and Total Document

After some observations, can be concluded that institution with E-Content, E-Journal, E-Library and paper repository have higher ranked in webometrics than the institution that does not have it. The comparison can be seen in figure below

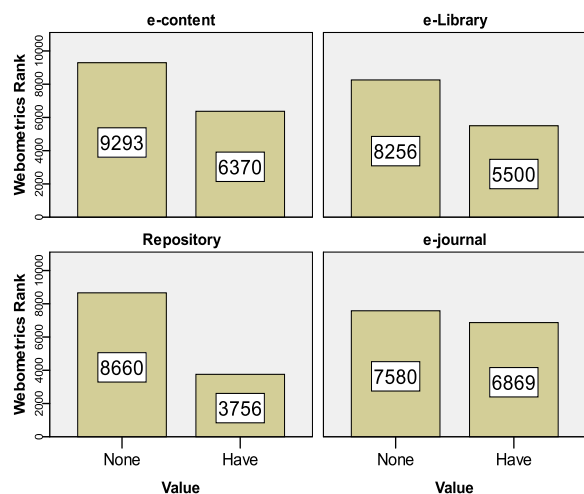


Figure 4. Comparison of E-Content, E-Journal, E-Library and Paper Repository Ownership

Figure 4 above shows the ownership of paper repository has a considerable influence of the webometrics ranking. Meanwhile, electronics journal ownership did not show significant differences. Especially in repository, numbers of universities that entered the webometrics ranked is 28 universities in July 2012. There are 4 Universities in Indonesia also included in the world top 100. Two assessment parameters have high point are file rich and scholar. Those parameters proof that open content policies in Higher education in Indonesia has been implemented successfully.

V. Conclusion

Higher Education in Indonesia began to implement Open Content Policy in various learning resources and internet-based research. Three types of sites ranging widely used e-

library, paper repository, and e-journal. The internet based-resource proprietary are still very low, compare with the number of universities in Indonesia (more than 3000 universities). Although there was no difference between the State and private universities, but in general most of the state universities already have three facilities. There is digital divide between universities in java and outside Java.

Open Content Policy as one of the implications of government policy affects to the Webometrics ranking, both at the institutional and paper repository ranking. Higher Education that have a lot of internet based resource have higher webometrics rank. Types of Internet-based resources that give the biggest impact is a paper repository, it also the biggest contributor of the number of indexed documents in the search engines.

There are some things need to be enhance, one of them is overlapping terms or naming the domain address of the three types of internet-based resources that inappropriate with the definition. In the future, these three websites should be focused on academics and students the research belongs to the respective universities. Other risks that should be anticipated in paper repository is the duplication of the content or scientific work that have Infringement of intellectual property rights

References

- [1] S. Hoosen and N. Butcher. Experiences of Developing OER-Amenable Policies. Open Educational Resources and Change in Higher Education: Reflections from Practice, Jenny Glennie, Ken Harley, Neil Butcher and Trudi van Wyk, Editors. Published by Commonwealth of Learning, Vancouver, 2012.
- [2] T. Iiyoshi and M. S. Vijay Kumar. Introduction. Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge, Edited by Toru Iiyoshi and M. S. Vijay Kumar. The Carnegie Foundation for the Advancement of Teaching, The MIT Press, Cambridge, Massachusetts, 2008.
- [3] F. McMartin. Open Educational Content: Transforming Access to Education. Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge, Edited by Toru Iiyoshi and M. S. Vijay Kumar. The Carnegie Foundation for the Advancement of Teaching, The MIT Press, Cambridge, Massachusetts, 2008.
- [4] D. Wiley. Open Source, Openness, and Higher Education. INNOVATE Journal of Online Education, Volume 3 Issue 1, October/November 2006.
- [5] D. E. Atkins, J. S. Brown, and Allen L. Hammond. A Review of the Open Educational Resources (OER) Movement: Achievements, Challenges, and New Opportunities. Retrieved January 30, 2013 from http://www.hewlett.org/uploads/files/Hewlett_OER_report.pdf
- [6] UNESCO. (2002). Forum on the impact of open courseware for higher education in developing countries. Final report, Paris, 1-3 July 2002.
- [7] S. D'Antoni. Open Educational Resources and Open Content for Higher Education. rusc vol. 4 n.º 1 (2007).
- [8] A. Lane. Widening Participation in Education through Open Educational Resources. Opening Up Education: The Collective Advancement of Education through Open Technology, Open Content, and Open Knowledge, Edited by Toru Iiyoshi and M. S. Vijay Kumar. The Carnegie Foundation for the Advancement of Teaching, The MIT Press, Cambridge, Massachusetts, 2008.
- [9] T. V. Wyk. Taking OER Beyond the OER Community: Policy Issues and Priorities. Open Educational Resources and Change in Higher Education: Reflections from Practice, Jenny Glennie, Ken Harley, Neil

- Butcher and Trudi van Wyk, Editors. Published by Commonwealth of Learning, Vancouver, 2012.
- [10] J. Glennie, K. Harley and N. Butcher. Conclusion: Reflections on Practice. Open Educational Resources and Change in Higher Education: Reflections from Practice, Jenny Glennie, Ken Harley, Neil Butcher and Trudi van Wyk, Editors. Published by Commonwealth of Learning, Vancouver, 2012.
- [11] Steffen Bernius, Matthias Hanauske, Wolfgang König, Berndt Dugall. Open Access Models and their Implications for the Players on the Scientific Publishing Market. *Economic Analysis & Policy*, Vol. 39 No. 1, March 2009.
- [12] Lisbeth Levey. Finding Relevant OER in Higher Education: A Personal Account. Open Educational Resources and Change in Higher Education: Reflections from Practice, Jenny Glennie, Ken Harley, Neil Butcher and Trudi van Wyk, Editors. Published by Commonwealth of Learning, Vancouver, 2012.
- [13] Deanna Marcum. Requirements for the Future Digital Library. *The Journal of Academic Librarianship*, Volume 29, Number 5, pages 276–279, September 2003.
- [14] Wiley. David, On The Sustainability of Open Educational Resource Initiatives in Higher Education Retrieved January 30, 2013 from <http://www.oecd.org/edu/ceeri/38645447.pdf>
- [20] K. Shearer. Institutional Repositories: towards the Identification of critical success factors. *Canadian Journal of Information and Library Science*, Volume 7, Number (2002/2003).
- [21] F. W. Lancaster. The Evolution of Electronic Publishing. *Library Trends*, Vol. 43, No. 4, Spring 1995, pp. 5182.
- [15] J. G. Frey, D.D. Roure, and L. Carr. Publication at Source: Scientific Communication from a Publication Web to a Data Grid. Retrieved January 31, 2013 from http://www.bcs.org/upload/pdf/ewic_euro02_s3paper3.pdf
- [16] Mark S. Frankel, Roger Elliott, Martin Blume, Jean-Manuel Bourgois, Bernt Hugenholtz, Mats G. Lindquist, Sally Morris and Erik Sandewall. Defining and Certifying Electronic Publication in Science. *Learned Publishing*, vol. 13 (2000), pages 251-258.
- [17] Ludwick, R., Glazer, G. (Jan. 31, 2000): Electronic Publishing: The Movement From Print To Digital Publication *Online Journal of Issues in Nursing*. Vol. 5, No. 1, Manuscript 2. Available www.nursingworld/MainMenuCategories/ANAMarketplace/ANAPeriodicals/OJIN/TableofContents/Volume52000/No1Jan00/ElectronicPublishing.aspx
- [18] UNESCO. The Legal Deposit Of Electronic Publications, December 1996. Retrieved January 28, 2013 from <http://www.unesco.org/webworld/memory/legaldep.htm>
- [19] Mohd. Nazim and S. Saraf. Digital Libraries: Contents & Services. 3rd Convention Planner -2005, Assam Univ., Silchar, 10-11 Nov., 2005.
- [22] Rahman, Arief; Quaddus, Mohammed; and Galbreath, Jeremy, The impacts of digital divide on e-government usage: A qualitative research" (2012). CONF-IRM 2012 Proceedings. Paper 75. Retrieved January 31, 2013 from <http://aisel.aisnet.org/confirm2012/75>