

OEER

OPEN EDUCATIONAL RESOURCES
in Lifelong Learning



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Open Educational Resources in Lifelong Learning

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It can be accessed through the e-ASEM web site at <http://easem.knou.ac.kr>.





Acknowledgements

The e-ASEM research network with its leading researchers in the field of e-Learning and ICT has completed its fourth collaborative research paper, “Open Educational Resources in Lifelong Learning.” This paper aims to examine the main issues of OER as well as to share OER initiatives observed in Asia and Europe.

The overarching theme of the collaborative research was chosen at the network meeting held in Copenhagen, May 2012. In the following Meeting held in Seoul, September 2012, the outline of the research was discussed and 18 participating authors from 10 different countries conducted joint research projects under five sub-topics.

Chapter 1 answers the question of how learners can more effectively search, select, and use massive educational materials that are now overwhelmingly open and available. In this regard, the next two chapters explore ways to ensure the quality of OER: Chapter 2 deals with quality assurance issues and standards of OER, and chapter 3 prompts discussions over the sensitive topic of intellectual property rights and explains the concept of “Open Licensing.” The last two chapters are more practical as they introduce actual OER implementation cases to carefully make comparisons between Asia and Europe and to share valuable ideas for facilitating educational cooperation among countries through OER.

This publication will serve as a constructive foundation for understanding the current status of OER in lifelong learning as well as OER practices in Asia and Europe. Furthermore, I sincerely hope that this publication will stimulate further exploration of various aspects of OER and to move toward in our next collaborative research

on Massive Open Online Courses.

I would like to express my heartfelt thanks to all those who took part in publishing this book. First, I would like to convey my sincere gratitude to the contributing authors, without whose dedication and passion this collaborative research paper could not have been completed. Likewise, gratitude is expressed to the ASEM Education and Research Hub for Lifelong Learning and Korea National Open University for their continuing encouragement and financial support. Last but not least, my deepest gratitude goes out to the e-ASEM support team of the Institute of Distance Education.

Bowon Kim, Ph.D.

Coordinator, Research Network 1 (e-ASEM)

ASEM Education and Research Hub for Lifelong Learning



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INTRODUCTION

Unlike regular school education, the concept of continuing education implies openness and flexibility allowing the education “whenever and wherever” signifying the open learning communities. In the twenty-first century of the rapidly changing knowledge economy, it is becoming urgent to have a new and open educational system, and the paradigm shift from the closed educational system centered on schools to that of continuing education beyond the formal schools is being accelerated. The OECD previously has established a strategy for continuing education, breaking away from the traditional educational pathways by building an educational system including the people in adulthoods. As a result, the world’s advanced countries already have recognized continuing education to be a powerful alternative to the future of society, trying to switch from a traditional to an open learning community. The philosophy and vision of continuing education have reflected the national education policy that plans to reorganize the system of continuing education. Along the line with that, universities have made efforts of strengthening and expanding the system by utilizing the open educational resources.

The movement that affected the contemporary paradigm shift is referred to as OER (Open Educational Resources). It is first coined during the UNESCO Forum in 2002, which is an education movement that developed “Education for All” foundation to make it available for all men in the entire human race, which has intended to provide educational resources available for free through non-commercial internet services (Wiley, 2007).

The movement first came from the OCW Project at MIT that offered free university courses online in 2001, and a number of world’s institutions of higher education like Utah State University’s COSL, Carnegie Mellon’s OLI, and Tokyo University’s OCW have started to participate in similar projects. According to the OECD Report

(2007), there are at least 3,000 courses offered in 300 universities, and the open universities leading the distance and continuing education have actively participated in the movement with a deep interest on OER.

Recognizable practices of the movement include Coursera.org that began with 20 participating universities in the spring of 2012, MITx that started first as a certification trial service in March 2012, and edX that was opened by Harvard University and MIT in May 2012. These services later were joined by high-tiered universities to open educational resources creating Massive Open Online Courses (free online public lecture, hereafter MOOC). MOOC began in 2008 at Manitoba University, Canada initially for 25 students who needed academic credits along with 2,300 public people who were allowed to watch online lectures for free. Currently, these free online public lectures are referred to as MOOC.

Out of the existing MOOC services, the Coursera service has been renowned as the most successful. This site is started by two professors from the Computer Science department in Stanford University who made partnered agreements with prestigious universities like Princeton University, University of Pennsylvania, and University of Michigan. They were able to get funded by Silicon Valley venture firms up to the amount of \$16 million dollars. There are currently 2.9 million students as of March 2013 from 62 countries worldwide, and the number of participants continues to increase rapidly. Thus, OER service has surpassed the level of sharing the education materials from each university individually, now, having been evolved as a way to secure excellent students and to promote the university. Prestigious universities across the globe already have joined the MOOC movement and the trend of providing free university courses continues to grow. As a result, the OER goes beyond the simple free online education material, having been evolved into a new education model that leads the world's free continuing education.

The e-ASEM Network in ASEM Lifelong Learning hub has started a joint research topic in 2013 on the issue of OER: the current status and the key issues of OER in Asian and European region. The study looks at the ways the global trend of opening and sharing the educational materials has affected the educational practices not only in North America but also in Asia and Europe, as well as considering what issues are being raised during the exploration and implementation of the OER.

The Chapter, “OER Search and Retrieval in Asia: Preliminary Discussion for the Next Step,” looks at the issue of how to search and retrieve the OER and MOOCs materials, effectively and efficiently, which are extensively accumulated and provided. In order to sustain opened and shared active materials, the preferred materials should easily be accessible not only to learners as users but also to the educators and material developers as providers. Additionally, different sorts of materials and data must be collected along with the final products including course package, while making a smooth utilization. This study discusses the best practices of the search and retrieval utilized in the Asian areas, and it discusses the topics of innovative technologies related to the ‘federated repositories’ that are personalized and contextualized.

Chapter 2 deals with OER quality assurance standards under open universities. Even if the training materials are actively opened and shared, the increase of practical learning will not be helpful if it does not become secured and managed in high quality. In other words, the issue of quality management within OER is the underlying core subject. The authors took a close look at the history of OER during the development process of distance education, raising the quality management issues of OER. Here, it comprehensively looks at standard practices related to quality management that are commonly used throughout the world. With this position, it established the proposal for OER quality management standards, attempting to get it validated by

conducting a survey. The quality management standards listed in the report could provide a solid foundation for the OER movement.

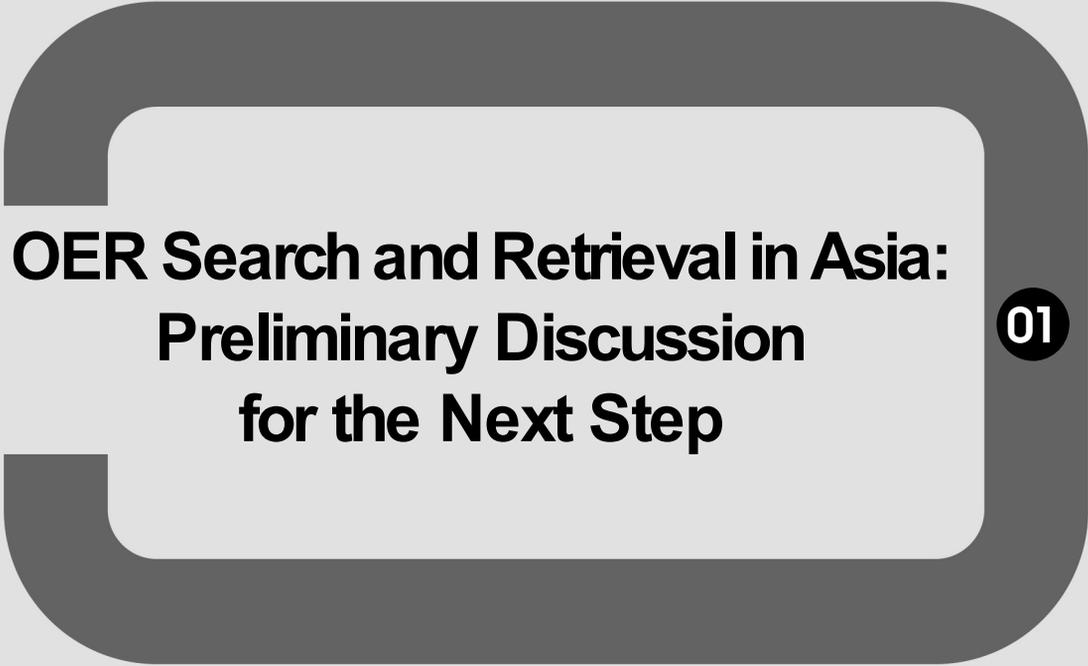
Chapter 3 is entitled “Open Licensing,” in which deals with another important issue of the copyright of intellectual properties. If we want to argue on opening and sharing the educational materials, the development of high quality educational materials should be taken into consideration, and this concern on the quality is connected to the developer’s rights of their intellectual properties. The rights of creative intellectual products should fully be recognized, and it needs to be guaranteed and compensated at its own rights by law. However, the problems of copyright issues including intellectual property rights becomes an obstacle for OER. Therefore, in order to generalize and spread the movement of OER, it is necessary to understand the foundation and background of the issue. This chapter discusses the basic understanding of copyright-related issues, and the types of Open Licensing for disclosing, sharing, and distributing OER as well as the current conditions and future directions.

Chapter 4, “Contextualization and Adaptation of Open Educational Resources in Asia and Europe,” discusses the opportunity of international cooperation provided by the OER movement, and the factors that amplify and/or hinder it. The OER breaks down the boundaries among the regions and countries by opening and sharing the education materials, providing possibilities that effectively increase the cooperative relationship. In reality, however, there are factors that hinder such international cooperation. The authors discuss the factors that facilitate it through the examples of three different cases. This allows us to understand the process of educational cooperation through OER, which could be considered as the starting point for better practice.

Chapter 5, “Open Educational Resources Pedagogical Perspectives of Asian and European Scholars,” describes how the OER movement originally centered in North America has been spread into the Asian and European regions. Scholars from China, India, Thailand, Latvia, Slovakia, and Central European region have collaboratively participated in collecting data by conducting surveys to researchers within these

regions. The questionnaire presented here includes: 1) early efforts for promoting the OER in each country; 2) the impacts of OER on teaching and learning; and 3) the plans for overcoming the obstacles and facilitating the implementation. The results from the survey are described and discussed. This provided an overall understanding on the current situation of OER movement in Asian and European areas while implications are drawn in establishing and modifying strategies for a particular country by comparing with other countries.

Globally, the trend is irreversible for the flow of opening and sharing education materials. The development of a knowledge-based society in the 21st century will be maintained and strengthened on this direction. The joint research among the e-ASEM Network has been adjusted with the current flow, hoping to contribute in building and strengthening the global network of educational cooperation. Although this is still a starting point of the collaborative efforts among the Asian and European scholars and practitioners of education, we expect to expand ongoing cooperation and exchange with the help of these opportunities.



**OER Search and Retrieval in Asia:
Preliminary Discussion
for the Next Step**

01

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Tsuneo Yamada is a professor and the Chair of Department of Informatics, and a professor of Center for Open and Distance Education, the Open University of Japan (OUJ). He is also an adjunct professor of Department of Cyber Society and Culture at the Graduate University for Advanced Studies (SOKENDAI). His main research fields are Educational Technology, Learning Psychology, and Second Language Learning. His current interests are on the development and evaluation of learning objects and MOOCs, the strategies for their sharing and distribution, and their quality assurance. He is participating in several Open Educational Resources (OER) movements, such as Global Learning Object Brokered Exchange (GLOBE) and OER Asia initiative.



Abstract

More than ten years passed since the first OERs (Open Educational Resources) appeared. Now a variety of the development and distribution models have been proposed and implemented. The new tides of OER movements, such as MOOCs (Massive Open Online Courses), are opening the new landscape of open education and higher/tertiary education. The subjects of the new search and retrieval framework are not only complete products, such as course packs and courseware, but materials and data. The target users are not only learners (end users) but also content developers and course providers (wholesalers and brokers). In this study, while reviewing the excellence of search and retrieval systems for sharing and reuse of OERs in some member countries in Asia, we introduced and examined the innovation of content distribution and delivery technologies for the personalization and contextualization, especially focusing on federated repositories.

Keywords: Open education, Lifelong Learning, Metadata, Harvesting, Federated Repository, OER, OCW

1 Introduction

Recently Asian stakeholders re-examined the significance of OERs for the sustainable development and are launching the projects in this region. UNESCO held an Asian forum in Bangkok on OER (the Policy Forum for Asia and the Pacific: Open Education Resources, 23-24 April 2012, Thailand) and reflected the opinions to UNESCO Declaration in 2012 (UNESCO, 2012). The Declaration gave the orientations on policy making in member countries. Asian Association of Open Universities (AAOU) and Wawasan Open University (WOU) had a large-scale inter-

national survey on OER by the supports of the International Development and Research Centre of Canada [www.idrc.org] (cf. Dhanarajan & Porter, 2013) and organized “OER Asia” initiative [<http://www.oerasia.org/>] in 2012. e-ASEM chose OER as the 2013 research theme for the book. In this paper, the preliminary discussion will be held in order to launch a new OER search framework in Asia and to share the resources with European countries and with the world.

Cross-institutional Search Systems

At present, innumerable but many OERs have been already accumulated in numberless repositories on the globe. In order to find and retrieve adequate content efficiently from scattered and distributed sources, some global platforms and strategies for collecting information and content are indispensable. One of the methods is to utilize commercial generic search services, such as Google Scholar. Some vendors provide reasonable services specialized in academic and educational content the other method is to utilize public reference services. Universities and other public institutions, such as public libraries, governmental institutes and NPOs, have each institutional repository and sometimes share data and metadata each other in order to realize a cross-institutional search and related services. Such collaborations expanded beyond borders. For example, in September 2004, the core organization in each country and region, which managed the functions for federated repositories and meta-referatory, established the “Global Learning Objects Brokered Exchange (GLOBE)” consortium (<http://globe-info.org/>). GLOBE shared the concept of “Learning Object (cf. IEEE, 2002)” and promoted the dissemination worldwide.

In order to realize a cross-institutional search, the participating institutions should share both the technical standards on the description and communication and the policy for sharing content and metadata.

“Federated search” is one of the cross-database search methodologies without sharing the full set of or a part of the metadata among database(s). For example, at the establishment in 2004, GLOBE member organizations could not share the full metadata set with others because they were not always the copyright holder of the

metadata. GLOBE adopted a federated search architecture and connected in “one-to-one correspondence” fashion using Simple Query Interface (SQI, cf. Simon et al., 2005) as the query language.

“Metadata harvesting” is a means of collecting metadata from repositories and the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH, cf. Logoze, et al., 2002) provides an application-independent interoperability framework.

The popular metadata standards in educational field are IEEE LOM (Learning Object Metadata, cf. IEEE, 2002) and Dublin Core (DC, cf. <http://dublincore.org/>). The metadata standard of GLOBE is currently Learning Object Metadata (LOM) version 1.0. The number of the elements is limited and should be discussed for the new services (Table 1).

Table 1 GLOBE Metadata Application Profile (as of January 2014)

GLOBE Mandatory Fields	
1.1 General	- Identifier
1.2 General	- Title
1.3 General	- Language
4.3 Technical	- Location
GLOBE Recommended Fields	
1.4 General	- Description
1.5 General	- Keywords
2.3.1 Lifecycle	- Contribute Role
2.3.2 Lifecycle	- Contribute Entity
5.2 Educational	- Learning Resource Type
5.6 Educational	- Context
6.1 Rights	- Cost
6.2 Rights	- Copyright and Other Restrictions
6.3 Rights	- Description
9.2 Classification	- Taxon Path
Optional Fields	
All the rest of LOM fields	

In order to assure the quality of the cross-institutional search services among the members, GLOBE Technical Taskforce provides validation services of metadata and harvesting.

2

Cross-institutional search services in Asia

In the last decade, while the contribution to OER movements was less sufficient comparing with that of the other area, many Japanese and Asian institutions joined OpenCourseWare Consortium (OCWC) and its regional organizations in order to promote OERs in Asia. For the conveniences of the potential users, they provided information portals and cross-institutional search services.

The National Institute of Multimedia Education (NIME, the forerunner of the Center for Open Distance Education [CODE] at OIJ, Japan) joined GLOBE as an original members with ARIADNE (EU), education.au limited (Australia), edu Source Canada (Canada; McGreal, R. et.al, 2004), and MERLOT (North America). From Asia, Korea Educational Research and Information Services (KERIS, Korea) joined GLOBE in 2007, Institute for Information Industry (III, Taiwan) in 2008, Thailand Cyber University Project (TCU, Thailand) in 2009, and OER Asia (Malaysia) in 2012 in order to realize a global search and delivery network for OERs.

2.1 NIME-glad (Japan)

In Japan, NIME started a pilot service of educational information portal with content and metadata repository functions in 2003 (Yamada et al. 2003; Yamada et al. 2004). “NIME-glad (Gateway to Learning for Ability Development) ”was launched in March 2005 by NIME as a gateway service on Japanese educational content. NIME

collected information on the digital learning resources which universities and colleges provided through the Internet, tagged a metadata based on LOM (Learning Object Metadata) and accumulated them at “NIME-glad” (Yoshii, Yamada & Shimizu, 2008). When NIME planned and constructed initially “NIME-glad” portal, most of Japanese HE institutions had neither institutional repositories nor content management systems in which they could store their own educational / learning content. In addition, many institutions and faculties were reluctant to manage them with metadata by themselves. NIME tagged metadata using its resources for Japanese institutions and stored them at NIME referatory in a simple “aggregation” way. At the abolishment of NIME, most of NIME-glad functions were closed except “JOCW Search”, which was succeeded by OUJ-CODE (Center for Open Distance Education, OUJ).

2.2 JOCW Search and OUJ (Japan)

The Open University of Japan (OUJ) provided “OUJ OpenCourseWare (OUJ-OCW)” under the OUJ OCW policy. As of February 2014, 385 courses and special programs were available as OUJ-OCW (the content is in Japanese except one special program; <http://ocw.ouj.ac.jp/>).

Another contribution of OUJ to the OER community was to maintain a cross-institutional search system called “JOCW Search”. Using “NIME-glad” system, NIME had started “JOCW Search” as a cross-institutional search service for the Japan Open Course Ware Consortium (JOCW) in October 2006. After the merger of NIME into OUJ, these services were taken over by CODE at OUJ. As of May 2014, 3894 JOCW materials from 16 universities were registered in the referatory.

Most of the metadata elements are based on IEEE LOM (IEEE 1484.12.1 - 2002 Standard for Learning Object Metadata; IEEE, 2002). When we developed the repository and its metadata management system, we revised our original metadata system by changing the description in a couple of metadata elements of “Technical” and “Educational” in LOM standards in order to describe the reusability and academic

contexts of the “materials” (Table 2).

Table 2 Metadata elements used in “JOCW Search”

No.	Name	Corresponding element to IEEE 1484.12.1-2002
1.	ID of the metadata	3.1 Meta-Metadata - Identifier
2.	ID of the LO ¹	1.1 General - Identifier
3.	Title	1.2 General - Title
4.	Language(s) used within the LO	1.3 General - Language
5.	Description	1.4 General - Description
6.	Keyword(s)	1.5 General - Keyword
7.	Aggregation level	1.8 General - Aggregation Level
8.	Contributor to the LO	2.3 Life Cycle - Contribute
9.	Language of the metadata	3.4 Meta-Metadata - Language
10.	MIME media types of the LO	4.1 Technical - Format
11.	URL	4.3 Technical - Location
12.	Technical requirements to use the LO	4.4 Technical - Requirement
13.	Educational stages ²	5.6 Educational - Context
14.	Intended learning time	5.9 Educational - Typical Learning Time
15.	Intended user of the LO	5.10 Educational - Description
16.	Paid-for or free	6.1 Rights - Cost
17.	Restriction of usage	6.3 Rights - Description
18.	Classification ³	9. Classification
19.	Copyright ⁴	-
20.	Quality ⁵	-
21.	Permission to Harvesting	- (for GLOBE Harvesting)
22.	Permission to Federated Search	- (for GLOBE Federated search)

Note: 1) *ID of the LO* is generated automatically as *Catalog* is “URL”. *Entry* is the actual *URL*.

2) *Educational stages* have unique value space matched to Japanese educational system.

3) *Classification* shows the taxonomy system and its value(s).

4) *Copyright* shows the right management system and its value(s).

5) *Quality* shows the quality assurance system and its value(s).

In 2012, the “JOCW Search” was restructured on the entirely new system under the supports with National Institute of Informatics (NII). OIJ may decide to terminate the nation-wide service in the near future and we examined whether we can rebuild it on a cloud environment using open source software. The target of overseas harvesters will be kept in the new system.

2.3 “GLOBEreferatory@Japan” (Japan: cf. Yamada, 2013ab)

We prepared a new metadata database with a relational database management system for the research, called “GLOBEreferatory@Japan”. We adopted “NetCommons” package for the platform. “Netcommons” is one of the most popular open-source packages of multi-purpose community-ware, which was developed by National Institute of Informatics (NII, cf. Arai, 2006). “Netcommons” integrates the functions of CMS (Contents Management System), LMS (Learning Management System) and groupware. In Japan, over three thousands of the educational institutions and corporates have used as portal sites, e-learning systems, or repository systems. Each “NetCommons” system can have single or multiple database systems, called “WEKO”. We registered the metadata on a “WEKO” repository system and used as a metadata repository. In a “WEKO” system, each authorized user can register and manage each own data. By using the function, we issued a login account to each content holder and asked him or her to register and manage his or her own metadata. In addition, we prepared OAI-PMH targets for the domestic (NII JAIRO Cloud, cf. Shiozaki et al., 2012) and international (GLOBE) harvesters in order to share the metadata among institutions. Respecting multilingualism and pluralism, some functions at the metadata/content management system were indicated in English, 日本語 (Japanese), 簡体字中國語 (Simple Chinese), Bahasa Indonesia, Tiếng Việt (Vietnamese), bahasa Melayu بهاس (Malay), Tagalog, and 繁体字中國語 (Complicated Chinese). ภาษาไทย (Thai) and হাঙ্গিহী (Bengal) are developing.

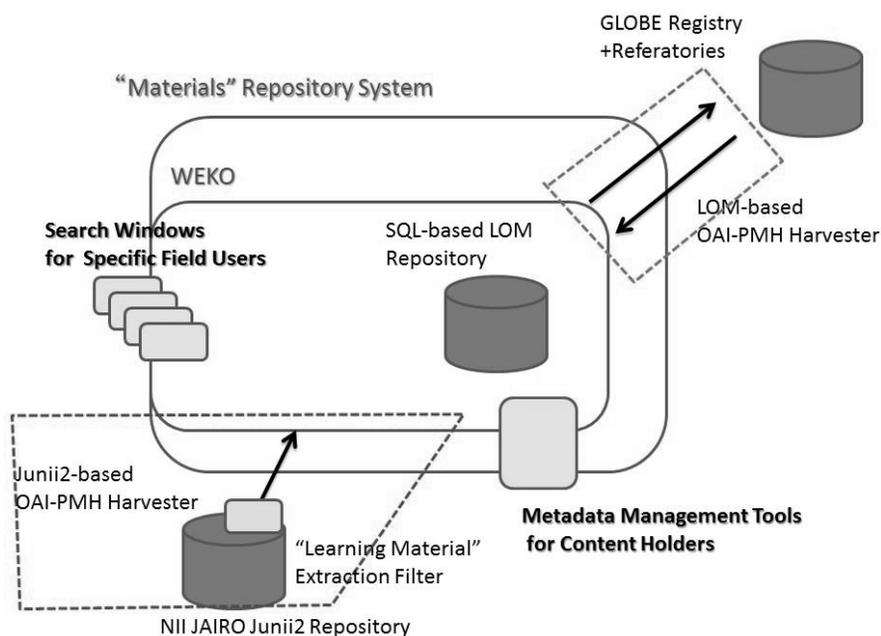


Figure 1 The system of “GLOBEreferatory@Japan”

2.4 OER Asia

According to Prof. G. Dhanarajan at Wawasan Open University, “along with the debate the release of educational resources and its use under CC or similar licensing arrangements has also been increasing over the last decade. The same cannot be said of Asia. There are pockets of interest on the continent but by and large engagement in OER related activities has been somewhat few and far.” From the reflection, he held seminars, such as a special session at 2010 AAOU (The Association of Asian Open Universities) Annual Meeting in Hanoi, published a book on OER (“Open Educational Resources: An Asian Perspective”) jointly with the Commonwealth of Learning, and organized a virtual community network – OERASIA (www.oerasia.org). The network is now preparing itself on an ambitious task in collaboration with GLOBE (Global Learning Objects Brokered Exchange) to create a federation

of LOM repositories that will provide members with access to metadata on what is available in member repositories.

As of January 2014, under the supports of AAOU, researchers and practitioners gathered from OIJ (the Open University of Japan), OUHK, (Open University Hong Kong), UTI (Universitas Terbuka Indonesia), UPOU (University of the Philippines Open University) and WOU (Wawasan Open University) in order to share the knowledge for launching a pilot system.

OER Asia Federated Repositories: Concept

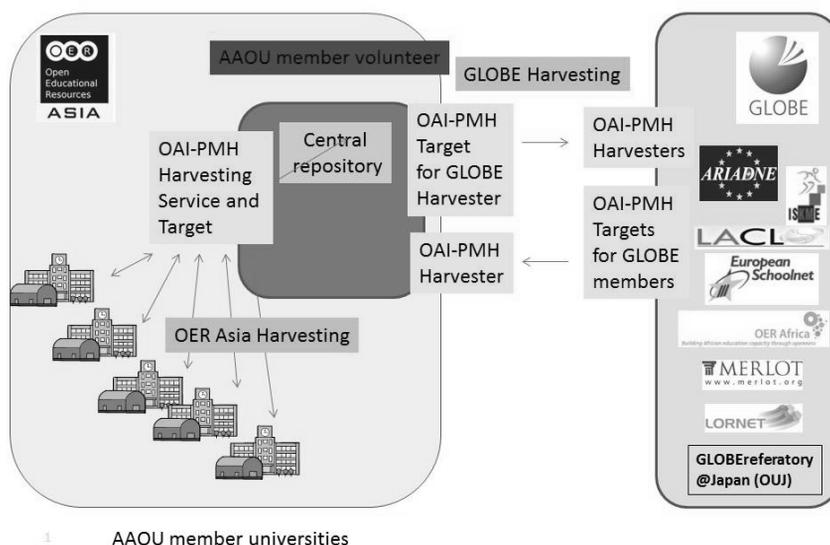


Figure 2 OER Asia federated repository: the concept

2.5 The PANDora Distance Education Network

The PANDora Distance Education Network was a “meta-project” conducted by the International Development Research Centre (IDRC) of Canada and focused on the uses of information and communication technologies (ICTs) in the delivery of formal and non-formal distance education (DE) in this region. One of the research themes

was “A repository of reusable learning objects for DL in Cambodia, Indonesia, Pakistan and Thailand” and aimed to develop a repository of reusable learning objects, and the metadata required to make them accessible and shareable. The research project was completed in 2010 and the experiences were shared among the participating institutions (Chanthan, Hardhono, Belawati, Silphiphat & Pusiri, 2010).

3

Prospects: Toward the new OER search and retrieval services in Asia

3.1

The spread of the infrastructure and resources for OER sharing

In Asian countries, the governments and various educational institutions have promoted the introduction of quality educational content and IT devices into classrooms. In order to expect further dissemination and the robust educational effects, the social infrastructure and agreements for the educational resources are also necessary. For example, the social agreements on OER sharing and the infrastructure for cross-institutional search and distribution system are also indispensable for the sustainable development. Academic users, such as students, teachers and course providers, need the “right” content for their learning and/or teaching. The OERs developed in a context are not always “right” content in other contexts. The learning content needs often localization in each context and the users need some recommendation for “right” content. In this region, many HE institutions have operated neither their own institutional repositories nor digital libraries yet. Institutional repositories can essentially take a role to manage such local OERs. In the studies introduced in the paper, researchers in several institutions have pilot collaborative projects in order to clarify the factors influencing the international sharing and distributions.

3.2

Research on new search technologies for OER searchability

On the one hand, the existing search service providers, such as GLOBE, have discussed the possibilities of the new value-added services. Using metadata elements that have not been used yet, the providers can share different information and offer new value-added services, for example, recommendation and copyright management. On the other hand, the other search technologies, which do not use the metadata, are also examined. Abeywardena & Chan (2013) discussed the issues of the existing search services and proposed a new strategy and their “OERScout” system, which uses text mining techniques to autonomously mine specific keywords which accurately describe the academic domains of a particular OER (cf. Abeywardena, Chan & Balaji, 2013).

In Europe and the other regions, cross-institutional and global search services have been realized by using various search technologies and provided free of charge by several providers. In the paper, we introduced the latest situation in Asia (especially in Japan). As the next step, we should collect the good practices in Europe and overview the issues and prospects from the global viewpoint.

3.3

MOOC and OER

When xMOOCs such as Coursera, EdX and Udacity, have attracted a great deal of attention from the international community, they are considered to assure the top quality of education by the provider universities deserving to the development cost. However, after the first wave of zest, we have also recognized various variants of MOOCs and the possibilities for joint MOOCs.

MOOCs are regarded to deal with huge number of clients (i.e., learners or students) by the limited number of teaching staffs (i.e., teachers, mentors or tutors). In order to assure the quality of education in the given condition, some innovation of learner

support system and the customization of the course are necessary. The focus of course customization will move from on linguistic and cultural diversity to learner optimization. The demand for the “materials” of the courseware, such as learning objects, will increase and some sharing framework in smaller granular level should be considered (Yamada, 2013a). In order to develop a customized course in each context, we will need not only much more “materials” of the courses, but some automatic (or semi-automatic) search engine for those.

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Quality Assurance Standards for e-ASEM OER in Open and Distance Learning

02

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Insung Jung



Dr. Insung Jung is Professor of Education at the International Christian University (one of the prestigious universities in Japan; ICU) in Tokyo. Joining ICU in 2003, she served as the Director of the Multimedia Education Center at the Ewha Women's University in Seoul for three years. She established numerous collaborative relationships with national, regional and international institutions to develop and deliver web-based distance education (DE) programs to professional women in the region and throughout the world. From 1992 through 2000, she was on the faculty of the Korea National Open University (KNOU, Korea's premier distance learning institution), and managed several projects on the development and evaluation of distance education via print, video-conferencing, satellite broadcasting (TV and Radio), and computer network.

She has also served as a consultant and technical advisor in DE including e-learning to numerous national and international institutions, including: UNESCO's Open and Distance Learning Initiative for Higher Education Knowledge Base (ODLKB), World Bank's Human Development Network, the APEC ICT Human Capacity Building and Facilitation of Human Resources Exchange, Asia Development Bank Institute, the Advisory Committee of World Bank's GDLN project in Korea, the Committees of several Korean Ministries and higher education institutions; the judging committee for NHK's Japan Prize, and the executive board of the International Development Research Centre (IDRC)-sponsored Openness and Quality in DE in Asia project. Moreover, she has been involved in Korea's national policy development in DE including a recent ASEAN Cyber University project, and has evaluated a number of initiatives in which information and communications technologies (ICT) have been used in the K-12, tertiary, teacher training, and corporate education sub-sectors. She has conducted extensive research in DE and quality assurance. Also she has worked as the regional project leader responsible for developing e-learning courses for the Association of Christian Universities and Colleges in Asia.

Currently, she is serving as an advisor to the International Board of Standards for Training, Performance and Instruction (ibstpi); a regional editor of the International Review of Research in Open and Distance Education (Athabasca University, Canada); an associate editor of International Journal of Distance Education Technologies (USA); an editorial board member of Distance Education (Australia), Asian Journal of Distance Education, Journal of Online Learning and Teaching (USA), and the Journal of Distance Learning (New Zealand); a critical friend of British Journal of Educational Technology (UK), and a reviewer of several other journals including Educational Technology Research & Development, Computers & Education, and Journal of Educational Technology & Society. She is also conducting research projects on the quality of Open Educational Resources, and design of future liberal arts education system and ICT integration. She is co-author and co-editor of recent publications, "Distance and Blended Learning in Asia" and "Quality, Quality Assurance and Accreditation in Distance Education and E-learning: Models, Policies and Research", both by Routledge, "Quality Assurance in Distance Education and E-learning: Challenges and Solutions from Asia" by Sage Publications, "Online Learner Competencies: Knowledge, Skills and Attitudes for Successful Learning in Online and Blended Settings (The ibstpi series)" by Information Age Publishing, and "Culture and Online Learning: Global Perspectives and Research" by Stylus. (homepage: <http://epiaget.com>)

Taerim Lee

Dr. Taerim Lee is Professor of Bioinformatics & Statistics, Dean of College of Natural Science of KNOU, former director of KNOU Institute of Distance Education. She was the program organizer and coordinator of the ASEM e-Learning ICT Colloquy in Sept. 2006 with 27 countries in Seoul and the e-ASEM Network follow-up meeting in 2007. She



works 30 years in the fields of Life Long Learning at KNOU and during last 27 years she had developed the computer based teaching instruction starting with 8 bits Apple computer at 1986. She is a biostatistician and now the vice president of Korean Statistical Society, the former vice president of International Association of Statistics Education, the former president of Korean Society of Public Health Statistics and the former president of Korean Classification Society, and the representative of Asia Pacific area woman statistician of ISI. During her term as the director at KNOU e-Learning center, she took charge of the president of KUACE (Korea Alliance for Cyber Education) with nationwide 89 universities. Her contents of Introductory Statistics were open to the APEC Cyber University for Public Health and ongoing collaboration with UNSIAP (UN Statistical Institute for Asia Pacific) of online education for Asia pacific official statisticians. She published many books and e-Learning contents of statistics, Statistics and Life, Introductory Statistics, Exploratory Data Analysis, Data Analysis for Life data and Bioinformatics.

1.1 Development of Open and Distance Learning

As the development of open and distance learning(ODL) as a flexible means of widening access to education in various regions including Asia and Europe and at various levels is well documented¹⁾, a very brief outline is offered here.

Over the past years, tremendous growth and diversity in ODL and a wide spread of e-learning have been observed in the Asia-Europe Meeting (ASEM) countries²⁾.

As the world's largest and most populous continent with over 60 percent of the global population, Asia has over 70 open universities that are engaged in open access to education serving over six million distance learners, a growing number of dual-mode universities (offering both face-to-face and ODL) that serve both conventional campus-based students and distance learners, and several virtual universities that offer online education to mainly working adults. All these institutions are expanding Asian higher education in ways never before possible.

In Europe, since the launch of the Open University of the UK (OUUK) in 1969, several open universities were established in the Netherlands, Germany, Spain, Turkey, Greece, Italy, Norway and Cyprus. Since the inception of the Bologna Process in 1999, several virtual universities and e-learning programs have been created as well. These institutions are serving millions of students located in Europe

1) Evans, T., Haughey, M., & Murphy, D. (Eds) (2008), International Handbook of Distance Education. San Diego, CA: Emerald. Latchem, C. & Jung, I. S. (2009). Distance and Blended Learning in Asia. New York & London: Routledge;

2) <http://www.aseinfoboard.org/members.html>

and other regions.

The advancement of ODL and e-learning in Asia and Europe has been strengthened via several professional networks and associations such as the Asian Association of Open Universities (AAOU), the South East Asian Ministers of Education Organization Regional Open Learning Center (SEAMEO-SEAMOLEC), the *South Asian Association for Regional Cooperation* (SAARC) Consortium on Open and Distance Learning (SACODiL), the European Distance and E-Learning Network (EDEN), and the European Association for Distance Learning (EADL).

1.2 ODL Technologies and Open Educational Resources

ODL institutions have been using a variety of technology tools to serve their learners studying in diverse learning contexts, and recently many of them have adopted digital technologies such as the Internet and multimedia resources and embraced e-learning, virtual programs or online courses in their education. With the expanded availability of new digital technologies, these institutions have also created and embedded a range of digital resources including OER in their courses.

Dhanarajan and Abeywardena (2013) argue that OER has been promoted by advocates around the globe as one viable solution to address some of the challenges of access, quality and cost in higher education. In both Asia and Europe, a number of OER movements or projects have been initiated in several countries even if the creation and implementation of OER is slow in the less developed parts of those regions. Selected OER projects will be reported in the next section.

Definitions

Several definitions of OER have been proposed as follows:

- “Open educational resource(s)’ (OER) refers to educational resources (lesson

plans, quizzes, syllabi, instructional modules, simulations, etc.) that are freely available for use, reuse, adaptation, and sharing.” (Wiley, 2008)³⁾

- OER is resources that are “openly available for use by educators and students, without an accompanying need to pay royalties or license fees.” (Butcher, 2011, p. 5)
- “Open educational resources are materials used to support education that may be freely accessed, reused, modified and shared by anyone.” (Downes, 2011)⁴⁾
- “Open Educational Resources (OERs), are educational materials which are licensed in ways that provide permissions for individuals and institutions to reuse, adapt and modify the materials for their own use.” (OER Foundation, 2013)⁵⁾

Expanding on these definitions, McGreal (2013) introduces a more detailed definition of OER in his edited book supported by the Commonwealth of Learning.

- “Open Educational Resources (OER) are free learning resources available on the Internet. OER can be openly licensed or in the public domain, and can be used or reused for free.” (p.2)

In the abovementioned definitions, “openness” is a common feature of OER even if each definition highlights a slightly different element of openness. For example, Wiley’s definition highlights free availability of OER whereas Butcher’s one pays attention to licensing issues of OER. Other definitions such as Downes’s emphasize free access, reuse, modification and sharing of OER.

In fact, OER can take a variety of forms - text, audio, video, multimedia, or various combinations of these. OER can cover a short learning unit, a lesson or a series of lessons within a course, or a whole course. It can be even an entire program of study. They can be used to support different pedagogical approaches including behaviorism, constructivism, cognitivism, and/or connectivism. Creative Commons,

3) http://wikieducator.org/OER_Handbook/educator_version_one/Introduction/Defining_OER

4) <http://halfanhour.blogspot.jp/2011/07/open-educational-resources-definition.html>

5) http://wikieducator.org/WikiEducator:OER_Foundation/FAQs/Open_Education_Resources/

a nonprofit organization that releases Creative Commons licenses free of charge to the public, categorizes OER into three types: individual, semi-structures, and highly structured OER⁶). Follows are the summary of the explanation of each type offered by Creative Commons.

Types of OER

Individual OER have little or no interlocking structure and thus this type of OER can be used individually, or combined with other types of OER or used in various pedagogical contexts. They are often called “learning objects” which refer to digital resources that can be used and reused to support learning.

- Learning objects include a word or a concept, a table, an illustration, an interactive diagram, a set of test items, a simulation program, and other forms of online content that support students’ learning of a particular point or principle. Educators can integrate learning objects into their lesson, course or curriculum to create a more comprehensive learning environment. Learners can use learning objects to get information or develop a better understanding on a specific topic. Examples of learning object repositories are: Rice University's Connexions⁷), the Institute for the Study of Knowledge Management's (ISKME) OER Commons⁸), MERLOT II⁹), and OUUK’s OpenScout¹⁰).

Semi-structured OER include open digitized library collections and open encyclopedia that can be used effectively as reference materials.

- Open digitized library collections provide source and reference materials such

6) http://wiki.creativecommons.org/Free_to_Learn_Guide/Different_Types_of_OER_Meet_Different_Needs

7) <http://cnx.org/>

8) <http://www.oercommons.org/>

9) <http://www.merlot.org/merlot/index.htm>

10) <http://learn.openscout.net/about.html>

as books, magazines, catalogs, posters, photographs, professional journals, and other periodicals and manuscripts, which can be freely used and repurposed by educators and students for their teaching, learning and research. Examples of digitized library collections include: Khan Academy¹¹⁾ that offers a collection of tutoring video clips, and Public Library of Science (PLOS)¹²⁾ which publishes seven peer-reviewed open-access journals in the fields of biology and medicine.

- Open encyclopedias are reference materials that comprise descriptions or articles on a wide range of topics or on various aspects of a particular field. These OER can be used by educators and learners in conducting research, and finding and verifying information. Examples of open encyclopedias include: Wikipedia¹³⁾ in which entries are created by the public and maintained by teams of volunteer experts, Stanford University Encyclopedia of Philosophy¹⁴⁾ which invites subject matter experts to create entries, and Canadian Theatre Encyclopedia¹⁵⁾ which invites entries from the public and gate-keeps by experts.

Highly structured OER include open textbooks and open online courses such as Massive Open Online Courses (MOOCs). This type of OER can be used as they are, modified to meet diverse learning needs or styles, or adopted to create new textbooks or courses.

- Open textbooks include both traditional textbooks that have been made available online and new books created by educators as free sharable textbooks. Examples of open textbooks include: The Community College Consortium for OER provides free open textbooks¹⁶⁾ across various disciplines that are easy to use and editable and customized to meet individual users' purposes.

11) <https://www.khanacademy.org/>

12) <http://www.plos.org/>

13) <http://www.wikipedia.org/>

14) <http://plato.stanford.edu/>

15) <http://www.canadiantheatre.com/>

16) <http://oerconsortium.org/discipline-specific/>

- Open courses refer to instructional materials such as syllabi, lecture notes, texts, readings, course assignments, study materials, practice items, exams, and video lectures that are used to teach a specific course. Examples of open courses include: MIT's OpenCourseWare (OCW)¹⁷⁾, iTunes U's free courses¹⁸⁾, and OUUK's OpenLearn¹⁹⁾.

1.3 Quality Issues of OER

While these OER developments offer promises of open access, improved quality, and reduced cost in higher education, higher education institutions (HEIs) still face several challenges in OER use. Among various challenges such as lacking educator competencies to effectively search and locate relevant OER from various sources (Abeywardena, Dhanarajan, & Chan, 2012; Yergler, 2010), the difficulty of finding desirable OER that match with a specific context (Dichev & Dicheva, 2012) and lack of awareness of copyright issues (Hylén, 2005), quality assessment of OER is indicated as one of the major barriers to OER development and implementation.

There have been a few studies to develop QA criteria for OER. For example, Kernohan (2012) suggests three areas for QA in OER: technical/legal, academic, and pedagogic, and argues that effective OER should demonstrate high quality in all three areas. Similarly, Vladioiu (2011) offers a set of QA criteria for quality assessment of OER in four categories: content related, instructional design related, technology related and courseware evaluation. Several non-profit organizations such as MERLOT II, Achive²⁰⁾, temoa²¹⁾, and Commonwealth of Learning²²⁾ have also suggested QA

17) <http://ocw.mit.edu/index.htm>

18) <http://www.apple.com/education/ipad/itunes-u/>

19) <http://www.open.edu/openlearn/>

20) <http://www.achieve.org/>

21) <http://www.temoa.info/>

criteria for OER use in teaching and learning. However most of these QA guidelines and standards have focused on individual educators' or learners' use of OER and thus have not paid enough attention to institutions' needs for QA in OER development and use.

2 OER Development in Asia and Europe

In this section, we examine the current status of OER development in Asia-Pacific and European regions by analyzing several cases.

2.1 Asia-Pacific OER Projects

After analyzing a regional survey data on perceptions and practices in OER in Asian higher education, Dhanarajan and Abeywardena (2013) conclude that “interest in and the production, distribution and use of OER are still very much in the early stages of development in most parts of Asia” (p. 17). However, they also note that despite low level of awareness of OER and even lower level of creation and utilization of OER, there are a number of ongoing national and institutional initiatives throughout Asia. Their recent report introduces a wide range of OER development and implementation cases from India, China, Pakistan, Indonesia, Korea, Vietnam, Malaysia and the Philippines. So in our report, we won't introduce these cases as they are readily available online²³). Instead we will focus on three most recent cases of OER development in the AP region: OpenCourseWare movements in East Asia, Australia's

22) <http://www.col.org/>

23) <http://www.col.org/resources/publications/Pages/detail.aspx?PID=441>

and the recent establishment of the OER university (OERu).

Open Course Ware movements

China's OER use in universities has begun in 2003 when Chinese Open Resources for Education (CORE)²⁴⁾ was established. As a non-profit consortium of conventional universities and provincial-level radio and TV universities, CORE aims to introduce high quality open courseware from top-ranked universities around the world including MIT in pursuit of improving the quality of higher education in China and eventually produce Chinese open resources to share with universities in other countries. Among a total of 2, 689 HEIs in China, a little over 100 universities including Tsinghua University, Peking University and Shanghai Jiaotong University have joined CORE. As a way of promoting OER application in the universities, CORE has translated MIT Open Course Ware and other OER into Chinese.

This kind of OER activities has been supported by the national government. In 2003, Chinese Ministry of Education set up a policy on OER and action plans for OER development and QA (Hoosen, 2012) including the China Quality Course²⁵⁾ program with grants of up to \$15,000 per course that should be open to the public. According to the *China Quality Course* website²⁶⁾, over 20,000 online courses developed by Chinese university instructors are freely available on the web.

However, despite of the rapid growth of OER development, Li and Li (2013) revealed in their survey with faculty and administrative staff of the CORE member institutions that over 67% of the survey participants did not engage in OER development and over 70% did not use OER due to such reasons as lack of awareness, lack of skills to locate quality OER for their courses, lack of incentives and lack of interest, which

24) <http://www.core.org.cn/en/>

25) <http://www.moe.gov.cn/publicfiles/business/htmlfiles/moe/s3843/201010/109658.html>

26) <http://www.jingpinke.com/>

led them to conclude that the impact of OER on Chinese higher education is still minimal.

Japanese OER use in HEIs has begun with the establishment of Japan Open Course Ware Consortium (JOCW)²⁷⁾ in 2005. JOCW began with six universities. As of 2013, JOCW has 22 universities, 3 non-profit organizations, and 12 companies as its members. Considering a total number of 1,244 HEIs in Japan, OER movement has been quite slow. However those JOCW member institutions have actively developed open courses and as a result 1,497 courses (1,285 in Japanese and 212 in English) were available online in 2010 (Yamada, 2013). Recently Japan Massive Open Online Courses (JMOOC) was established in October 2013 to pursue MOOC development and diffusion across Japan and other Asian countries.

Similar to China's case, the Japanese government has also promoted the development and sharing of high quality course content via several national level initiatives. However, unlike China, it has not established a national level policy on OER.

Lack of awareness, lack of appropriate search skills on the part of educators, lack of organizational support, and lack of incentives appear to be the major barriers in OER development and uses in Japanese higher education (Fukuhara, 2008; Yamada, 2013).

South Korea's Open Course Ware²⁸⁾ service began in 2007 and has been supported and managed by Korea Education Research Information Service (KERIS)²⁹⁾, a government-supported organization which promotes education and research through the use of ICT. As of 2012, KOCW offers 3,390 online courses in Korean, 402 OER in English, and 21,114 educational resources. While we observe rapid growth of

27) <http://www.jocw.jp>

28) <http://www.kocw.net/home/index.do>

29) http://english.keris.or.kr/es_ak/es_ak_100.jsp

OER in Korea's higher education via numerous initiatives including KOCW, a limited number of studies have been conducted to gauge actual uses of OER in higher education. In a survey with 111 university educators, Park (2010) found that around 60% of educators from humanities and social sciences, 34% from natural sciences, and 5% from arts and physical education utilized various types of OER in their courses. Kim (2013) surveyed 61 educators and revealed that over 70% had experience in using OER in their teaching. These figures show that OER is more widely used in Korea's HEIs compared with their counterparts in China and Japan. However caution is needed in interpreting these results due to a small number of survey participants.

As for the barriers to OER adoption, again lack of awareness, lack of appropriate competencies and lack of support from management were indicated as most serious barriers to OER use. Kim (2013) also pointed out that two most important challenges for OER development are resolving copyright issues and assuring the quality of OER produced by university educators.

OER development in Australia

As Hoosen (2012) concluded, Australia appears to be pretty active in developing and using OER even though there are no national or state-level policies on OER. Especially the Australian government has supported several initiatives including:

- the development of Open Access and Licensing Framework (AusGOAL)³⁰, which aims to provide “support and guidance to government and related sectors to facilitate open access to publicly funded information” (AusGoal, 2013, Overview)
- the Australian National Data Service (ANDS)³¹, a research database produced by research institutions in Australia;
- the National Digital Learning Resource Network (NDLRN)³², a national

30) <http://www.ausgoal.gov.au>

31) <http://www.ands.org.au/index.html>

repository of several thousand digital teaching and learning resources for teachers, students and parents.

- Scootle³³), the national repository of open digital learning resources for teachers and schools across Australia.

Some Departments of Education in such states as Government of South Australia, New South Wales and Western Australia have developed digital teaching and learning resources and made them available under Creative Commons License, and offered OER training for teachers (Hoosen, 2012).

The OER university (OERu)

OERu was established in October 2013. It is led by New Zealand's Otago Polytechnic which has adopted an OER policy earlier than other HEIs in the country, coordinated by the OER Foundation³⁴) and supported by UNESCO and Commonwealth of Learning. In particular, the OER Foundation has been playing a key role in the development of OERu. The OER Foundation is a non-profit company founded in 2009 under the New Zealand Companies Act, and Otago Polytechnic is a sole shareholder of the OER Foundation.

2.2 European Projects

OpenLearn

OpenLearn³⁵), launched in 2006 as an Open Content Initiative of The Open University UK (OUUK), aim to offer freely available higher education learning content on the

32) <http://www.ndlrm.edu.au/default.asp>

33) <http://www.scootle.edu.au/ec/p/home>

34) <http://wikieducator.org/OERF:Home>

35) <http://www.open.edu/openlearn/>

web. Several studies (e.g. McAndrew, 2006; Mikroyannidis & Connoly, 2012; and Wilson, 2007) have analyzed and discussed possibilities, usages and challenges of OpenLearn.

As of 2013, OpenLearn offers over 650 courses across a wide range of subject matters and in a variety of formats, from interactive materials, games, video, podcasts and articles. Those materials include resources repurposed as OER from OUUK courses and new OER created for OpenLearn itself (Mikroyannidis & Connoly, 2012).

Open Course Ware Europe

With a growing interest of European universities in OER and OCW, Open Course Ware Europe³⁶⁾ or OCW EU, a consortium of European higher education institutions and a project to promote OCW development and adoption among European institutions was launched in 2011 as a sub-project of European Commission's Erasmus Multilateral Project by several universities in Europe. OCW EU focuses on the creation of supportive conditions for a strong European OCW-framework and cooperation between European higher education institutions (OCW EU Project Team, 2012).

Open Education Europa

Open Education Europa³⁷⁾ is an EU-wide initiative to promote innovative ways of teaching and learning via ICT in general and OER in specific. Its portal site allows European universities to use and share OER, and promotes collaborative projects and research. Currently it lists over 370 free courses and around 400 MOOCs that are created by several European institutions or as result of OER initiatives, and offers many other written resources and papers related to OER. It also supports discussion blogs.

36) <http://www.opencourseware.eu/>

37) <http://openeducationeuropa.eu/en>

Open Educational Resources in Europe (OEREU)

OEREU launched in 2013 to offer research evidences and guidelines on how to support and promote OER use in various open and flexible learning contexts to policy makers and stakeholders of school education, higher education and adult education. It aimed to critically assess existing OER initiatives and projects in Europe, develop future scenarios for maximizing the benefits of OER use in education, conduct a survey on OER use in education in Europe, and identify challenges with OER use and offer recommendations for further development of OER in Europe (Punie & Haché, 2012).

3 OER and Quality Assurance

This section discusses benefits and challenges of OER and highlights quality-related issues. It then reviews a wide range of QA models developed and used in different regions of the world.

3.1 Benefits and Challenges of OER

Several studies have shown that OER offer many advantages to HEIs and their members including educators and students.

Institutional level benefits include: assisting cost reduction, improving quality, and bringing innovations to conventional materials (e.g., Caswell, Henson, Jensen, & Wiley, 2008); and assisting HEI leaders and managers to bring pedagogical changes in HEIs and using OER as promotion tools (e.g., Bossu, Brown, & Bull, 2012).

Some benefits of OER for faculty include: accessing to glowing resources that can be used for content updates (e.g., Bossu & Tynan, 2011); sharing own OER and promoting one's own academic work to the global community (e.g., Open. Michigan, 2013); and reducing teaching preparation time and avoiding duplication (e.g., Willems & Bossu, 2012).

Major benefits of OER for students and independent learners include: offering flexible and open opportunities to study anywhere and anytime at no or low costs (e.g., Kanwar, Kodhandaraman, & Umar, 2010); providing supplemental learning materials for courses, independent study, and professional development (e.g., Bossu & Tynan, 2011; Open. Michigan, 2013); and sharing knowledge with other learners, getting support for one's own personal learning goals and encountering different points of view (e.g., Panke, 2011).

To serve the purpose of this report, we will focus on QA frameworks in the following sections.

3.2 OER Quality Assurance Models

With the rapid growth of online learning in higher education, QA has been recognized as a key issue that needs to be addressed not only within individual institutions, programs or courses but also jointly in national, regional and global contexts. As a result, several QA policies and guidelines have been developed. In this section, we will introduce a few well-known institutional level QA frameworks for ODL including online learning that could be utilized in creating QA standards of OER in the ODL context based on a report produced by Jung and Latchem (2012), and QA criteria developed specifically for OER.

Models from Asia and Pacific

The Australasian Council on Open, Distance and E-Learning (ACODE) Benchmarks³⁸⁾ were developed by this organization whose mission is to enhance policy and practice in open, distance, flexible and e-learning in Australasian higher education. They are designed to support continuous quality improvement in e-learning. They have been developed for use at the enterprise level or by the organizations responsible for the provision of leadership and services in e-learning. They have been piloted in universities and independently reviewed.

Each benchmark area is discrete and can be used alone or in combination with others. The benchmarks can be used for self assessment purposes (in one or several areas), or as part of a collaborative benchmarking exercise. ACODE benchmarks³⁹⁾ cover the following eight separate areas which have been internationally reviewed:

- 1) Institution policy and governance for technology supported learning and teaching.
- 2) Planning for, and quality improvement of the integration of technologies for learning and teaching.
- 3) Information technology infrastructure to support learning and teaching.
- 4) Pedagogical application of information and communication technology.
- 5) Professional/staff development for the effective use of technologies for learning and teaching.
- 6) Staff support for the use of technologies for learning and teaching.
- 7) Student training for the effective use of technologies for learning.
- 8) Student support for the use of technologies for learning.

Jung's Asian Learner-Centred QA Framework is proposed by Jung (2012) who investigated Asian learners' perceptions of quality in e-learning and other forms of distance education. It can be used to review, revise, and elaborate the QA frameworks

38) <http://www.acode.edu.au/>

39) http://www.acode.edu.au/resources/ACODE_benchmarks.pdf

of e-learning providers and quality assessors from Asian learners' perspective.

This QA Framework⁴⁰⁾ is built on three domains: supportive, pedagogical, and environmental. The three domains are used to categorize and organize the ten QA dimensions.

- 1) Supportive domain refers to an assistive quality aspect that helps learners carry out distance learning effectively and efficiently, and includes three quality dimensions – *Faculty Support*, *Student Support*, and *Information and Publicity*.
- 2) Pedagogical domain refers to a core quality aspect in DE that helps learners develop and adjust their knowledge, skills, and attitudes both independently and collaboratively, and includes four quality dimensions – *Course Development*, *Teaching and Learning*, *Interactive Tasks*, and *Evaluation and Assessment*.
- 3) Environmental domain refers to a contextual quality aspect that creates distance teaching and learning environments where learners work productively and flexibly with high confidence in DE, and includes three quality dimensions – *Infrastructure*, *Internal QA Mechanism*, and *Institutional Credibility*.

The ASEAN Cyber University QA Framework was developed by Jung and Latchem (2012) on the request of S. Korean government. It includes a QA Policy Framework at both national and institutional levels, and QA criteria and performance indicators (PIs) at course and content levels. In total, 113 essential PIs and 53 advanced PIs across 20 QA criteria in five domains were proposed. Twenty QA criteria across five domains are:

- 1) Learning Contexts domain – Vision, policy-making and planning;

40) <http://www.irrodl.org/index.php/irrodl/article/view/1159/2128>

- Management and administration; Technology provision and infrastructure; Collaborative relationships / partnerships; The quality assurance system.
- 2) Learning Resources domain – Learning objectives; Learning content; Learning materials; Online features; Human resources (staff).
 - 3) Learning Processes domain – Information / advice; Learner support; Teaching and learning; Interaction (student-content, teacher-student, student-student, etc.).
 - 4) Evaluation and Assessment domain – Learning assessment and feedback; Program / course evaluation; Ethics.
 - 5) Learning Outcomes domain – Outcomes in the learners; Outcomes in the learning provision; Outcomes in the institution / wider society.

Models from Europe

European Universities Quality in e-Learning (UNIQUE) is a project of the European Foundation for Quality in E-learning (EFQUEL)⁴¹⁾, a membership organization which provides services for quality development in Europe's HEIs. UNIQUE aims to be an 'accelerator' for quality improvement and innovation in e-learning, provide sector-wide benchmarks and enhance the implementation speed of the Bologna reforms in the area of technology-enhanced learning.

UNIQUE⁴²⁾ evaluates 10 areas across three domains at the institutional level:

- 1) Learning Resources – Resources for Learning; Students; Faculty (Teachers); Technology Equipment
- 2) Learning Processes – Quality of the Office (e.g. catalogues and services, learning organization); Intellectual Property Rights (IPR) management; Personal development / Human Resource (HR) Development and Services

41) <http://efquel.org/>

42) http://unique.europace.org/pdf/WP1-report-v5_FINAL.pdf

- 3) Learning Context/Institution – Commitment to Innovation (culture, R & D); Institutional Standing (e.g. context and mission, background and experience, reputation in the e-learning community); Openness (e.g. access, connections with the corporate world, contribution to the community, international issues)

JISC's learning outcomes-based QA approach⁴³⁾ was proposed by JISC⁴⁴⁾, a non-profit organization which provides resources, knowledge, expertise and support regarding information and digital technology for education and research to UK educational institutions at a local, national and international level, has developed practical guidelines for designing effective e-learning.

JISC defines the quality of e-learning or effective practice in e-learning as using a range of pedagogic skills to bring about the best possible learning outcomes for specific groups of learners in order to meet their particular learning needs. In designing effective learning e-learning, it suggests that the following issues need to be considered:

- 1) Learners (e.g. their needs, motives for learning, prior experience of learning, social and interpersonal skills, learning preferences and ICT competence).
- 2) Intended learning outcomes (e.g. acquisition of knowledge, academic and social skills, increased motivation and ability to progress).
- 3) Learning environment (e.g. face-to-face or virtual; available resources, tools, learning content, facilities and services).
- 4) Curriculum aspects (e.g. approach(es) to learning, assessment criteria, formative assessment strategies; feedback).

43) <http://www.jisc.ac.uk/media/documents/publications/effectivepracticedigitalage.pdf>

44) <http://www.jisc.ac.uk/>

- 5) Learning activity (description of activity; associated learning outcome; organization: collaborative, pairs or individual; resources needed).
- 6) Support for learning (e.g. extension or reinforcement activities; involvement of others; accessibility considerations; learning preferences).
- 7) Evaluation (outcomes for learners; achievement of learning objectives; feedback from others).

The “Open Educational Quality Initiative (OPAL)” is an international network to promote innovation and improved quality in education and training through the use of OER. It has been established through international organizations including UNESCO, International Council for Open and Distance Education (ICDE) and European Foundation for Quality in eLearning (EFQUEL), and some universities in Europe with part fund from the European Commission Education and Training Lifelong Learning Programme. The University of Duisburg-Essen, Germany is leading the OPAL initiative. It has developed the Guidelines for Open Educational Practices (OEP) in Organizations⁴⁵⁾ and dimensions of good OEP⁴⁶⁾ to support HEIs to analyze, implement and improve practices in creating and adopting OER. Seventeen dimensions for quality OER practice are proposed across three areas.

- 1) Area 1: Use of OER and Open Learning Architectures – Extent of using and repurposing OER; Availability of a process for OER creation; Degree of sharing of OER and OEP; Extent of working with open learning architectures.
- 2) Area 2: Vision of Openness and a Strategy for OEP in an Organization – Organizational vision for OEP; Existing OEP strategies and policies; Business model related to OEP; Partnerships related to OE; Perceived relevance for OEP.
- 3) Area 3: Implementing and Promoting OEP to Transform Learning – IPR and

45) <http://www.oer-quality.org/wp-content/uploads/2011/03/OPAL-OEP-guidelines.pdf>

46) <http://www.oer-quality.org/wp-content/uploads/2011/03/OEP-const-elements.pdf>

Copyright regulations; Motivational framework for OEP; OEP usage; Tools to support sharing and exchange of OEP; Quality concepts for OEP; Level of knowledge and skills; Digital literacy; Support mechanisms for OEP.

A QA Model for OCW and OER was proposed by Vladioiu (2011), a researcher from Romania. It includes a set of criteria for QA of OER and OCW (Vladioiu, & Constantinescu, 2012, pp. 204-209).

- 1) Content related criteria – readability, uniformity of language, terminology, and notations; availability of the course syllabus, comprehensiveness of the lecture notes, modularity of the course content, possibility to select the most suitable learning unit, opportunity to choose the most appropriate learning path, top-down, bottom-up or combined approach, and availability of assignments (with or without solutions).
- 2) Instructional design related criteria – resource’s goal and learning objectives, appropriate instructional activities, learning outcomes, availability of the evaluation and auto-evaluation means (with or without solutions), learning theory, the instructional design model used for that particular educational resource, and reflective learning proneness.
- 3) Technology related criteria – compliance with standards for interoperability and accessibility, extensibility, reliability, user interface’s navigational regard to the at user’s end (both hardware and software), along with the prerequisite skills to use that technology, multi-platform capability, supporting tools, and security of user confidential information.
- 4) Courseware evaluation criteria – information about the content scope and sequence, the intended audience, the grade level, the periodicity of updating the content, the author’s credentials and the source credibility, its availability in multiple languages, instructor facilitation or some kind of semi-automated support, suitability for self-study and / or classroom-based study and / or peer collaborative study, the time requirements, the grading policy, along with instructions about using the courseware and its components.

Models from North America

The Quality Matters Rubric for Higher Education⁴⁷⁾, created by Quality Matters (QM)⁴⁸⁾, is designed to certify the quality of online courses and online components in the USA. The Rubric has 8 general standards:

- 1) Course Overview and Introduction.
- 2) Learning Objectives (Competencies).
- 3) Assessment and Measurement.
- 4) Instructional Materials.
- 5) Learner Interaction and Engagement.
- 6) Course Technology.
- 7) Learner Support.
- 8) Accessibility.

Across these eight areas, 41 specific standards are used to evaluate the design of online and blended courses at higher education level. The Rubric is complete with annotations that explain the application of the standards and the relationship among them. A scoring system and set of online tools facilitate the evaluation of online and blended courses by a team of reviewers.

It is proposed that there should be a Quality Management Peer review process occurring at the course level both officially following QM policies and protocols and unofficially using internal or informal subscribers. Team majority decisions determine the points awarded to the 41 specific standards of the rubric which have a point value of 1, 2, or 3, totaling a possible 95 points. Two out of three reviewers have to agree that the standard is met or the total points awarded are zero. All courses require 81 points or 85% and must meet all essential standards.

The Best Practices for Electronically Offered Degree and Certificate Programs⁴⁹⁾ was

47) <https://www.qualitymatters.org/rubric>

48) <https://www.qualitymatters.org/>

developed by the eight regional accrediting commissions in the USA in response to the emergence of e-learning as an important component of higher education. Institutions can evaluate the quality of their e-learning programs following the ten plus protocols per component, which are then divided into several questions to create a fine tuned evaluation instrument. The QA guidelines are divided into five components:

- 1) Institutional Context and Commitment.
- 2) Curriculum and Instruction.
- 3) Faculty Support.
- 4) Student Support.
- 5) Evaluation and Assessment.

The Open eQuality Learning Standards (OeQLs)⁵⁰ was developed by Barker (2007) from a perspective of consumer protection. Believing that QA must be: “objective (incorporating both provider and user views), professional (conducted by quality assessors), credible (when compared to standards of excellence), reputable (using processes and standards recognized by others), iterative (process-oriented), and continuous (ongoing and built in to the organization’s funding and planning strategies)” (Barker, 2007, p. 115), OeQLs proposes 21 QA criteria across three QA elements:

- 1) Outcomes and Outputs Element – Skills and knowledge acquired; Learning skills acquired; Credits and credentials awarded; Return on investment.
- 2) Processes and Practices – Management of students; Delivery and management of learning; Appropriately used technologies; Communications.
- 3) Inputs and Resources – Intended learning outcomes; Curriculum content; Teaching / learning materials; Product / service information; Appropriate learning technologies; Sound technical design; Personnel; Learning resources; Complete learning package; Comprehensive course package; Routine review

49) http://continuingstudies.wisc.edu/campus-info/toolkit/online_article1.pdf

50) http://www.futured.com/documents/OeQLsMay2004_000.pdf

and evaluation; Program plans and budget; Advertising and admissions information.

Eight Rubrics for evaluating OER objects⁵¹⁾ have been developed by Achieve⁵²⁾, an independent, nonpartisan, nonprofit education reform organization working with states in the USA, in partnership with OER Commons. These rubrics aim to help states, teachers and other OER users determine the quality of OER and the degree of alignment of OER to each state's common core standards. Eight rubrics include:

- 1) Rubric I. Degree of Alignment to Standards which focuses on content and performance expectations.
- 2) Rubric II. Quality of Explanation of the Subject Matter which rates how thoroughly the subject matter is explained or otherwise revealed in the object.
- 3) Rubric III. Utility of Materials Designed to Support Teaching which focuses on the evaluation of the potential utility of an OER object at the intended grade level for the majority of teachers.
- 4) Rubric IV. Quality of Assessment which applies to those OER objects designed to find out what a student knows before, during, or after a topic is taught.
- 5) Rubric V. Quality of Technological Interactivity which applies to OER objects designed with a technology-based interactive component.
- 6) Rubric VI. Quality of Instructional Tasks and Practice Exercises which applies to OER objects that contain exercises designed to provide an opportunity for practice and skill development.
- 7) Rubric VII. Opportunities for Deeper Learning which applies to objects designed to engage learners in deeper learning such as critical thinking, complex problem

51) <http://www.achieve.org/files/AchieveOERRubrics.pdf>

52) <http://www.achieve.org>

solving, collaborative learning, and so on.

- 8) Rubric VIII. Assurance of Accessibility which assures accessibility of materials to all students, including students with disabilities.

4

Development of Quality Standards for e-ASEM OER

4.1 Procedure

The study followed three steps.

- 1) Initial development: First, the initial development of the QA Standards for e-ASEM OER was suggested based on aforementioned QA standards and research in ODL/e-learning and revised after the external consultation with three experts with extensive experience in OER projects in the context of ODL. During this process, the original 52 QA standards were refined and reduced to the 48 QA standards across eleven areas under three domains (see Appendix A: Section 2).
- 2) Verification: It was then verified with instructors and researchers in ODL universities in Asia and Europe via an online survey. The online survey was first developed in English, pilot tested with ten researchers or instructors working in ODL institutions in Asia and Europe, and elaborated further to make each statement of the standards clearer. Once the online survey was finalized, it was submitted for the Review of Research Ethics to KNOU and got an approval in July 3, 2013.

The English version survey was distributed to nine ODL institutions across seven

countries between July 4 and 31, 2013. For Chinese participants, it was translated in Chinese by a faculty member at Open University China (OUC). And for Thai participants, it was translated in Thai language by a faculty member of Thailand Cyber University (TCU).

- 3) Refinement: Based on the survey results, the QA standards were refined and re-categorized for ODL institutions in the ASEM context.

4.2 Instrument

An online survey was conducted to gather empirical evidence about a set of 48 items in the ten dimensions of QA in OER in the context of ODL in Asia and Europe. The purpose of the survey was to determine the level of importance (0 for none / very low in importance, 1 for low level of importance, 2 for moderate level of importance, 3 for high level of importance, and 4 for very high level of importance) of the items across ten dimensions so as to identify quality criteria as perceived by various stakeholders in OER adoption. In order to develop valid and reliable survey items, an initial list of eleven QA areas was developed based on related studies and OER / QA practices. Eleven QA areas include: 1) *Infrastructure*, 2) *Quality Assurance*, 3) *Institutional Vision & Support*, 4) *Finance & Partnership*, 5) *OER Development*, 6) *Learning Content*, 7) *Learning Support*, 8) *Online Features*, 9) *Learning Outcomes*, 10) *Return on Investment*, and 11) *Research & Development*. Once these eleven QA areas were identified and finalized, detailed standards of each area were created to gain information about various stakeholders' perceptions of OER quality. The initial list, which included 52 QA standards across eleven QA areas, was then reviewed by three ODL experts regarding the relevancy and validity of the items for measuring OER quality in the context of ODL. As a result of this consultation process, four items were deleted from the initial 52 because of irrelevancy or redundancy, and three items were revised for clarity. In total, 48 QA standards were included in the final online survey.

4.3 Participants

The survey was distributed to ODL nine ODL institutions across seven countries in Asia and Europe (see Table 1). In total, 181 responses were collected.

Table 1 Distribution of Respondents (N=181)

Country	Institution	N	%
China	Open University of China	63	34.8
Japan	Open University Japan; Kumamoto University Online Graduate School	18	9.9
Korea	Korea National Open University	23	12.7
Malaysia	Wawasan Open University, Open University of Malaysia	7	3.9
Netherlands	Netherland Open University	42	23.2
Spain	Open University of Catalonia	25	13.8
Thailand	Thailand Cyber University	3	1.7
Total		181	100.0

As shown in Table 1, around 35% of the participants were from China and around 23% from Netherlands. While these number indicate high level of OER adoption in China and Netherlands, they could have affected the results of the survey. Thus caution is needed to interpret the data due to the substantial differences in country distribution.

Table 2 shows demographic features of the participants. Slightly over 51% of the participants were male students and around 40% were between the ages of 30-39. Around 28% of the participants were instructors / academic staff while less than 2% policy makers. Almost 34% had 3 – 5 years of experience with OER and over 40% claimed that they had moderate or high level of expertise in OER development.

Table 2 Demographic Characteristics of Respondents (N=181)

Characteristics	n	%	Characteristics	n	%
<u>Gender</u>			<u>Age</u>		
Female	88	48.6	20-29	29	16.0
Male	93	51.4	30-39	71	39.2
			40-49	50	27.6
			50-59	27	14.9
			Above 60	4	2.2
<u>OER experience</u>			<u>Major role</u>		
None	34	18.8	Learner	44	24.3
1-2 years	54	29.8	Instructor or Academic staff	51	28.2
3-5 years	61	33.7	Instructional Designer	17	9.4
6-9 years	19	10.4	Support Staff	34	18.8
10 years or more	13	.2	Policy Maker	3	1.7
Total	181	100.0	Researcher	32	17.7
			Total	181	100.0
<u>Level of OER development</u>					
Beginner/Novice	41	22.7			
Low	39	21.5			
Moderate	58	32.0			
High	33	18.2			
Very High	10	5.5			
Total	181	100.0			

4.4 Result

Importance of QA standards

It appeared that most items were perceived as important for assuring the quality of OER in the context of ODL with ratings of over 3 out of 4. The standards related to QA of OER's learning content (QA 6) considered to be highly important while two standards (QA 10 - 1 and QA 10 - 2) related to return on investment appeared

less important compared with other standards.

Table 3 presents the number of response in assessing the importance of each of the 48 QA standards.

Table 3 Number of Responses to Importance of QA Standards and Average Rating

QA standards	None/ Very Low	Low	Moder- ate	High	Very High	Average Rating
QA area 1) Infrastructure (N=143)						
QA 1) – 1. The institution provides appropriate and reliable media / technology infrastructure to develop, deliver and manage OER.	4	10	47	61	21	3.59
QA 1) – 2. The institution periodically evaluates the quality and uses of media / technology infrastructure.	4	17	49	54	19	3.39
QA 1) – 3. The institution uses media/technologies effectively and efficiently in the provision of OER.	2	19	55	55	12	3.47
QA area 2) Quality Assurance (N=156)						
QA 2) – 1 The institution has clear internal QA policies and systems for its OER initiatives.	4	21	44	60	14	3.41
QA 2) – 2 The institution periodically seeks learners' / stakeholders' views on the quality of its OER.	7	26	63	30	17	3.17
QA 2) – 3 The institution regularly conducts internal and external QA for the purposes of continuous improvement and public accountability in its use of OER.	7	29	44	51	12	3.22
QA 2) – 4 The institution encourages and supports a quality culture in its OER operations.	5	24	35	66	13	3.41
QA area 3) Institutional Vision & Support (N=156)						
QA 3) – 1 OER provisions are aligned with the institution's vision, mission and goals.	3	13	48	57	22	3.57
QA 3) – 2 The institution establishes the organizational structure appropriate for operations needed for quality OERs.	4	22	41	58	18	3.44

QA 3) – 3 The institution demonstrates strong leadership in initiating and supporting educationally sound and ethical operations of OER.	3	23	54	42	21	3.38
QA 3) – 4 The institution encourages and rewards its faculty and staff in regard to OER development and use.	9	22	46	51	15	3.29
QA 3) – 5 The institution develops faculty and staff's competencies in OER operations. .	6	29	46	48	14	3.24
QA area 4) Finance & Partnership (N=143)						
QA 4) – 1 The institution makes a continuous effort to secure and allocate adequate financial resources for OER operations.	7	22	55	45	14	3.26
QA 4) – 2 The institution carefully monitors the costs, cost savings, cost-effectiveness and cost-efficiency of its OER operations.	7	27	58	37	14	3.17
QA 4) – 3 The institution operates collaboration and networking among the departments, units, local study centers, etc., involved in OER operations.	5	24	49	55	10	3.29
QA 4) – 4 The institution engages in collaborative development and resource sharing with other OER providers, in-country and/or internationally.	9	23	54	44	13	3.20
QA area 5) OER Development (N=143)						
QA 5) – 1 The institution ensures that OER are developed in ways appropriate to the learners' computer systems, network speeds, etc. (N=129)	3	14	56	43	13	3.38
QA 5) – 2 The institution develops forms of OER (e.g., modules, learning objects, videos, audios, tests, software, full courses, course materials, etc) appropriate to the learners' needs and circumstances.	1	10	23	26	14	3.57
QA 5) – 3 The institution achieves the best possible use of the available courses and courseware by designing, adopting or adapting OER.	2	17	49	46	15	3.43
QA 5) – 4 The institution develops OER in accord with sound principles of instructional design.	3	21	33	56	16	3.47
QA 5) – 5 The institution ensures that OER accord with copyright laws (Commons License) and are correctly cited / acknowledged.	2	11	38	55	23	3.67

QA area 6) Learning Contents (N=129)						
QA 6) – 1 The OER content is well-matched to the learners’ needs and the learning objectives.	1	12	36	53	27	3.72
QA 6) – 2 The content is accurate.	0	7	36	65	21	3.78
QA 6) – 3 The content is regularly updated.	3	17	37	52	20	3.53
QA 6) – 4 The content is logically presented in order of difficulty.	4	14	52	46	13	3.39
QA 6) – 5 The content is presented in ways appropriate to the learners’ knowledge, skills and abilities.	2	12	41	61	13	3.55
QA 6) – 6 The amount of content to be studied and acted upon is appropriate to the duration of the studyaccountability of its OERs.	3	12	46	55	13	3.49
QA 6) – 7 The OER are culturally appropriate and contain no racial or gender bias.	1	9	44	54	21	3.66
QA 6) – 8 The content is developed through rigorous academic processes by well-qualified persons.	3	9	40	55	22	3.65
QA area 7) Learning Support (N=143)						
QA 7) – 1 The learners are helped to find their way through the repository and where other OER appropriate to the student may be found on other websites.	3	17	44	50	15	3.44
QA 7) –2 The learners are provided with clear information on how to use the OER and create ‘personal learning environments’ by remixing, manipulating, aggregating and sharing content according to their particular needs and interests.	3	22	40	55	9	3.35
QA 7) – 3 The OER include text, audio or video orientation and introductory components to familiarize the learners with the courses and their instructors/support personnel.	1	14	48	51	15	3.50
QA 7) – 4 The OER include examples, formative self-assessment activities and other means of support to enable the learners to study independently / at a distance.	1	16	45	52	15	3.50

QA 7) – 5 The learners are provided with asynchronous / synchronous online support, or face-to-face/hybrid support.	3	21	38	53	14	3.42
QA 7) – 6 The institution provides detailed information on OERs to prospective users.(n= 55)	1	6	22	22	4	3.40
QA area 8) Online Features (N=129)						
QA 8) – 1 The screen layout of OER is suited to the learners' experience, knowledge and abilities.	2	13	61	45	8	3.34
QA 8) – 2 The screen layout of OER helps the learners comprehend the content and avoids distracting features.	2	13	53	50	11	3.43
QA 8) – 3 The user-interface components (buttons, menus, icons, scroll bars, etc.) are arranged consistently to help the learners navigate the site easily.	1	11	49	57	11	3.51
QA 8) – 4 The site facilitates flexible learning by allowing learners to control the rate, order and process of their learning.	2	18	43	55	11	3.43
QA 8) – 5 Navigation guidance systems (e.g., breadcrumb trail and site map) are integrated in OER site to enable learners to know where they are relative to the rest of the site.	1	18	50	53	7	3.36
QA 8) – 6 The effectiveness and efficiency of the online features of the OER site is subject to ongoing evaluation.	2	23	45	47	12	3.34
QA area 9) Learning Outcomes (N=126)						
QA 9) – 1 The learning objectives for each OER course or module reflect the needs of the learners and society.	5	10	50	47	14	3.44
QA 9) – 2 The assessment mechanisms of the OER measure the accomplishment of these learning objectives.	4	16	46	48	12	3.38
QA area 10) Return on Investment (N=126)						
QA 10) – 1 The institution monitors return-on-investment (ROI) in OER from both monetary and non-monetary perspectives.	7	32	50	32	5	2.96

QA 10) – 2 The institution evaluates the contribution of OER-based provision to society and local communities.	6	29	55	32	4	2.99
QA 10) – 3 The institution utilizes the success or failure data from the ROI studies to improve its OER products and services.	9	27	46	35	9	3.06
QA area 11) Research & Development (N=126)						
QA 11) – 1 The institution promotes and supports research in OER by its faculty/staff.	5	17	44	47	13	3.36
QA 11) – 2 The institution applies these research findings in improving its OER.	6	17	48	43	12	3.30
QA 11) – 3 The institution collaborates with various international, national, governmental and non- governmental agencies in undertaking and sharing research in OER.	7	20	36	47	16	3.36

Regional differences in importance of QA areas

Regional differences in the perceptions of the selected 4 QA areas and QA standard variables were statistically tested. As shown in Table 4, no significant differences were found in the perception of key five QA areas (QA 2, QA 3, QA 11, QA 1, and QA 4). However, there were significant differences in the perceptions of the importance of the following seven QA standards between Asian and European participants. That is, Asian respondents perceived these QA standards more important in assessing the quality of OER than European respondents did:

- QA 5 – 1. The institution ensures that OER are developed in ways appropriate to thelearners’ computer systems, network speeds;
- QA 6 – 2. The content is accurate;
- QA 6 – 4. The content is logically presented in order of difficulty;
- QA 6 – 5. The content is presented in ways appropriate to the learners’ knowledge, skills and abilities;
- QA 6 – 7. The OER are culturally appropriate and contain no racial or gender bias;
- QA 10 – 1. The institution monitors return-on-investment in OER from both

monetary and non-monetary perspectives; and

- QA 10 – 2. The institution evaluates the contribution of OER-based provision to society and local communities.

Table 4 Regional Differences in Perception of QA Areas and QA Standards

QA Variable	1: Asia 2: Europe	n	Mean	SD	SE	P-value
QA 2 Quality Assurance	1	89	3.2528	.86807	.09202	.36
	2	40	3.4063	.86914	.13742	
QA 3 VisionSupport	1	89	3.4472	.82021	.08694	.57
	2	40	3.3550	.89039	.14078	
QA 11 Research & Development	1	88	3.3220	.87894	.09370	.71
	2	38	3.3860	.94448	.15322	
QA 1 Infrastructure	1	89	3.4719	.77981	.08266	.48
	2	40	3.5750	.69997	.11067	
QA 4 Finance & Partnership	1	89	2.1966	.53922	.05716	.24
	2	40	2.0667	.65350	.10333	
QA 5 – 1	1	89	3.5618	.99949	.10595	.03
	2	40	3.9000	.67178	.10622	
QA 6 – 2	1	88	3.3295	.97935	.10440	.02
	2	38	3.4474	.97807	.15866	
QA 6 – 4	1	89	3.3371	.97635	.10349	.04
	2	40	3.1750	1.15220	.18218	
QA 6 – 5	1	89	3.2472	.95680	.10142	.002
	2	40	2.9750	1.09749	.17353	
QA 6 – 7	1	89	3.6629	.79692	.08447	.02
	2	40	4.0250	.69752	.11029	
QA 10 – 1	1	89	3.4607	.87978	.09326	.006
	2	40	3.3500	1.00128	.15832	
QA 10 – 2	1	89	3.6629	.79692	.08447	.02
	2	40	4.0250	.69752	.11029	

Significant QA areas in explaining the quality of OER

To identify significant QA areas in assessing the quality of OER, the regression analysis was conducted with *Quality Assurance* as a dependent variable. As seen in Tables 5 and 6, the results of testing four different regression models reveal that the final 4th model with the four key QA areas was most well fitted in explaining the quality of OER. These key QA areas are:

- QA 3. Institutional Vision & Support;
- QA 11. Research & Development;
- QA 1. Infrastructure; and
- QA 4. Finance & Partnership.

Table 5 Regression Analysis for Important QA Areas in Predicting QA in OER

Coefficient^a

	Non standardized		Standardized	t	P-value
	B	SE	β		
Constant	-.086	.203		.424	.672
QA1_3 Vision & Support	.299	.055	.221	3.765	.000
QA3_11 Research & Development	.234	.049	.261	4.636	.000
QA1_1 Infrastructure	.227	.049	.284	4.858	.000
QA1_4 Finance & Partnership	.364	.130	.319	5.190	.000
R ²	0.769				

a. Dependent Variable : QA

Notes: $Y(\text{QA of OER}) = -0.086 + 0.299 \text{ QA13} + 0.234 \text{ QA311} + 0.227 \text{ QA11} + 0.364 \text{ QA14}$ (QA13: Institutional Vision & Support, QA11: Infrastructure, QA311: Research & Development; and QA14: Finance & Partnership)

The four QA areas could explain 73.2% of QA in OER. When we fitted the regression model with a single variable, *Institutional Vision & Support* appeared to be the strongest variable in predicting QA, with 61.8% coefficient of determination R^2 while *Research & Development* with 53% of the R^2 , *Infrastructure* with 46% of the R^2 , and *Finance & Partnership* with 61.6% of the R^2 (see Tables 5).

Significant QA standards in explaining the quality of OER

To examine important QA standards in assessing the quality of OER, the regression analyses were conducted with *Quality Assurance* as a dependent variable and QA standards as independent variables. It was found that the regression model with the following six standards explained 76.9% coefficient of determination (see Table 6):

Table 6 Regression Model Summary of QA Standards in Predicting QA in OER

Coefficient^a

	Non standardized		Standardized	t	P-value
	B	SE	β		
Constant	-.197	.211		-.935	.352
QA3_1	.206	.055	.221	3.765	.000
QA11_1	.229	.049	.261	4.636	.000
QA3_5	.239	.049	.284	4.858	.000
QA4_2	.271	.052	.319	5.190	.000
QA5_3	.207	.058	.186	3.545	.001
QA6_2	-.130	.057	-.138	-2.272	.025
R^2	0.769				

a. Dependent Variable : QA

- QA 3 – 1. The OER provisions are aligned with the institution’s vision, mission and goals;
- QA 11 – 1. The institution promotes and supports research in OER by its faculty/ staff;
- QA 3 – 5. The institution develops faculty and staff’s competencies in OER operations;

- QA 4 – 2. The institution carefully monitors the costs, cost savings, cost-effectiveness and cost-efficiency of its OER operations; and
- QA 6 – 2. The content is accurate.
- QA 5 – 3. The institution achieves the best possible use of the available courses and course ware by designing adopting or adapting OER.

Notes: $Y(\text{QA of OER}) = -0.197 + 0.206 \text{ QA3_1} + 0.229 \text{ QA11_1} + 0.239 \text{ QA3_5}$
 $+ 0.271 \text{ QA4_2} + 0.207 \text{ QA5_3} - 0.130 \text{ QA6_2}$

5

Suggestions and Recommendations

Based on the analyses of OER QA studies and practices, and the survey results, this section offers major suggestions for ODL institutions and educators to develop contextualized or localized QA standards for e-ASEM OER. It concludes with a set of recommendations for future development of OER and QA framework.

5.1

Suggestions for the Development of QA Standards for e-ASEM OER

ODL institutions planning to develop and implement high quality OER are strongly recommended to adopt a set of QA standards to safeguard the quality of OER. In developing a contextualized set of QA standards for OER, ODL institutions can refer to various QA standards reviewed in the earlier section of this report and adapt them to reflect their unique ODL features, considering the following suggestions.

- A set of QA standards should be developed across such QA areas as *Infrastructure, Quality Assurance, Institutional Vision & Support, Finance &*

Partnership, OERDevelopment, Learning Content, *Learning Support*, *Online Features*, *Learning Outcomes*, *Return on Investment*, and *Research & Development*.

- Among these areas, *Institutional Vision & Support*, *Research & Development*, *Infrastructure*, and *Finance & Partnership* are particularly important for a sustainable QA framework (see Figure 1).



Figure 1 QA areas to be included in the QA framework for e-ASEM OER

- More detailed QA standards should be developed under each of these QA areas. While most of the QA standards suggested in Table 3 can be used, we suggest ODL institutions and educators to pay particular attention to the following seven QA standards and include these in the QA framework.
 - 1) The institution provides appropriate and reliable media/technology infrastructure to develop, deliver and manage OER (Under the area of *Infrastructure*)

- 2) The OER provisions are aligned with the institution's vision, mission and goals (under the QA area of *Institutional Vision & Support*).
 - 3) The institution develops faculty and staff's competencies in OER operations (under the QA area of *Institutional Vision & Support*).
 - 4) The institution carefully monitors the costs, cost savings, cost-effectiveness and cost-efficiency of its OER operations (under the QA area of *Finance & Partnership*).
 - 5) The institution promotes and supports research in OER by its faculty/staff (under the QA area of *Research & Development*).
 - 6) The content of OER is accurate and regularly updated (under the QA area of *Learning Content*).
 - 7) The institution achieves the best possible use of the available courses and courseware by designing adopting or adapting OER (under the QA area of *OER Development*).
- For Asian ODL institutions and educators, we recommend to give a high priority to the following seven QA standards as they are perceived as more important than other standards by Asian educators and learners.
 - 1) The institution ensures that OER are developed in ways appropriate to the learners' computer systems, and network speeds (Under the area of *Infrastructure*).

Compared with European countries, many Asian countries have lack of appropriate technology infrastructure for ODL/e-learning. As Selim (2007) reported, ODL learners with poor technology infrastructure and less experience with technology perceive problems with technology and access as serious barriers to their learning. Careful consideration about the learners' technology environment is needed for successful OER implementation.

- 2) The content is accurate (Under the area of *Learning Content*).
- 3) The content is logically presented in order of difficulty (Under the area of *Learning Content*).
- 4) The content is presented in ways appropriate to the learners' knowledge, skills and abilities (Under the area of *Learning Content*).
- 5) The OER are culturally appropriate and contain no racial or gender bias (Under the area of *Learning Content*).

Jung (2012) found that Asian distance learners perceived *Course Development* component as the most important dimension in assessing the quality of ODL. She further revealed that Asian learners perceive a ODL course that offers well-structured materials that follow clear development procedures and are considerate of learners' needs to be of high quality. The above listed four QA standards under the category of *Learning Content* also show that Asian OER users view *Learning Content* of OER that is accurate, logically structured, developed based on learning needs, and culturally appropriate as more important in assuring the quality of OER, compared with their counterparts in Europe. This difference needs to be considered when developing and implementing OER in Asia.

- 6) The institution monitors return-on-investment in OER from both monetary and non-monetary perspectives (Under the area of *Return on Investment*).
- 7) The institution evaluates the contribution of OER-based provision to society and local communities (Under the area of *Return on Investment*).

Compared with Europe, ODL has been growing fast in Asian higher education. ODL is reaching out to more adult learners, new forms of delivery such as e-learning and m-learning are being rapidly

adopted even in the least developed parts of the region, new providers are entering the market and there is a surge in ODL export and import. The most distinctive feature of Asian ODL is huge student population in ODL institutions and over 5 million potential students. Considering the huge number of present and future student enrollment in ODL institutions, the quality of Asian ODL has become more important than ever for the development of higher education and Asian society as a whole. That's why Asian respondents of our study gave more attention to both monetary and non-monetary benefits of OER and social contribution of OER. Asian ODL institutions are expected to consider various benefits of OER and community/social roles of OER when they invest in OER development.

5.2

Recommendations for Future Development of OER and QA Framework

The level of OER development and implementation in higher education in Asia and Europe varies across the countries and ODL institutions. So does the QA policy integration in an overall institutional QA framework. This study showed that QA models and criteria developed for ODL could be adopted and adapted for the development of QA standards for OER, and offered a set of suggestions that could be considered when preparing QA standards for e-ASEM OER. The following recommendations are offered for further development of OER in the context of ODL.

- Overall, QA in OER is at a quite early stage of development. The different QA approaches discussed above reflect the differences in cultures, expectations, and purposes. Each of these approaches has its own particular strengths and weaknesses, so it would be undesirable to recommend any single approach. However, in light of our survey finding, it is suggested that ODL institutions

develop a set of QA standards around 11 areas: 1) Infrastructure, 2) Quality Assurance, 3) Institutional Vision & Support, 4) Finance & Partnership, 5) OER Development, 6) Learning Content, 7) Learning Support, 8) Online Features, 9) Learning Outcomes, 10) Return on Investment, and 11) Research & Development, with special focus on Infrastructure, Institutional Vision & Support, Finance & Partnership, and Research & Development.

- There is need to develop a quality culture within ODL institutions. As Sir John Daniel (2013) argued, OER is an important development for all forms of education including ODL. Thus, all ODL institutions should see that QA in OER is also an integral part of their ODL's QA framework. To offer OER users high-quality learning resources, QA policies in OER should be linked to the broader institutional QA system. QA in OER should be seen as a system for self-improvement and public accountability of ODL institutions.
- ODL institutions should begin to develop specific QA guidelines, criteria, and methods for the various types of OER. In addition, detailed key performance indicators for each of the QA criteria would help ODL institutions monitor their performance in OER development and use against institutional objectives and vision. ODL institutions can use these indicators in self-assessment for continuous qualitative improvement of OER. The existence of a QA framework for OER would enable ODL institutions to make QA an integral part of their institutional missions with respect to teaching and research and to promote a quality culture in their institutions.
- Concerted efforts are needed from leaders, top managers, educators, administrative staff and learners of an ODL institutions regarding the development of high quality needs-based OER and diffusion of OER. ODL institutions should support all stakeholders to understand OER's benefits and challenges, and encourage them to take a part in OER development and implementation processes.
- Collaboration and partnership is necessary to develop high quality OER with less costs. As seen in the case of OERu, a consortium of ODL institutions, other organizations, and/or private sectors from different locations will help ODL institutions offer their best courses and programs while keeping the cost down,

and also help students study independently or collaboratively through a variety of OER. As Daniel (2-13) posited, it is a new way of putting courses or programs together.



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Open Licensing

03

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Professor Dr Mansor Fadzil currently serves as the Senior Vice President at Open University Malaysia (OUM). He obtained his Bachelor's Degree in Science (Mechanical Engineering) from University of Birmingham in 1981 as well as his Master's Degree and Ph.D. in Control Systems Engineering from University of Sheffield in 1982 and 1985, respectively.



Prof Dr Mansor formerly worked as a full-time lecturer at the Faculty of Engineering, University of Malaya (UM). During his tenure at UM, he held various administrative posts and was responsible for introducing online learning to the UM lecturers in 1998.

Prof Dr Mansor was also instrumental in the establishment of OUM, Malaysia's first open and distance learning (ODL) institution in 2000. Since joining OUM, Prof Dr Mansor has led many projects to advance teaching and learning at the University, including mobile learning, iRadio (an educational internet radio), print and electronic learning material development, question and assignment banks, fully-online courses, and the recent launch of the OUM App (an educational mobile app).

1.1 Understanding Copyright and Licensing

Copyright is a legal concept that aims to protect the rights of a creator of an original work. What constitutes an original work can include creative, intellectual or artistic forms, which may encompass anything from musical compositions, computer software and multimedia, literature, movies, photography and even radio and television programmes. Along with industrial property, copyright is considered a form of intellectual property (IP). IP covers all intangible assets or creations of the mind, including things like symbols, words, phrases, patents, trademarks and industrial design.

The main motivation for a creator to consider the importance of copyright is to obtain credit for his / her work, as well as to determine the means as to how the work may be used, who can use it and in what capacity, what financial or commercial benefits are involved, and other related rights.

Initially, the concept of copyright was developed as a way to restrict unlawful printing of written work. Most countries today have enacted national copyright laws that have been standardised through international copyright treaties, including the Berne Convention for the Protection of Literary and Artistic Works (accepted in 1886); the World Trade Organization's (WTO's) Agreement on Trade Related Aspects of IP Rights (TRIPS) (accepted in 1996); and the World IP Organization (WIPO) Copyright Treaty (effective in 2002).

To fully understand the nature of these copyright treaties, a brief explanation is provided below:

1. Berne Convention for the Protection of Literary and Artistic Works:

The Berne Convention, as it is commonly called, is an international agreement that was made effective in early 1887 and is today applicable in virtually all countries. Although several countries had already enacted copyright laws in the 19th Century (e.g. France and the United Kingdom), the Berne Convention is the first framework to protect the rights of a creator from an international perspective.

2. TRIPS Agreement:

As a treaty administered by WTO, the TRIPS Agreement is effective in all WTO member countries, and considered the most comprehensive international treaty to date. It provides minimum levels of protection that each government must give to the IP of WTO members. The TRIPS Agreement even includes a dispute settlement system when there are trade disputes over IP rights.

3. WIPO Copyright Treaty:

WIPO is a specialised agency under the United Nations (UN), and its Copyright Treaty has an almost blanket coverage across the globe. The unique feature of the WIPO Copyright Treaty is the additional protection provided due to advances in ICT, e.g. it protects computer programmes as literary works. This treaty represents a major turning point in the understanding of modern copyright, where the potential as well as risks derived from ICT are acknowledged as crucial to protect the current rights of authors and creators.

Although each country has its own understanding of copyright, in broad terms, national copyright laws tend to follow the terms outlined in the major copyright treaties mentioned above. To illustrate national copyright laws, we will take Malaysia as an example. The Malaysian Copyright Act (1987) provides protection for literary, musical, artistic and derivative works, as well as films, sound recordings and broadcasts. In following the Berne Convention, copyright takes effect during the life of an author or creator, and expires 50 years after his/her death.

An important element related to copyright is licensing. The creator of a work is the copyright owner, and he / she holds exclusive right as the author who owns that work, and as such, can control how it is used, by whom, and in what manner. The usage and distribution of this work can be done through a license, which can be granted by a specific authority. Licenses dictate not only what work can be used, but also limits to the usage, such as the number of times a work can be used, the duration that it can be used, or how long the license will remain effective.

In essence, licensing is a way to grant permission or authorisation for the use of copyrighted material, as well as a method to grant the creator (or the license holder) the ability to set conditions and limitations to the use of his/her work. Licenses are commonly given for the use of computer software, trademarks and brands, artwork and specific characters.

1.2 Open Licensing

Grasping the concept of open knowledge is a crucial requisite in order to understand the basis of open licensing. Knowledge is defined as open “*if it is free to use, reuse, and redistribute without legal, social or technological restrictions*” (Wikipedia, n.d.). The term ‘open knowledge’ is commonly linked to other terminologies, such as ‘open access’, which is defined as “*the immediate, online, free availability of research outputs without the severe restrictions on use commonly imposed by publisher copyright agreements*” (Open Oasis, n.d.). Both these terminologies have immense repercussions in the educational context.

An open license grants permission to access, reuse and redistribute a work that is considered open knowledge. Because a major portion of knowledge is openly available through the Internet, open licensing has specific importance in the digital context. For instance, a work that has been uploaded onto a website under an open license

can be freely accessed, printed, shared, published in other media, and cited. This can include sound, text, image or multimedia. As an open licensed work, it is free to be used, shared and improved, but this depends on the permissions and restrictions dictated by a particular license.

That open licensing would be important was realised during the early days of open source software. The Open Publication License was released in 1999, with the aim of encouraging the free distribution of books and journals online. Much of the early development of open licensing was focused on software licensing, such as the Free Software Foundation's GNU General Public License (GNU GPL) that was released in 1989. Inspired by the GNU GPL, the Creative Commons (CC) Organisation was founded as a non-profit entity in 2001, providing a variety of licenses for creative work that is made available over the Internet. Today, CC represents the major provider of open licenses globally.

1.3 Open Educational Resources

Open educational resources (OER) are linked to open and distance learning (ODL) and the culture of open knowledge and content; which are all milestones of the late 20th Century. The very idea behind ODL — that education can be open, limitless, equitable, universal and often completely free — spurred the idea of placing educational resources in the public domain. In 1994, the term 'learning object' was introduced; which denotes one of the earliest conceptualisations of a group of educational resources that are provided on a digital or web-based platform. In 2002, the Massachusetts Institute of Technology (MIT) sparked a global movement of free education through its OpenCourseWare (MIT OCW) project. In the same year, the term 'OER' was first adopted at the United Nations Education, Scientific and Cultural Organization's (UNESCO's) Forum on Impact of Open Courseware (OCW) for Higher Education in Developing Countries.

OER's definition, as outlined by UNESCO, is “*any type of educational materials that are in the public domain or introduced with an open license*” (UNESCO, n.d.). This includes textbooks, curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation. Their nature means that anyone can legally and freely copy, use, adapt and re-share them.

The OER movement has grown tremendously within the last decade, with many national and regional initiatives, such as Japan OCW Alliance and OER Asia, as well as efforts from global bodies, such as the World Bank Open Knowledge Repository. International bodies like UNESCO and the Commonwealth of Learning (COL) give extensive guidance and support to institutions and countries that take part in this movement.

These developments demonstrate the increasing trend towards openness in higher education, much like the development of open source software and open access. OER's connection to open licensing is an important one, as it is through the availability of open licenses that OER have been distributed so extensively, without compromising the necessary protection and rights to their creators and authors.

2 Open Licensing

2.1 The Features of Open Licensing

2.1.1 The Benefits of Open Licensing

The advent of digital technologies in all their various forms and functions has greatly influenced the distribution and dissemination of knowledge. From an educational

standpoint, this brings both great potential and risk. The former is clearly a positive outcome, because it indicates an immense capacity to achieve truly open education. The latter is something not to be taken lightly, because ownership and authorship of academic output is a form of IP, and must be given the appropriate acknowledgment and protection.

That being said, encouraging open licensing promises many potential benefits for educational institutions, faculty and learners alike. These benefits extend to the creator, as well as to users and other individuals. They include:

- **Financial benefits for those in less privileged institutions and countries:**

The use of open licensed materials means that educational institutions can provide teaching and learning support without incurring the great costs involved in content development.

- **Publicity of work:**

The improved circulation and distribution of a work increases its use and publicity.

- **Opportunity to enhance, improve, adapt and add value to a work:**

Open licensed work may be open to changes and enhancement, leading to improved product. Creators and authors can also obtain easy feedback from users who adopt their work.

- **Opportunity to improve on a global body of knowledge:**

Open licensing can encourage peer production of knowledge. At its most extensive, this can involve mass collaboration (an example of which is Wikipedia). This greatly adds to a global body of knowledge that can be created and used, as well as improved and added to, by many different people around the world.

- **Driving innovation:**

Open licenses that allow for derivative work greatly encourages innovation, as users of an original work can contribute their own ideas to generate new works.

- **Promotion of OER and the concept of democratised education:**

Open licensed materials encourage sharing for creative and educational purposes, which is an essential feature of OER, ODL and the concept that education should be a universal privilege for anyone who seeks it.

In a nutshell, the role of open licensing, especially from an educational perspective, is as a mechanism to promote open access and open knowledge of creative, cultural, scientific and research input as well as scholarly work that have the potential to create universal benefits.

2.1.2 Open License Providers

The most prominent license provider is Creative Commons (CC). The licenses provided by CC are the most comprehensive currently available; are used by many prominent individuals and organisations that provide their works — whether content, multimedia, creative works, software and others — over the Internet. Unlike licenses like the GNU GPL, CC licenses are used in websites, educational materials, film, photographs, blogs and et cetera (Fitzgerald, 2007). A detailed explanation of CC will be provided in the subsequent parts of this chapter.

Apart from CC as the major player in open licensing, an example of an open license specifically used in education is the AShareNet Free for Education (FfE) license. AShareNet is a licensing scheme that originated in Australia, and is widely used in the vocational, education and training sector in the country. The uniqueness of a FfE-licensed work is that it can be used freely for educational purposes, but not for any other reasons, including distribution to the public, and it also does not allow for derivative work. However, it does not discriminate between for-profit and not-for-profit education providers (Fitzgerald, *ibid.*).

A majority of available licenses have been created for the specific purpose of computer software, such as the aforementioned GNU GPL. They include:

- **MIT License:**

The MIT License is a permissive free software license that permits reuse in other software as long as all copies of the licensed software include a copy of its terms. This license is compatible with GPL. One example of a notable software package that has used a version of the MIT License is Expat (a programming library that has been used in various open-sourced projects).

- **BSD Licenses:**

These are a family of licenses that outline similar requirements as the MIT License. It originated from the University of California, Berkeley, hence, lending the name of Berkeley Software Distribution (BSD). They were originally used for a Unix-like operating system (OS).

- **Apache License:**

This is a free software license written by the Apache Software Foundation. It allows users to use the software for any purpose, to distribute and modify it as well as to distribute modified versions under the license terms without concern for royalties. The Apache License is one of the most prominent software licenses, and has been used by Google and the Android OS.

- **GNU GPL:**

Created by the Free Software Foundation, the GNU GPL is the most widely used software license. A majority of free software initiatives listed on Freecode, SourceForge. net, Red Hat Linux and Metalab have adopted the GNU GPL. It is useful to note that GNU has also created a Free Documentation License (the GFDL), which serves a similar purpose to CC licenses, although it is not as widely used as the latter.

- **Mozilla Public License:**

This is a free, open source software license developed by the Mozilla Foundation. It is a hybrid of the modified BSD license and the GNU GPL and is currently used by Mozilla Firefox, Mozilla Thunderbird, as well as Adobe and other software.

- **Artistic License:**

This software license is used for certain free and open source software packages. It is often used in combination with the GNU GPL.

Since the creation of the GNU GPL by the Free Software Foundation in 1984, and the establishment of CC in 2001, open licenses have become an integral part of the Internet. As stated above, software licenses are more common — most open source software use open licenses, either as a single license, or in combination as dual licenses. CC licenses have been adopted by many prominent organisations, which include (details available at <http://creativecommons.org/who-uses-cc>):

- **Al-Jazeera;**
- **Flickr;**
- **Google** (and all its digital services, including Picasa and YouTube);
- **MIT OCW; and**
- **Wikipedia.**

A detailed explanation of CC licenses used in the educational context will be given in the subsequent parts of this chapter.

How useful are open licenses? One example is Google, the widely-referred Internet behemoth. By using CC licenses, Google has enabled users to license their own content via its services, and facilitates the discovery, sharing and adoption of CC-licensed material by enabling CC-search capabilities through its web, image and book search engines, as well as YouTube. In education, the MIT OCW initiative is the most outstanding example. By releasing materials from over 2,000 academic courses through CC licenses since 2004, MIT has not only come closest to realising the concept of free education, it has almost single-handedly triggered global interest in the OER movement.

2.1.3 Importance of Open Licensing in the Context of Education:

Open licenses are critical for defining OER (Bissell, 2009). An important point to note at this juncture is that copyright universally indicates the term ‘all rights reserved’, which means that the author holds all rights to a piece of work. The significance of open licensing, especially through the work of CC, is that ‘all rights reserved’ is tweaked to ‘some rights reserved’ (Bissell, *ibid.*), thus creating an immense opportunity whereby a user has the freedom to adjust, modify, share, exchange and derive new work from a licensed material. This is the premise of a universally democratised education, and much is reflected in the continued success of large-scale initiatives like the MIT OCW.

By providing additional resources to help learners succeed, open licensed educational materials can improve courses and curricula as well as enhance the effectiveness of academic programmes. From an educator’s perspective, these materials can be included as additional resources to a readily available programme, as well as modified and customised to suit the needs of a particular audience. Independent learners have just as much to gain as well, as they can take up courses at any time for the sake of learning something new, without actually enrolling into a formal study arrangement. For creators and license holders, the possibilities are certainly exciting. Through open licensing, their work can be inspire entirely original work or repurposed as derivative work — both instances that will likely not materialise if not for open licensed materials.

A fine illustration of the potential of open licenses is the course materials provided through MIT OCW. Because of the permissions outlined in their CC licenses, they have been translated into many languages, including Spanish, Portuguese, Chinese, Thai, French, German, Vietnamese, and Ukrainian (Vollmer, 2012).

It is crucial to acknowledge that open licensing has led not only to an increased production and distribution of OER as well as new OCW projects; it has also influenced new initiatives in the sphere of democratised education. These examples include

massive open online courses (MOOCs), open textbooks, mobile educational apps and learning object repositories — many of which have been established through CC licenses. These examples will be further discussed in the next section of this chapter.

2.1.4 Issues and Challenges in Open Licensing

Distribution of educational materials with an open license is often considered a worthy exercise in creating a world of free and democratised learning. However, it is not free from several key issues. Foremost amongst these is awareness, which is currently a problem especially in many developing countries, including Malaysia. Open licensing, OER, MOOCs and OCW are relatively unheard of outside the Malaysian ODLC circle. Simply illustrated, entering the combined terms ‘Malaysia’ and ‘MOOCs’ on Google yields no significant results save several news articles. A few of the country’s most established public universities (e.g. University of Malaya) have only recently embarked on their own OCW initiatives. This is something that needs to be addressed, and can perhaps be remedied through the help of global or regional bodies, e.g. UNESCO, COL, OER Asia or the Asian Association of Open Universities (AAOU).

As educational materials, it is important to ensure that an open license used is compatible with copyright laws, academic and institutional missions. The proliferation of OER, MOOCs and OCW initiatives signal a widespread interest, but each institution needs first to determine how it can contribute to, take advantage of, or leverage on, this phenomenon. In this regard, institutional commitment needs to be made clear. Additionally, before applying for an open license, individuals and institutions need to clarify copyright ownership of all the relevant work, both original and derivative.

While it is crucial to protect copyright, moral rights are not to be neglected. When using open licenses, it is ideal for works to be used properly according to their intended objectives. Ensuring so can be challenging as these works can easily travel beyond traditional notions of limits and boundaries. This relates to the problem of potential infringement, as well as the risk of violating copyright ownership of

third-party contributors.

Although copyright law and licenses protect the rights of a creator, it is still likely that downstream users will resort to piracy, plagiarism, abuse, unlawful copying and other unauthorised and unethical activities. Educating users on the proper use of materials will be important to curb these problems. Every open licensed work must clearly state its specific attributions to inform all potential users. In the event that the attributions are violated, legal action based on copyright and IP right needs to be properly exercised. Unfortunately, this is admittedly quite complicated, as it is easy for misuse of licensed work in a digital setting to escape the attention of their creators.

Bissell (2009) also adds that in addition to individual copyright, there are other rights to consider, especially if a learning resource incorporates materials from other sources, or contains photographs or footage of private individuals. Consent from these third parties need to be obtained, but other complications can take place. Compatibility between licenses also needs addressing if an author decides to use multiple licenses for one piece of work.

One key term that needs to be understood in any attempt to distribute open licensed educational materials is 'fair use'. Fair use is a form of exception that allows limited use of a copyrighted work. Examples of situations that allow fair use are commentaries, criticisms, news reporting and for teaching and learning purposes. Albeit this is clearly beneficial for educators and learners alike, legal complications may arise.

Because many of these issues are related to the legal aspects of copyright and licensing, educators, academics and creators need to be aware of the relevant laws to understand what is best for their needs and objectives, especially in creating and distributing OER. While the desire to add to a global body of knowledge is indeed honourable, it is equally important to ensure that not only are open licensed educational materials are properly used.

2.2 Creative Commons

2.2.1 Brief Background

As has been previously stated, CC licenses are the most widely distributed, and have been adopted by many individuals and organisations, including Google, Flickr, MIT OCW and Wikipedia. CC provides free licenses that are meant to work alongside copyright while allowing permission for sharing and using creative work that are distributed on the Internet.

CC was established as a not-for-profit organisation in 2001, and released its first set of copyright licenses in 2002. It was founded on the premise that *“many citizens of the Internet want to share their work — and the power to reuse, modify, and distribute their work — with others on generous terms”* (Bissell, 2009). The concept of ‘some rights reserved’ expounded by CC is a standardised way of ensuring that works can be distributed and used freely for certain purposes or under certain conditions. This concept represents a middle ground between the ‘all rights reserved’ implied in copyright and the ‘all rights granted’ involved in the complete freedom of use for works dedicated in the public domain. By 2009, there was an estimated 350 million CC licensed work (CC, n.d.) including media, photographs, films, music and academic content.

2.2.2 Types and Features of Licenses

CC offers six licenses with different combinations of attributions. Each license carries a set of conditions chosen by the creator. These conditions range from the most basic (CC BY), which allows all forms of use, redistribution, modifications and commercialisation as long as the original creator is given credit; to the most restrictive (CC BY-NC-ND), which allows use and distribution, without allowing commercialisation or modification to the original work.

Additionally, CC also allows individuals to waive all rights to their work through the CC0 license. This refers to all work dedicated to the public domain, where the works are licensed as ‘all rights granted’ or ‘no rights reserved’. Works in the public domain are completely free to be used in any way, without any restrictions from copyright or database law.

An explanation of each of the CC licenses is provided in the table below (Table 1).

Table 1 The CC Licenses
(Summarised from <http://www.creativecommons.org/>)

TYPE OF LICENSE	DESCRIPTION
 <p>No Rights Reserved CC0</p>	<p>This license means works are placed in the public domain. It allows complete freedom of use, modification, enhancement, reuse, sharing and redistribution, whether for individual or commercial purposes, without restriction under any law.</p>
 <p>Attribution CC BY</p>	<p>This license allows for distribution and all forms of modifications, even commercially, as long as the original author is credited for the original creation.</p>
 <p>Attribution-ShareAlike CC BY-SA</p>	<p>This license allows for distribution and all forms of modifications, even commercially, as long as the author is credited and all new works based on the original carry the same license. This is the license used by Wikipedia.</p>
 <p>Attribution-NoDerivs CC BY-ND</p>	<p>This license allows for distribution in commercial and non-commercial uses as long as the original work is not modified and credit is given to the original author.</p>
	<p>This license allows for all forms of modifications, but only for non-commercial purposes. The origi-</p>

<p>Attribution-NonCommercial CC BY-NC</p>	<p>nal author must be credited and new works must also be non-commercial, but authors of new works are not obligated to license their works the same way.</p>
<p> Attribution-NonCommercial-ShareAlike CC BY-NC-SA</p>	<p>This license allows for all forms of modifications, but only for commercial purposes. New works based on the original must credit the original author and license their creations under identical terms.</p>
<p> Attribution-NonCommercial-NoDerivs CC BY-NC-ND</p>	<p>This restrictive license only allows others to download and share original works while giving credit to the original author. Modifications and commercial use are not allowed.</p>

CC provides a clear guide on choosing licenses on its website. Useful things to remember before choosing a copyright include:

- Ensure that an original work can be copyrighted;
- Ensure that the creator or group of creator has the authority over the original work;
- Understand how open licenses work; and
- Be specific about the license applied.

2.2.3 CC Licenses in Education

The use of CC in education reflects a major development in the open movement. In particular, CC licenses are an integral component in the creation and distribution of OER. Through CC, various forms of OER, including textbooks, lesson plans and even entire courses can be shared, customized, combined and re-purposed; all with the aim of making education freely accessible.

Some of the major examples of the use of CC in education include many OER initiatives such as OER Commons and OER Africa; MIT OCW; MOOCs providers

such as Peer 2 Peer University (P2PU); Khan Academy; and repositories such as Connexions. Essentially, all these providers have made educational content freely available as digital materials. The following is a brief explanation for each example:

- **OER Commons and OER Africa:**

OER Commons is one of the largest OER databases on the Internet, with almost 50,000 materials that are freely available, including assessments, audio lectures, lecture notes, homework and assignments, games, simulations and textbooks for a wide range of subject matters. The OER Commons itself uses a CC BY-NC-SA license.

OER Africa is a regional initiative that is a one-stop centre that consolidates all OER created in the region based on four themes, i.e. agriculture, health education, foundation courses and teacher education. It also links to a useful database, repositories, and relevant OER projects throughout Africa. It uses a CC BY license.

- **MIT OCW:**

Much has already been described on MIT's revolutionary role in the OCW movement. All its course contents are released under a CC BY-NC-SA license. Recently, the renowned institution announced MITx and edX (a joint effort with Harvard University), an initiative that provides certification to learners for completion of specific series of courses.

- **P2PU:**

P2PU is centred on the concept that “*everyone has something to contribute and everyone has something to learn*” (<http://www.p2pu.org/>). P2PU offers courses in various subject matters using community-produced content such as OER and other Internet resources. Learners who complete a particular course are given badges for their achievement. All P2PU content is made available under a CC BY-SA license.

- **Khan Academy:**

Khan Academy offers over 3,000 instructional videos covering various subjects from basic algebra to advanced chemistry and biology. All its videos are licensed under CC BY-NC-SA, and have been translated into various languages. Currently, Khan Academy houses almost 5,000 YouTube-hosted videos, and includes tutorials and assessments. It has delivered more than 300 million lessons since 2006.

- **Connexions:**

Connexions is an educational content repository and content management system that compiles and arranges learning objects into modules and collections to suit the needs of various levels of study. Open licensed textbooks and courses are arranged into more than 17,000 modules that are licensed under CC BY, and are continuously edited, translated and adapted. More than 2 million people use Connexions' materials each month. Schools can also order low-cost hard copy sets of the materials as textbooks.

In addition to the above examples, there are commercial providers of educational materials that leverage on the open licensed content provided by Connexions and Wikipedia, in addition to fully copyrighted and commercially published material. Such providers include e-textbook rental or sales companies such as Boundless, Chegg and CourseSmart. The latter is unique in that it was founded by some of the major publishers in higher education, including Pearson, McGraw-Hill, Macmillan and John Wiley & Sons, thus representing the largest e-textbook retailer currently available.

3.1 Potential Future Scenario

Many of the CC-licensed works and initiatives described in this chapter have proven that there is a significant demand for free, accessible and customisable educational materials. The increased awareness, understanding and use of open licensing can encourage the further growth of OER and their distribution amongst educational proponents; thus encouraging equally positive developments in the quality of said materials and the education environment as a whole.

It can be surmised that educational institutions will find it useful to examine their roles, objectives and initiatives from the unique perspective of OER. Open universities and other institutions that leverage on e-learning will especially benefit from creating and using OER, at the very least, as a way to complement currently available educational materials, or as an exercise in learning from, and emulating the quality of work provided by other, more established providers.

We can anticipate as well a future where through open licensing and OER, educational institutions can design fit-for-purpose courses and programmes by careful selection of relevant content. These courses and programmes can be made to cater to a specific target market or local needs, or even to suit different learning styles and delivery modes. This may prove to be a crucial element in the future of higher education itself, where the traditional higher education offering is likely to be unbundled and re-bundled, especially by savvy institutions catering to a wide range of learners and clientele — a development in line with the increasing pervasiveness of ICT and the changing notion of the relevance of higher education with professional demands.

However, a word of caution is warranted at this point, as the use of open licensed content or OER alone cannot hope to solve larger issues in education, e.g. quality of programmes and graduates and academia-industry discord. Rather, the increasing availability of learning materials that can be used, reused, modified and redistributed is an opportunity that education institutions can judiciously leverage on in order to narrow current gaps in higher education provision, which will hopefully contribute to a more positive outlook in the future.

With the many potential benefits offered through open licensed educational materials, it is likely that open licensing can further boost internationalisation practices, especially in terms of encouraging working relationships between institutions and improving the quality of academic courses and programmes. In achieving the former, the work of international organisations like UNESCO is essential. Through hosting events like the World OER Congress, effecting global declarations like the recent 2012 Paris OER Declaration that aims to boost the OER movement through various large-scale initiatives (UNESCO, 2012) and with the contribution of COL, releasing the Guidelines for OER in Higher Education in 2011, UNESCO is playing a major role in creating a platform through which institutions can foster collaboration on open licensing and OER. It is interesting to note that the UNESCO/COL Guidelines themselves have been published using a CC BY-SA license.

Educational institutions can leverage on these positive developments to take part in regional OER initiatives and other inter-institutional collaborations that can promote mobility, sharing and exchange, while doing their own part to promote open licensing as a way to share educational materials in an ethical and legally accepted means.

Given the open nature of the Internet where ‘copy-and-paste’ is easily executed with a few clicks, educational institutions need to make a conscious effort to understand the relevant laws and regulations related to copyrighted material. As has been expounded many times before, protecting the rights of authors and creators remains an important element in the production and distribution of materials.

Fair use of copyrighted material will continue to hold importance in the context of education. While fair use is commonly applied for teaching and learning purposes, many outside the OER sphere may be unaware of its significance. In this regard, this e-ASEM publication can help to emphasise that it is critical not only to understand the terms of fair use, but the overall relevance of licensing and what benefits and limitations are involved.

3.2

Considerations for e-Asem Member Countries and Other Relevant Educational Institutions

For e-ASEM member countries, open universities and other relevant educational institutions that have an interest in creating, developing or using OER, there are many points related to open licensing that are worth considering. The future prospects with relevance to OER and open licensing appear to be promising, provided that these points are given necessary attention.

As iterated earlier, lack of awareness is an ongoing issue. Educational institutions need to understand the salient aspects of OER and open licensing. Inter-institutional and regional organisations and associations, such as UNESCO, COL and e-ASEM, are one such avenue whereby this awareness issue can be dealt with. At the institutional and local levels, awareness campaigns can be conducted to educate faculty members, tutors, learners and other potential users.

At this juncture, it is necessary to acknowledge that of the near-limitless number of content available on the Internet, the current uptake of open licenses is not completely inclusive, although through the initiative of parties like MIT and Khan Academy, millions of open-licensed learning materials are already accessible, often with very few restrictions.

For educational purposes, it would be wise for education providers to leverage on

these currently available materials to complement or design academic programmes, rather than casting a wide net in search of usable content. In addition to Google-based services, many video-based websites, such as Vimeo, as well as music, image and photography websites like Fotopedia, Wikimedia Commons and SoundCloud also allow users to mark original work with CC licenses, thus making a considerable amount of relevant content valid for use, whether for education or any other purpose.

Quality is potentially one of the most essential features of open licensed educational materials. That the creation and distribution of OER can lead to national and regional repositories of learning materials is a positive development for the educational community, but at the same time, these learning materials need to be selected from the most suitable and of the highest quality. However, it must be said that licensed materials that allow for derivative work also provides an opportunity for quality improvement. This can encourage an open approach that welcomes enhancement; a reflection of a universal educational philosophy that emphasises sharing, exchange and betterment. Additionally, perhaps some form of peer review process can be put in place in order to ensure and improve the quality of published materials.

Promoting regional development will require institutions to consider solutions to language and cultural barriers, particularly in countries where English is not commonly used as a second language. Of course, through a license that allows for translation into other languages, MIT OCW has proven that this issue can be overcome, although a large-scale initiative involving many countries and institutions, for instance, one between e-ASEM member countries, may require a different solution.

Educational institutions need also to consider how OER will impact profit-making activities. Similarly, they need to evaluate how they intend to approach the concept of openness in education, as the increasing use of OER and large-scale initiatives such as MOOCs will continue to challenge the very conditions that have allowed education to be considered a tradable service. Many for-profit and private educational institutions argue over MOOCs, citing them as a disruption or a threat towards their

own income-generating objectives. What is critical at this juncture is for all types of educational institutions to consider ways to leverage on the features of MOOCs to improve curricula, delivery methods, teaching, learning and assessment practices. In short, openness in education, via OER and open licensing, should be seen not as a threat, but an opportunity.

Educational institutions and learners will only stand to benefit from the growing numbers of open licensed learning materials. In theory, an entire academic programme can be packaged using carefully selected resources and lesson plans. This can create a way for standardised curricula across institutions and countries as well as ease credit transfer arrangements as well as facilitate mobility of learners.

For many educational institutions that are still new to the concept of OER, it will be useful to create incentives to encourage faculty members and other relevant individuals to contribute to the creation and development of learning resources to share with external parties. Apart from promising academic and professional recognition to the relevant contributors, it is important for institutions to declare their commitment to the concept of openness and provide the necessary environments and support systems to encourage faculty members to adopt the same level of focus to this cause.

The continued growth of OER and open licensed materials plays an active role in providing solution to the problem of insufficient learning resources, particularly in underdeveloped nations and less privileged institutions. The idea of a nation- or region-wide repository to consolidate all relevant learning resources, like that of OER Commons and OER Africa, is indeed a useful one. Again, this links to the idea that academic programmes can be built on OER. As has been proven by many MOOCs providers, this is not only feasible, but can be executed well using an online platform, with learners hailing from all corners of the globe.

What these new developments indicate is that the future of education will only stand to benefit from the powers of the Internet and the many possibilities that it offers

— in particular, freedom, openness, universality, accessibility and opportunity for all. Open licensing has proven to be one component that is essential in creating an ethical, respectful and legally accepted means to realise the true potential of OER in a borderless, digital world.



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Contextualization of Open Educational Resources in Asia and Europe

04

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Abstract

Open Educational Resources (OER) are a promising concept for international collaborations: sharing, utilizing, and collaborating around OER across borders might help educational institutions and their staff to internationalize their activities. However, several barriers exist keeping stakeholders away from engaging in international collaborations. In this paper, we discuss the main challenges of OER uptake in international settings. Three case studies show potential solutions for OER uptake and collaboration in the European-Asian context. The case studies identify good practices, success factors and challenges. This paper provides a starting point for systematic analytical as well as design-oriented research on OER scenarios leading to a better understanding how to utilize OER in and for international collaborations.

1 Introduction

Open Education and Open Educational Resources (OER) are a promising concept for collaboration across borders. However, despite of the massive amount of existing Open Educational Resources, the adoption and take-up is still low. Even though the amount of resources is high, the uptake has not met the expectations of the community (Ochoa & Duval, 2009, Clements & Pawlowski, 2012). Many barriers exist, most of them related to cultural and contextual differences (Pirkkalainen & Pawlowski, 2013). Examples are language, cultural, knowledge and motivational barriers. In a cross border context, there is also a tendency towards exporting educational offers as a one-way transfer – in this context, OER are rarely seen as a possibility to create mutual synergies and long-term collaborations.

To overcome those barriers, it is necessary to create cross-border collaborations and strong partnerships. The main question is how to create collaborations around OER to overcome barriers and create OER for different languages, cultures and needs. The main aspect for successful OER uptake is the adaptation and contextualization process: how can OER be adapted to a new (global) context, i.e. a different geographical region with different curricula with different content requirements by learners and teachers. This process needs to be supported and facilitated overcoming the main barriers. This process includes a clear understanding of contextual influence factors (Munkvold, Richter, 2011) as well as awareness and skills on possible adaptation tools (Mikroyannidis et al, 2011, Abeywardena, 2012).

In our paper, we discuss the concept of Open Education and Open Educational Resources (OER) and related approaches. We discuss possible barriers and identify ways to overcome those. We conceptualize the adaptation / contextualization process connected to possible tools for adaptation. Last but not least, we discuss practices regarding global adaptation from throughout our community.

We show further examples of successful adaptation and contextualization of OER in different countries and cultures. This leads us to discussing and developing recommendations how OER should be used and contextualized across borders.

2

Open Education

Open Education has raised a lot of attention in the past years – the main initiative promoting and developing Open Education has been driven by the UNESCO for the last 10 years – on a European level, the new program on Opening Up Education shows the importance of this issue in the educational and professional communities

(EC, 2013). One of the main outcomes is the UNESCO Paris OER Declaration (UNESCO, 2012) which provides policy recommendations with a focus on global collaboration. The agenda explicitly aims at creating international collaborations to increase awareness, access and global networks:

“e. Support capacity building for the sustainable development of quality learning materials. Support institutions, train and motivate teachers and other personnel to produce and share high-quality, accessible educational resources, taking into account local needs and the full diversity of learners. Promote quality assurance and peer review of OER. Encourage the development of mechanisms for the assessment and certification of learning outcomes achieved through OER. [...]

g. Encourage the development and adaptation of OER in a variety of languages and cultural contexts. Favour the production and use of OER in local languages and diverse cultural contexts to ensure their relevance and accessibility. Intergovernmental organisations should encourage the sharing of OER across languages and cultures, respecting indigenous knowledge and rights. [...]” (UNESCO, 2012)

As a starting point, it is necessary to clarify our understanding of open education and in particular Open Educational Resources (OER). As OER, we understand

“any digital object which can be freely accessed, modified and (re-)used for educational purposes”

This broad definition includes a variety of different artifacts: learning objects such as simulations or animations, software tools like wikis or authoring systems, electronic textbooks, but also lesson plans or experiences shared. The main aspect is that the object is usable to improve education. The following classification shows the broad range of artifacts as well as parallels to other initiatives:

- Resources: Currently, the main research field is how to make learning objects (specific digital objects created for learning purposes) available and re-usable. This includes multimedia documents, simulations but also simple html web resources.
- Articles, textbooks and digital equivalents: This class of resources contains typical objects provided by libraries, such as articles, papers, books or journals. When becoming freely available, this class of objects relates to the concept of Open Access (Björk, 2004, Bailey, 2005).
- Software tools are used for different purposes, such as producing / authoring learning resources but also for communication and collaboration. Objects of this class are usually referenced as Open Source or Free Software (Raymond, 1999).
- Instructional / didactical designs and experiences: Educators are highly dependent on successfully planning and designing their learning experiences – this class of resources includes access to instructional designs, didactical plannings such as lesson plans, case studies or curricula. It also includes one of the most valuable resource: sharing experiences about materials and lessons between colleagues. This class of objects is also called Open Educational Practices (OPAL, 2011).
- Web assets: This class of objects regards simple resources (assets) like pictures, links, or short texts which are not usable on their own in a learning context but can be used to support or illustrate a certain topic. In many ways, these are objects found by google or similar search engines.

However, even though millions of OER are available and accessible, the uptake is still very low. The main question is therefore how users can be supported to find those materials, how to include them in the teaching process and how to adapt them to the own context?

What are the key aspects to adapt OER to a new context? This is the main questions of this chapter. As contextualization we understand the process of adapting OER to a new context such as change of geographical region, organization, educational sector or domain. In the following, we discuss barriers to OER uptake, contextual influence factors and the adaptation / contextualization process.

3.1 OER Barriers

As a starting point, a variety of studies has discussed barriers (Richter et al, 2013, Pirkkalainen & Pawlowski, 2013) regarding the uptake and adoption of OER. Pirkkalainen & Pawlowski (2013) distinguish between contextual, social, technical, quality and legal barriers. The contextual dimension seems to be the most important, sample barriers are:

- Lack of resources for sustaining services, content and infrastructures
- Lack of time for production and localization of OER
- For sharing OER, Need for Rewards and Acknowledgement.
- Lack of business model for open content initiatives
- Too many resources to choose from
- Hard to find suitable material – where to look from
- Lack of knowledge and awareness of open content
- Lack of knowledge and awareness of learning object repositories
- Lack of contextual information for the resources – how can be used or modified
- Difficulty level of content – found materials not suitable for specific students
- Open content do not fit the scope of the course
- Granularity of the materials

- Matching the resources to own curricula is problematic
- The effective use of OER is quite complicated and unclear (Pirkkalainen & Pawlowski, 2013)
- This initial list of barriers clearly shows users' difficulties regarding the uptake — the key to successful OER re-use is a clear understanding how existing resources should be adapted to match the new context.

3.2 Contextualization and adaptation

OER must be adapted towards a new context (Abeywardena, 2012, Wolfenden et al, 2012, Mikroyannidis et al, 2011). Different aspects can influence and determine the context. Richter (2011) has identified the broad range of factors which can influence learning processes and OER (see figure 1 below).

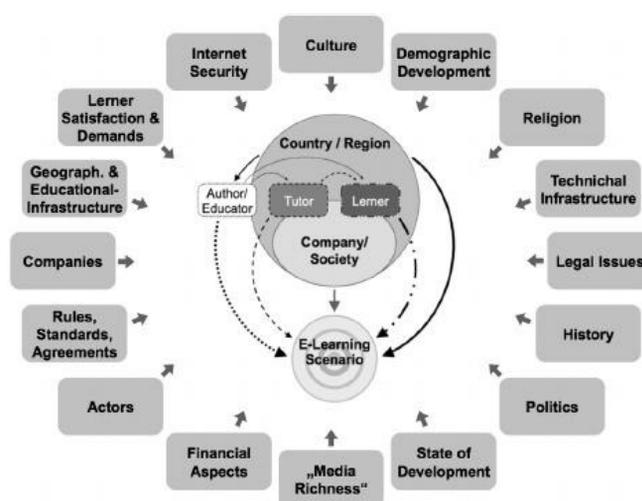


Figure 1 Contextual influence factors (Richter, 2011)

Based on these influence factors, different types of adaptation can be derived.

1. **Content:** The main adaptation process is done to the OER and the content itself.

Different types of resources (Abeywardena, 2012) such as text, graphics, simulations need to be adapted. This adaptation includes language and cultural changes such as translation, exchange of culture-specific concepts, names, date and time formats.

- 2. Curriculum, pedagogy and didactics:** An OER needs to be adapted regarding its suitability for a certain curriculum. Also, teaching and learning methods need to be adapted depending on the context of use.
- 3. Interaction and communication:** As part of the learning methods / activities, interaction patterns and communications are adapted. This also includes culture specific communication preferences as well as the adaptation of communication tools.
- 4. Media and design:** From an organizational perspective, media and design are adapted including an organization's identity (e.g. adapting layouts, logos, templates). Also cultural preferences such as colors or symbols / icons are changed. This aspect also considers changes of devices (e.g. from desktop applications to mobile app design).
- 5. Technical:** This adaptation process takes infrastructure and tool aspects into account, i.e. including organization-specific tools (such as LMS, authoring systems, communication or social software tools). In some cases, changes might be rather challenging when for example different networking capabilities (e.g. broadband)
- 6. Cultural (horizontal category):** The key aspects for adaptation are based on (geographical and organizational) cultural factors. It needs to be identified which cultural aspects are relevant and how those affect the above mentioned adaptation categories.

Based on these change needs, we can conceptualize the overall process, i.e., which are the steps of adaptation and contextualization when using OER, how do actors collaborate. The following lifecycle / process model shows the steps of adaptation:

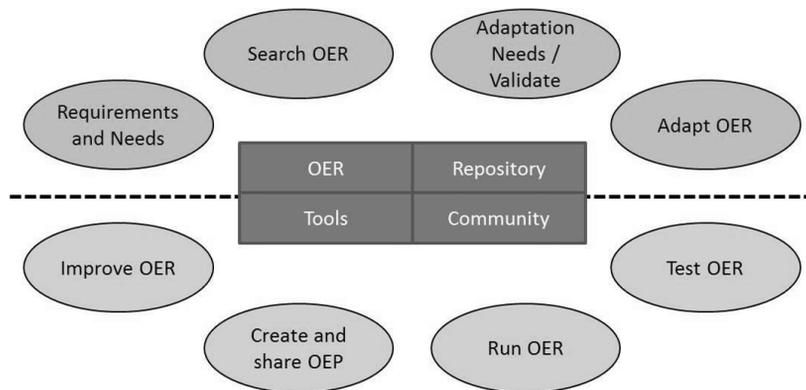


Figure 2 OER Lifecycle

1. **Requirements and Needs:** In an initial step, requirements and needs for learning offers are identified (e.g. a new course needs to be designed).
2. **Search OER:** In this step, different repositories as well as search engines are used to find possible OER-candidates for re-use.
3. **Adaptation needs:** This phase analyzes, which changes needs to be made to the available OERs. The OER candidates are validated by identifying adaptation needs as well as estimating the adaptation efforts for the above mentioned adaptation categories.
4. **Adapt / Contextualize OER:** Resources are adapted based on the identified needs. This should include suitable tools (e.g. authoring systems, design tools) for adaptation.
5. **Run OER:** this phase describes the actual implementation and realization, i.e. a course is held in the new context.
6. **Create and share OEP:** As a result of the use of OERs, practices should be described (OEP) and shared.
7. **Improve OER:** Based on the experiences and practices, improvement suggestions should be identified and realized for the original as well as the adapted OER.

The lifecycle is the basis for our analysis. It defines the steps of OER adaptation and contextualization. It is obvious that the process is much more complex in a cross-border context.

A variety of guidelines have been developed and should be considered in the process. Some guidelines provide basic recommendations (Groom, 2013, Kanwar et al, 2011), some are specific for global adaptation processes (Pawlowski et al, 2012, Abeywardena, 2012, COL, 2011). As an example, we show the key recommendations by Pawlowski et al. (2012):

1. **Initiation:** Use trusted relationships as a starting point. Not all materials are re-used as they could. Try to arrange partnerships within your various networks!
2. **Initial barriers:** Be clear about the problems which might occur. OER are still seen rather skeptical. Most important barriers to overcome are legal issues, a fit to the (re-users') curriculum and context, and – most important – cultural differences.
3. **Trust Building:** Invest time in conceptual work and trust building. Re-use might lead to good collaborations. When you arrange international collaborations, take your time to discuss key concepts and your understanding of those.
4. **Cultural learning processes:** Learn about your peers' cultures. We have seen that it is necessary to reflect on one's own and collaborators' cultures. This reflection process is necessary to understand the specific requirements and characteristics of learning processes.
5. **Adaptation:** Identify cultural issues and adaptation needs. The adaptation process is not only about translation. It needs adaptation for target groups (in our case for different international students or for SMEs).
6. **Re-Use:** Keep track of re-uses of your resources. There is not yet a way to follow up on all re-used materials. There is a need to keep track of resource usage (which can also be used later to define the quality of resources – e.g. similar to citation indexes).
7. **Rights:** Clarify legal aspects within the resources. It would be useful to have clear explanations on licenses and IPR as support as well as in the learning

materials themselves.

8. **Follow Up:** Ask what's happened to your resource. Therefore, it might be useful to request information on re-use, desirably in an automated way.
9. **Further Services:** Notification and Tracking is the key. The most important service is from our point of view a reminder and notification services – what was done with a resource, how has it been re-used, have there been commercial usages?
10. **Rewards and Appreciation:** Use OER as part of your educational CV. OER are not taken as part of academic or enterprise performance indicators (such as citations). However, if resources are used in the international context, this means also a strong international reputation for individuals.

In spite of the challenges, the multiple (cultural) perspectives lead to new resources, experiences and also collaborations between the participants.

4

Case Studies: OER Adaptation and Contextualization around the Globe

The following chapter shows different experiences and views on OER adaptation and contextualization from different countries and settings.

4.1 Methodology

The main goal of this paper is to identify the critical success factors. We will compare three cases in a multiple case study (Yin, 2003). For each case, we describe

1. **Motivation and context:** Why is the case relevant? What is the setting of the case?
 2. **Case description:** Short description how the adaptation and contextualization was realized and implemented.
 3. **Case results:** What was achieved, what are the key results?
 4. **Barriers and Critical success factors:** Which are the main aspects to consider in the case? What are the main challenges and problems for the adaptation process? Which positive and negative factors must be taken into account.
- Based on these aspects, we analyze the cases towards common lessons learned and recommendations.

4.2 Open Educational Ideas in a Cross-Border Context

One case is the example of applying the concept of Open Educational Ideas (OEI) in an international context (Pawlowski et al, 2013). The concept OEI aims at creating collaborations at early stages (e.g. when courses are needed in the near future). The main goal is to create collaborations working together towards Open Education. The OEI collaborations can aim toward shared practices and projects, development of joint courses or resources.

Open Educational Ideas (OEI) describe the concept of freely sharing educational artifacts between stakeholders at an early stage of the design and development process (Pawlowski et al, 2013). The main idea is to create emotional ownership towards OER by engaging at an early stage of the development process (Open Educational Ideas & Innovation) in collaborations with peer educators.

In the following, we start a brief description of the case with a focus on the adaptation and internationalization processes.

Motivation and context

The case was carried out as a collaborative project between one Finnish and two German universities. The main idea was to develop a collaborative teaching offer in the field of “Global Knowledge Management”. The course (Masters level in Information Systems, Computer Science and related subjects) was developed by adapting different materials towards an English version of the course for different teaching scenarios in Finland, Germany and China. In further iterations, it was modified and improved for further scenarios.

Case description

In the following, we will briefly outline the case – the case focuses on internationalization and adaptation needs in the process.

Requirements and Needs:

As a starting point, a Finnish university has expressed the need to develop a course on “Global Knowledge Management”. As a starting point, the “Open Educational Idea” was expressed to develop a course as a collaborative teaching offer. The request was given to selected colleagues across Europe to develop a common offer. The request was expressed describing the main requirements and needs:

- Context factors: in which setting will the course be needed (Higher Education, Master Program)
- Course specifics: Main subject (knowledge management), main learning outcomes, learning scenario (block course using blended learning)
- Key requirements and needs: Development of exercises, case studies
- Based on this description, two colleagues agreed to provide input and support the collaborative teaching.

OEI view: In this stage the invitation for collaboration was distributed in closed groups in online social networking sites (LinkedIn, Facebook, Twitter) as well as in internal systems of the Universities. The difference to traditional open approaches and the starting point for emotional ownership is to engage with trusted people who can be shared with early / draft information.

Search OER

In an initial step, teaching materials of three colleagues were used. The context of the initial teaching materials was rather different (university in Germany, Business School in Germany, Finnish University). However, it was agreed to work on developing common OER.

OEI view: The OEI view does not limit the sources used for discovering resources. It is suggested to use online OER repositories that do provide materials with a creative commons license. The OEI process does not limit on how you start your collaboration and sequence your work. The outcome of the process might be a joint practice or a project as it can also be a joint course or OER. As long as it serves open education.

Adaptation needs / Adaptation

As a starting point, the materials were compared – for this, a common Concept Map was developed in the target language (English). In the concept map, all topics and learning scenarios were listed. Then, it was discussed with adaptation needs would occur:

- Content: Some materials were available in the target language, some materials needed to be translated. Further materials needed to be developed to provide a consistent course structure.
- Curriculum / Learning Scenarios: Generally, most parts did fit the curriculum of the target country. Most exercises and one larger case study needed to be adapted due to the context and the format of the collaborative teaching (summer school). Also, due to the setting more group work was planned.
- Design: A common design was used. However, credit to the original developers was provided.
- Generally, the adaptation needs were focused on 1. content translation, 2. new learning scenarios, and 3. design harmonization. The contextualization was then agreed within the collaboration. Each professor provided input for learning scenarios and adapted language as well as design using a collaborative tool (here google docs).

OEI view: In the OEI process, the collaborators can use the tools of their own choosing. It is important that people share ideas with the methods that work well in that group of collaborators. Most common ways to develop ideas together online is to use collaborative services that are available without registration, such as collaborative writing and collaborative mindmapping.

Run OER / Create and share OEP

The course was successfully run in a summer school. Feedback was gathered from students and teachers to create improvement suggestions. The practices (OEP) were then shared between the stakeholders.

The course was after the initial stage run in different scenarios and settings, amongst them Higher and Further Education settings in Germany, Hungary, Bulgaria, Iran and China. For each setting, the main adaptation was the development of further learning scenarios and culture-specific examples and exercises.

OEI view: The OEI process is aimed for feedback from the key communities of practice to increase the quality of the resources and make OER sustainable. In this collaborative effort, the OEI (the jointly created course) was opened up for feedback after initial piloting in a summer school. This way, the jointly developed idea had already matured in a way that the collaborators were confident on sharing it with others. The feedback was initiated by public sites and social networks, asking for concrete feedback and to be part of the collaborative course development. The stakeholders that replied to the request were from heterogeneous contexts. By engaging them to the collaborative action and contextualization process, it was made sure that the principles of emotional ownership were followed. This approach confirmed that stakeholders need to feel a sense of belonging and personally attach themselves to the resources. The adaptation mechanisms and usage of tools were again selected by the collaborators themselves. Mainly focusing on well-accepted online tools by google as well as offline working methods with desktop applications. All the results were shared in a common workspace.

Improve OER

The course has after initial feedback been improved several times – the course outline as well as the contents were updated several times by participating authors as well as by other educators (e.g. in Iran). This led to significant improvements and extensions.

4.3 Results

The concept of sharing ideas and needs at a very early stage has been proven very successful, in particular for the cross-border collaboration and the contextualization process. Even though the settings were culturally rather similar, a variety of lessons have been learned from the adaptation process.

- 1. Content development:** It is rather useful to have a common template and a common bridging language. It seems useful to have a common outline and planning document in a common language (e.g. English). This is especially useful when further adaptations are done.
- 2. Translation:** Translation is one of the main efforts. Simple content structures can be translated using machine translation, however, contents need to be translated manually. Anyway, the translation of parts of the contents still takes less effort than new developments.
- 3. Collaborative adaptation:** Sharing responsibilities and workload is useful when working with common course developments and Open Educational Ideas. It is strongly recommended to utilize collaborative editing tools which can handle multiple languages and versions.
- 4. Design Adaptation:** The design in our case was only slightly adapted to the hosting institution. However, in many cases design adaptation takes more effort due to different color perceptions, symbols, icons and their interpretations. Therefore, it is useful to incorporate design and layout only at a very late stage. Tools to separate content and layout are thus strongly recommended.

5. Learning scenario adaptation: This aspect is the main task for collaborative developments based on OEI and OER. Due to different contexts and settings, it is necessary to adapt the scenarios. Mainly, authors for a specific target region should be responsible for creating new learning scenarios, examples and exercises. For this part, tools should be utilized which allow connecting contents and didactical scenarios (e.g. learning design editors) in collaborative ways.

These main aspects need to be addressed in any adaptation / contextualization project. Our experiences, however, have shown that the adaptation needs and efforts decrease the earlier collaboration is initiated. When already planning adaptation and sharing adaptation efforts at very early stages (as it is foreseen in the idea of OEI), it is by far easier to include adaptation needs. It thus can be stated that the concept of OEI seems to work well in cross-border scenarios.

4.4 OER Localization in the Philippines: The Case of UPOU

Motivation and context

In the Philippines, education is considered a universal and a constitutional right that every Filipino is entitled to. It is considered as a “key investment” that will eventually address poverty-related issues in the country. As of 2013, there are currently 2,299 higher education institutions (HEIs) in the Philippines, of which 28.53% are public HEIs, while the rest are private. Enrolled in these HEIs are some 2,986,023 students. Although there is an increasing number of enrollees in tertiary education in the Philippines, the dropout rates continue to be high as only one out of six enrollees actually graduates. Aside from this challenge, the education sector as a whole suffers from the lack of; if not poorly maintained infrastructure; lack of capacity among teachers as well as the dearth of available materials as well as libraries that could be utilized by the students.

It is this context that the potential of using open educational resources (OER) in the Philippines is high. According to Arinto & Cantada (2013), conditions for the adoption and development of OER already exist in the Philippines. Some of the factors they pointed out include the increasing connectivity to the Internet in general and in schools and higher education institutions (HEIS) in particular, government support for Internet connectivity for schools, and the increasing interest of HEIs towards online learning. Moreover, since the medium of instruction in the Philippines is English, it is easier for Filipinos to consume OERs. This is complemented by the attitude of openness and high exposure of the Filipinos in social media which makes it easier for everyone to utilize any material that is available online.

The University of the Philippines Open University and its Role in OER

Established in February 23, 1995, the University of the Philippines Open University (UPOU) is recognized in the Philippines as a pioneer in open and distance education. The UPOU aims to provide quality higher and continuing education through distance education and e-learning. It is recognized by the Commission on Higher Education as the Center of Excellence in Open and Distance Education. The UPOU's mission is to provide education opportunities to individuals who aspire for higher education and improved qualifications but are unable to take advantage of traditional modes of education. UPOU offers a wide array of academic programs, undergraduate and post-baccalaureate, spread through its three faculties. Moreover, it also offers non-formal courses such as online teaching and learning, new enterprise planning, and professional teaching certification program, among others (<http://www2.upou.edu.ph/academic-programs>).

The UPOU as a catalyst in the use of OERs

The UP Open University, being the premier University in the country recognizes the importance of OERs. Villamejor-Mendoza (2010) reports on the state of openness of the UPOU and identifies OER as one of the four parameters of openness (the others are open admissions, open curricula, and distance education at a scale) and maintains that UPOU is 66% open in terms of OER use, creation and sharing and

is “positioned to lead in the OER movement” in the country (Ibid.: 146).

The Resource Based Content Package (RBCP) Approach

Villamejor-Mendoza (2010) noted that UPOU’s transition to a resource-based approach to course development signifies an active move towards OER sharing and distribution (Ibid., 2010: 144) – a manifestation of the growing receptiveness to OER and at the same time a contributing factor.

Formally, UPOU defines RBCP as “a detailed study guide, to both on-line and off-line resources considered to be the core set of materials for a course. The resources may contain commentaries, detailed explanations, and examples, as well as self-assessment questions and activities.” (UPOU, 2013). This shift towards resource-based course package (RBCP) is characteristic of what Hermosa and Anday (2008: 93) explain as the “fifth generation distance learning” wherein “instead of having a main textbook or set of course modules authored by one writer or team of writers, instructors now look for various resources to help them achieve course goals.” Examples of such resources include Web-based publications and other materials in digital format such as podcasts, webcasts, as well as features of Web 2.0 like blogs, wikis, shareware, and virtual communities.

An example of RDCP can be gleaned from the course “Gerontologic Nursing” wherein it utilized OERs but localized its application by students themselves (See Figure 1.)

Case Study: The Use of OER in a local course on Gerontologic Nursing
Sheila R. Bonito

Background

Gerontologic Nursing is an elective in the master's program in nursing focusing

on the care for older persons based on age-related changes and common health problems in old age. The online course is intended for students to broaden their understanding of the dynamics of the aging process, identify the common health problems among older people and plan for their individual care. The course also introduces students to the role of nurses as advocates for providing care and support of older people in the community.

The RBCP

The course uses OER materials organized as a Resource-Based Course Package (RBCP). The RBCP is composed of study guides, resource materials, and activity guides organized by the Faculty-in-charge. The study guide is a detailed guide to, or overview of, each set of resources in a resource package. It is composed of: (1) overview of topic around which the set of resources is organized (“organizing principle”); (2) learning objectives; (3) key concepts; (4) resources; and (5) study guide questions. Resource materials are most often open educational resources (OER) organized per module and could be part of the study guide. On the other hand, an activity guide usually contains: (1) rationale / objectives; (2) task and output, (3) resources and tools, (4) procedures to be followed; (5) assessment criteria (if the activity is to be assessed); and (6) student support materials that may be needed (e.g.

templates, glossary, guide questions, notes).

The Use of OER

The use of OER in the course is essential since it allowed faster updating of the course materials and use of a wide variety of materials on ageing and care of older people.

In selecting resources for the course, it was important to focus on the learning objectives. The materials should not only be the latest information but would also support the students in achieving the course objectives. For example, an online questionnaire was called “Real Age” was used in the course as a springboard for discussion on dynamics of the ageing process, that is, different individuals age differently because of many factors, and one of them is the lifestyle habits. Localizing content was also an issue that was addressed by making students conduct their own interviews of older persons based on an interview of a 104-year old woman from another country. The video gave them an example of how the interview process should be done and let them gain insight on the possible challenges and triumphs. Another OER material that was used in the course was the Virtual Clinical Experience multimedia courseware developed by UPOU funded by the International Development Research Centre of Canada. This open courseware contained a case study of an older person with Alzheimer and some learning tools on history taking and physical examination. The courseware has a heavy file size and so it was downloaded in the UPOU Networks website (instead of the learning management system) to allow students flexibility in accessing heavy files.

Challenges

The challenges that need to be addressed in the use of the OER in the course, include: (1) finding appropriate materials that would fit the learning objectives of the course, (2) localizing the content, and (3) how to distribute the materials to the students.

2 Introduction to Aging (16-29 November 2013)

This unit introduces the concept of aging, economic and socio-cultural implications of population aging, epidemiological transition and profile of aging populations across the world.

- What is your real age?
Restricted: 'Available until 5 March 2014.'
- RealAge test
Find out your real age
- Country profiles of aging population
Restricted: 'Available until 5 March 2014.'
- Aging populations
Compare how aging populations are faring

3 Dynamics of the Aging Process (1- 13 December 2013)

Dynamics of the aging process include the topics: life course perspective and the physiologic, psychologic and social aspects of aging

- Interview with an Older Person
This is an interview of Caroline, aged 103 in 2005. It is an amazing interview of a person who has lived through many great changes in the world.
- Interview with Caroline
Restricted: 'Available until 5 March 2014.'

Results: Issues, Challenges and Prospects

The RBCP Approach is now utilized by the UPOU in terms of content development, however, there is still a need to evaluate how OERs are being customized. Several issues, challenges and prospects are as follows:

Policy level – The UPOU as part of the University of the Philippines system, still lacks a clear policy on OERs. The University has an existing policy on intellectual property rights (IPR) which puts emphasis on the need to protect the property rights of the UP as an academic institution. Hence, although there is an existing practice of using OERs, the products of the University remain to be restricted. This makes things a little bit complicated but constant discussion and articulation on the relevance of OERs could lead to the creation of a policy that will suit the needs of the UPOU in particular.

Resource Constraints – The University receives a regular appropriation from the government. However, there is also a need to update and acquire equipment and software as well as improve interconnectivity.

Capacity Building for RBCP – There is a need to orient content developers about OERs and the RBCP approach of the UPOU. This will provide a clearer understanding on how OERs can be customized to fit the courses being developed.

Quality Assurance – There is a need to design a mechanism that will ensure quality in the use of OERs.

Co-sharing of materials with Institutional Partners – The UPOU has a lot of institutional partners locally and globally. It should also explore co-development of OERs that can be shared.

Course Evaluation – There is a need to review how OERs are being utilized and even customized through the RBCP Approach. Since most of these materials are still being developed, it might be important to review them once they are finished and include a study on how OERs were customized.

As a summary, the UPOU case shows potentials for international usage of OER. With successful preparations on a strategic and policy level, the university has provided the basis for OER uptake and international collaboration. Specific challenges to perform successful collaborations have been identified in this case and can be addressed in future actions.

4.5 OER in Malaysia

The OER universe has grown tremendously over the last decade, and several initiatives have been carried out to make it easier to find relevant OER for our learning, teaching, and research needs and requirement. However, until today, there is no ideal one-stop federated search, where we can search all OER shared around the world, and then find what we are looking for in an efficient manner. While reusing or remixing OER can have a positive impact in improving many areas of education

in Malaysia, it is not sufficient if we just aspire to become a leading country in the areas of knowledge creation, creativity and innovation. To be a leading nation in these areas, we must go beyond knowledge consumption to embrace the willingness to create, innovate and share with the growing OER world. In this session, we will explore some of the most prominent OER initiatives taking place in Malaysia from both an institutional and an individual perspective.

Institutional-Initiated OER

Wawasan Open University & OER Asia

The Wawasan Open University or WOU (<http://www.wou.edu.my>) is a new university and it is the youngest among Asia's 70 open universities engaged in open distance education. It aims to take advantage by leapfrogging three or four generations of distance teaching practice by using all of the technological assets available to it.



Figure 3 OER Asia

The Institute of Research and Innovation (IRI) of the university is committed to exploring innovations in teaching and learning, especially in the new technology enabled and enriched environment. IRI is presently mobilising funds to support its mission as well as develop a network of Asian researchers studying OER and Open CourseWare (OCW) development on the continent. WOU maintains an OER website known as OER Asia (Figure 1), which is an Asian forum dedicated to sharing information, views, opinion, research studies and knowledge resources on OER. In addition, it also provides guidelines and toolkits on good practices related, which is accessible at <http://www.oerasia.org/oer-workshop>.

Open University of Malaysia OER

Open University Malaysia (OUM), established in 2001, is Malaysia's premier open and distance learning university. It has since offered more than 70 programmes comprising over 900 courses with a cumulative enrolment of over 90,000. OUM OER (Figure 2), accessible at <http://oer.oum.edu.my/>, is an effort by the Institute of Quality, Research and Innovation (IQRI) meant to share some of OUM's learning resources with the general public. It is managed by OUM's Institute of Teaching and Learning

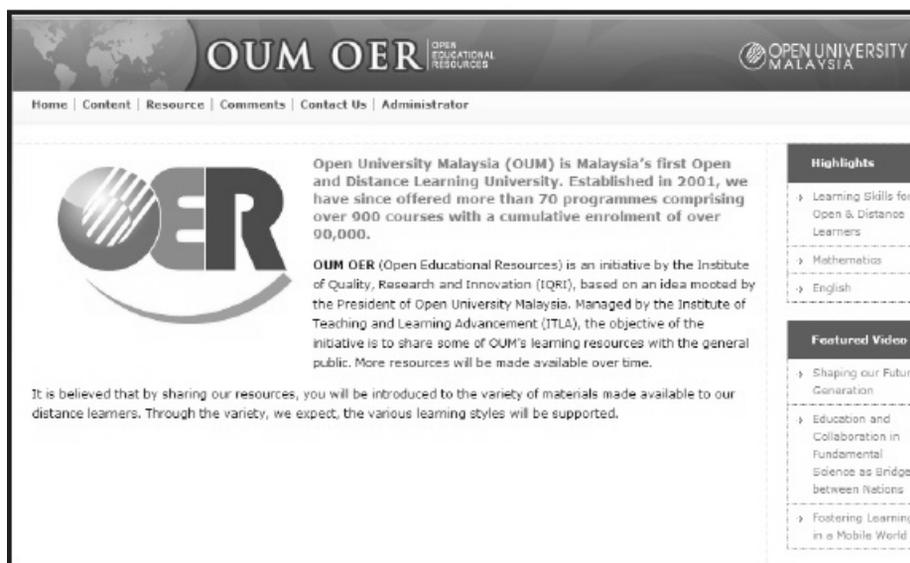


Figure 4 Open University of Malaysia OER

Advancement (ITLA)

University Teknologi Malaysia Open CourseWare

Universiti Teknologi Malaysia is a member of the global Open CourseWare Consortium. More importantly, only UTM has published its Open CourseWare. UTM Open CourseWare (Figure 3) is a collection of high-quality digital learning materials based on courses offered at the university. The learning materials, in a complete course format, often include lecture notes, lesson plans, and exercise questions.



Figure 5 UTM Open Courseware

International Medical University (IMU) Webinar Learning Series

The aim of the International Medical University (IMU) Webinar Learning Series (Figure 4) is to connect inspiring and exceptional educators around the world to share their knowledge, best practices, experiences and wisdom related to learning

and e-learning with educators attending the series from Malaysia and around the world. The life webinar sessions, and all the sessions are recorded, and made available online as OERs (<http://imuelearning.blogspot.com/p/imu-learning-webinar-series-2012.html>). A total of 14 webinars have been successfully completed since the series was launched late 2011, and it has attracted many world-renowned learning experts.

Date	Time	Speaker	Online Talk	Registration	Recording
11 Dec (2011)	2:30 PM	Zaid Ali Abangoff & Fareeza Marican	Facebook for Teaching & Learning	Closed	View
11 Jan	2:15 PM	Zaid Ali Abangoff & Fareeza Marican	Web Conferencing for Teaching & Learning	Closed	View
8 Feb	10:00 AM	Tom Kuhlmann	How to Become a Rapid E-Learning Pro	Closed	View
22 Feb	10:00 AM	Stephen Deumes	Facilitating a Massive Open Online Course (MOOC)	Closed	View
21 Mar	10:00 AM	Karl M. Kapp	Games, Gamification and the Need for Engaging Learners	Closed	View
10 Apr	10:00 AM	Curtis Borik	From Tinkering to Tottering to Totally Extreme Learning	Closed	View
25 Apr	10:00 AM	Prof. Mohamed Amin Embi	e-Learning in Malaysian Institutions of Higher Learning: Lessons Learnt, Issues & Challenges	Closed	View
16 May	4:00 PM	Jane Hart	Social Learning Revolution	Closed	View
30 May	10:00 AM	Prof. Rozhan M. Idrus	Using Technology for Engaging and Effective Learning	Closed	View
6 Jun	10:00 AM	Jeff Cobb	10 Ways to Be a Better Learner	Closed	View
27 Jun	10:00 AM	Jane Bezarth	Instructional Design for the Real World	Closed	-
11 Jul	4:00 PM	Steve Wheeler	Social media & Mobile Technology: Learning in a Digital Age	Closed	View
12 Sep	10:00 AM	Connie Malamed	Your Brain on Graphics	Closed	View
2 Nov	10:00 AM	Dr. Nellie Deutsch	Authenticity & WizIQ	Closed	View

Figure 6 IMU Webinar

Individual & SIG Group Initiatives

Web 2.0 OER

One of the most prominent contributors of OER in Malaysia is Prof. Dr. Mohamed Amin Embi from UKM who has pioneered the creation and dissemination of materials on the use of Web2.0 tools for teaching and learning. In 2011, he initiated the publication of a series on ‘Web 2.0 Tools in Education Series’. These materials are available in the form of e-books which are accessible at scribd.com. Presently, there is also a one-stop centre on these Web 2.0 Open Educational Resources accessible at <http://www.scoop.it/t/web-2-0-learning-teaching>.

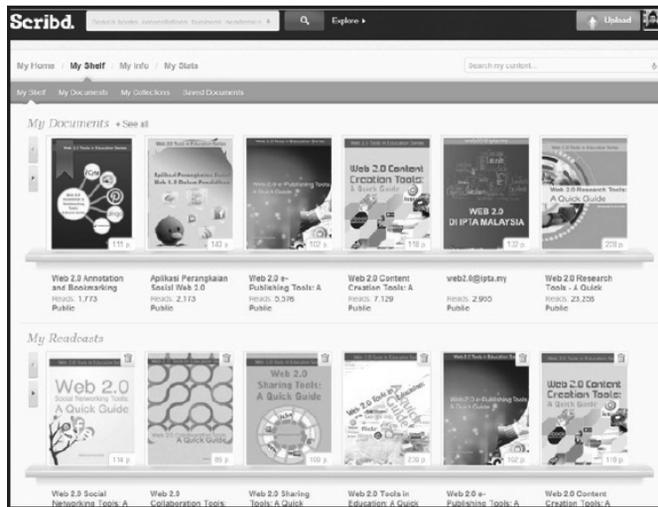


Figure 7 Web 2.0 OER

Just-in-time Training 2U (JiT2U)

JiT2U, is designed to introduce educators worldwide on how to utilise selected Web 2.0 tools in teaching and learning Figure 6 Just-in-time Training. In JiT2U, tutorials are presented in various formats, including videos, PowerPoint presentations, easy guides or manuals and e-books. JiT2U is designed by combining three simple concepts that suit mobile content: namely, i) ‘just-enough’, ii) ‘just-for-me’ and iii) ‘just-in-time’.

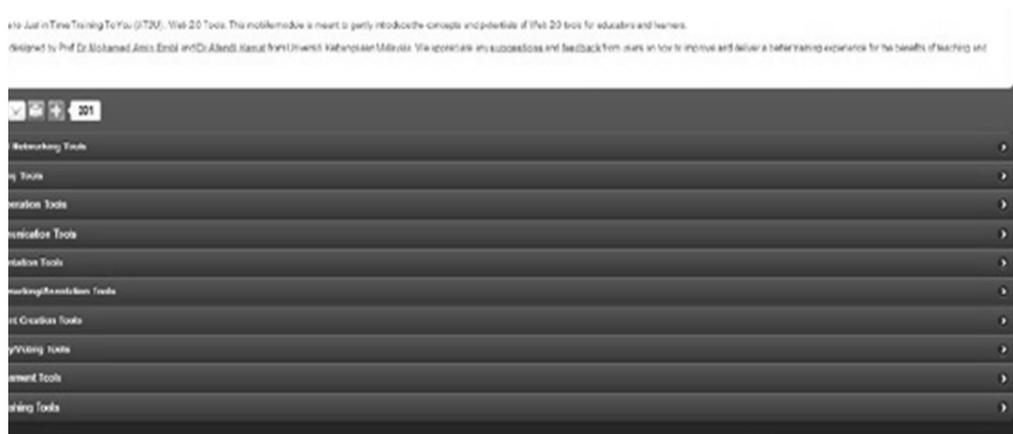


Figure 8 Just-in time Training

ZaidLearn

ZaidLearn (<http://zaidlearn.blogspot.com/>) is a blog maintained by Zaid Ali Alsagoff, the e-Learning Manager and Fellow of Centre for Medical Education at IMU (Figure 7). Since 2007, he has been openly sharing his learning adventures, workshops, talks, discoveries and ideas on how to transform education using technology. All the presentation slides for his workshops and talks have been made available under the Creative Commons license (3.0) on Slideshare, and is today well known locally and internationally for his expertise in this area. According to Google Analytics, his contributions to the OER movement have been viewed by people from more than 200 countries and 13,800 cities around the world.



Figure 9 Zaidlearn

Learning Innovation Circle (LIC)

The Learning Innovation Circle (<http://www.facebook.com/groups/t4t2011/>) (Figure 8) is an open online learning and sharing community initiative, which was initiated by Prof. Zoraini Wati Abbas in 2011. Today it has more than 470 members, and includes many prominent educators from Malaysia and overseas. This interactive and engaging online group is always exploring new ideas and challenging one another to transform education for the better. The most notable contribution to materialise so far from LIC is the ‘Learning Innovation Talks’ (LIT) series.



Figure 10 Learning Innovation Circle

Issues and Challenges of OER

As illustrated in the earlier sections, there are various initiatives by the institutes of higher learning in Malaysia that support OER use and development. It can be revealed that all institutes are confident of establishing a functional and sustainable OER platform and advocating knowledge as a public good. The institutions also envision speedy development of OER and OCW (Open CourseWare) using rapid e-learning tools that are readily available in the market. However, there are issues and challenges that must be addressed especially in relation to the people involved in OER development and as follows:

i) Awareness and adoption of OER

Although most top management in the institutes of higher learning are championing e-learning, the notion of open, and free educational resources for all has not caught up with many academicians. Awareness of OER and OCW among them is still at a low level and the trickling down of information requires super-efficient channels. In terms of adoption, the vast resources may overwhelm instructors; thus,

training is necessary. Lecturers should not be left to deal with the OER without assistance. The 2012 Babson Report on OER in US Higher Education found that time and effort to find and evaluate OER to be the most important barriers by faculty to the adoption of OER.

ii) Access and technology competency

Though it is not fair to make generalizations, many of the senior academicians tend to be less competent and skeptical towards online learning. Searching for the best OERs may become a chore to these academicians. This is again supported by the recent Babson Survey Research Group report where it is stipulated that the older faculty have a greater level of concern with OER adoption than do younger faculty.

iii) Time and commitment

Generally, in a Malaysian university main structure, research component plays a big role in thwarting the development of OER. Since the process takes time, academicians may opt to not develop OER, but to concentrate on research output that will ultimately be evaluated for annual appraisal, promotion and salary increase.

iv) Culture of Sharing

The lack of sharing culture among academicians is also an issue in determining the success of OER implementation in Malaysia. Conventional teaching sees the academicians as the ‘master’ and the provider of knowledge. Acculturation of resource and information sharing, the idea of open access, re-using and improving the resources are still not widely practiced by most academicians.

v) Quality of OER and understanding of copyrights and creative commons attributions

This is a perennial issue in e-content development. OER and its concept of use, re-use and sharing for teaching, learning and research purposes stand to be the point of debate especially among those with the ‘the textbook is the course’ mind-set. There are academicians who prohibit the circulation of their teaching

materials, proclaiming intellectual rights and individual work. In relation to the above, understanding of copyrights and the function of Creative Commons are pertinent to successful development and implementation of OER.

Those issues and challenges are some of the hurdles that Malaysian universities have to overcome towards the success of the development and implementation of OER in Malaysia. However, academician must go beyond knowledge consumption to embrace the willingness to create, innovate and share with the growing OER world.

Conclusion

There are several Malaysian universities and individuals starting to embrace OER and this could inspire Malaysia towards becoming a leading nation in this area in the coming years. Some universities have recognised earlier on the value of the web as a method to cheaply and effectively disseminate information and knowledge. On the other side of the equation, some have also employed traditional media in order to raise awareness on the availability of the online open resources. Understanding the concept of OER may be significant in helping academicians in universities and higher institutions to develop new thinking of new knowledge construction to the people outside their classroom. In addition, the use of OER can be perceived, not as a more rational improvement to education, but as a further refinement in the exercise of education. Whether this happens or not, academicians should embrace OER, and use it as a tool to transform learning and teaching in Malaysia. By embracing the OER movement and contributing to it, academicians can make a difference in transforming education in Malaysia and around the world. Many international collaboration opportunities will exist and should be utilized in the future.

OER are seen as very promising in all the three cases. It was seen that there are already a variety of initiatives and actions in place. However, several challenges remain, the following recommendations summarize the key issues and future interventions:

- **Integration of OER with existing initiatives:** A variety of initiatives has already been developed. These need to be integrated into broader OER adoption.
- **Policy support** is needed on a national level as well as in university strategies. There seems to be an indication that Asian universities have OER higher on the agenda than universities in Europe.
- **Capacity and awareness building** is a key issue to success. Stakeholders in all countries need to be informed and educated on the potentials of open education.
- **Cross-border collaboration** happens already mainly on a regional level. No broad initiatives exist currently between Asia and Europe and need to be initiated.
- **Quality assurance** is a key issue. Resources and courses need to be quality assured taking the different country- and organizational requirements into account.
- **Institutional partnerships** can support the utilization of OER. Existing and new partnerships should include OER as a means for collaboration.
- **Early sharing:** Idea sharing is a promising concept towards the collaborative development of OER and towards intensifying collaborations. Not only OER should be shared but also OEI and OEP to share in all parts of the lifecycle.
- **Collaboration processes and tools** are necessary to facilitate cross-border collaborations and OER development. It is important to ease adaptation and in particular translation as well as cultural processes. Standard tools should be integrated allowing simple collaborative development and adaptation.

It can be stated that the case studies show good practices for some of the above

mentioned challenges such as providing policy support, collaboration processes and tools. The cases show a basis on which we should build further research to identify how cross-border collaborations can be facilitated in the best way. The key challenges need to be addressed in collaborative, design-oriented research leading to better and intense collaborations around OER between Asia and Europe.

6

Summary and Outlook

The use of Open Educational Resources creates a variety of opportunities but also challenges in cross-border collaborations. Re-using OER can create a variety of barriers for organizations and individuals. However, several promising solutions exist to create successful cross-border re-use scenarios and practices. One key concept for creating successful collaborations is the concept of Open Educational Ideas (OEI) in which cross-border teams work on collaborative, multi-language, multi-cultural course developments. Starting collaborations at early stages eases the planning of adaptation and decreases adaptation efforts.

Our case studies have shown good practices for adaptation and contextualization in cross-border settings from very different perspectives. This is a first step to understand and optimize adaptation processes (and global educational collaborations). The cases from Malaysia and Philippines have shown a strong movement and uptake which can be a good base for future collaborations across borders.

However, many new research questions came up. It will be necessary to better (and automatically) identify adaptation needs and create model processes for adaptation. In the Philippines, key issues were identified such as policy support needs as well as quality and evaluation requirements. Additionally, cross-border studies are neces-

sary to understand adaptation for different settings (e.g. between Northern European and South East Asian universities).

As a summary we can say that the use of OER and OEI is a promising alternative for all educational sectors when barriers are overcome. Improved collaboration in any stage of course development processes is a main step towards global success scenarios.



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Open Educational Resources Pedagogical Perspectives of Asian and European Scholars

05

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While studying for her doctoral degrees in Thailand, she has been working for several companies and conducting research projects including social media marketing, social media tools for teaching and learning, curriculum design and development, online engagement, academic integrity, tablet training for teacher education, as well as pedagogical approaches for open educational resources.

Her professional career took her from providing basic instructional design and development in both the private and the public sector to teaching professional development in the academic area. The experiences she has learned have provided practical experience and meaningful knowledge for her future professional career.



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Gábor is an international PhD. aspirant at the University of Economics in Bratislava, Slovakia. His doctoral research is focused mainly on global investment in research, development and innovation and its interference with social inequalities and quality of life. Gábor has also served as a governmental employee at several positions, e.g. at National Innovation Office and at the Ministry of Economy in Hungary. Since he joined the academic sphere, he has become involved in teaching and joined the national and international research teams. He is also very keen on finding innovative ways in learning and education styles, creativity, self-development and development of the others with the wider impact on society.



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Alena Pistovcakova since 1989 she has been teaching at the Technical University in Zvolen. She started her teaching activities as a teacher of Philosophy and taught graduate and postgraduate students as well as being responsible for lectures and seminars. Later on when the Faculty of Ecology was founded she also started to teach Ecophilosophy, History of Arts and Esthetical Aspects of Relation Man and Nature. She completed her PhD. degree at the Department of Sociology at Comenius University enabled her to include the new subject –Sociology and Business Psychology into her syllabus. She also has been teaching abroad within the framework Erasmus Socrates Program and within the framework Telematic Management which is Master study Program of Donnau Universität Krems. Her subject is Social Impact of ICT on Social Sphere. After the successful competition of tenders she won the position of director for Local Center of Distance Education in 1994. She was a member of a working group responsible for creation of methodology of distance and flexible learning. She has been teaching Sociology and Business Psychology at the Center for the students of Distance Education. She is responsible for the methodology and for preparation of study materials and for the implementation new ICT tools into the education system. Her career includes various prestigious posts in the field of distance education and ICT, as well as international education and training in various countries. For almost ten years, Dr. Pistovcakova served as Director of the Local Center for Distance Education, as well as a distance education expert and co-ordinator e-learning projects at the Technical University Zvolen.



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Abstract

Open Educational Resources (OERs) have been influencing the global landscape of higher education institutions for the past decade. At very large number of OER initiatives are currently underway around the globe. Learning and teaching are becoming more focused on the learners, supporting individual learning pathways, enhancing collaboration online and blending formal and informal education. This paper examines OER from pedagogical perspectives of Asian and European scholars. This study yields aspects of OER pedagogical perspectives including (1) initiative effort of the OER movement, (2) the OER impact on teaching and learning, and, (3) obstacles and directions to overcome. Based on the analysis of these aspects, the implication and further research suggestion are discussed in this study.

1

Introduction

The influence of Open Educational Resources (OERs) on higher education institutions has been steadily growing over the past decade. OERs represent a global phenomenon as an innovative approach by promoting unrestricted access to knowledge as a possible solution for bridging the existing divide in higher education. OERs offer a new approach to the development, dissemination, and utilization of knowledge in teaching, learning, and researching.

In this paper, the term of OER includes textbooks, course readings, and other learning content; simulations, games, and other learning applications; syllabi, quizzes, and assessment tools; and virtually any other material that can be used for educational purposes. OERs can originate from colleges and universities, libraries, archival

organizations, governmental agencies, public organizations (i.e. publishers, or faculty) and other individuals who develop educational resources that they are willing to share.

At very large number of OER initiatives are currently underway in around the globe. Personalization, collaboration and links between formal and informal learning enhanced by technologies will be at the core of future learning and push educational institutions towards open education and institutional transformation (European Commission, 2013).

2

Theoretical Framework

Yuan and Powell (2013) describe the concept of openness (1) offering opportunities for sharing ideas, (2) connecting and collaborating among institutions, educators, and learners locally and internationally, and (3) facilitating more meaningful engagement in teaching and learning. OER was one of the results of such openness. Previous studies have also interpreted the meaning of openness in relation to OER. For example, Foote (2005) defines four freedoms: (1) freedom to copy, (2) freedom to modify, (3) freedom to distribute, and (4) freedom to redistribute modified versions. Walker (2005) describes openness as convenient, effective, affordable, sustainable, and available to every learner and educators worldwide. Daniel (2006) describes openness in terms of 4As: accessible, appropriate, accredited, and affordable as the meaning of open. Similarly, Wiley (2007; 2009) and Hilton III, Wiley, Stein, and Johnson (2010) proposes a 4Rs openness framework: reuse, redistribute, revise, and remix as a new way to promote the openness for learning and sharing.

Openness has been perceived as a catalyst for education reforms and transformation (Wiley, 2006), and has allowed higher education institutions (HEIs) to implement the fundamental values of university-based education, and shift the focus from

traditional lecturing to a more learner-centered approach (Wiley, 2006; Wiley, 2010; Wiley & Hilton III, 2009). The two most important aspects of openness have to do with free availability of resources over the Internet and as few restrictions as possible on the use of resources.

Although OERs have emerged as a concept to support educational transformation, many researchers and scholars are concerned about what pedagogical approaches can be designed and embedded throughout the development of OERs. Thus, the purpose of this study is to examine scholars' OER pedagogical perspectives among participating countries. The research questions of this study are (1) What are their initial efforts on OER? (2) What are their opinions of OER on its pedagogical impact on teaching and learning, and obstacles and directions to overcome?

3

Methods

This study applies a qualitative method to examine the Asian and European scholars' pedagogical perspective, their opinion of OER on its pedagogical impact to teaching and learning, and obstacles and directions to overcome. The data was obtained through online questionnaires and e-interviews (Appendix C). The research sample consists of faculty members, subject experts, researchers, governmental employees, and entrepreneurs among countries including — China, India, Latvia, Thailand, Slovakia, Czech Republic and Hungary. Most of respondents had Ph. D. degree. The age group is between 25 and 74 and the majority of the respondents were females. The demographic profile from each country is listed in Table 1.

Table 1 Demographic Profile

Country	Occupation	Education	Age	F	M	Total
China	7 assistant professors 3 professors from universities 2 from educational companies 1 from NGO	n/a	n/a	n/a	n/a	13
India	Experts	n/a	40-52	4	9	13
Latvia	2 Assist Prof 3 Docent/lecture 1 Leading researcher 4 Associate Prof 6 Professor	MA (1) PhD. (15)	25-36 (3) 41-50 (7) 51-74 (6)	7	9	16
Slovakia, Czech Republic, Hungary	Experts, Professors, Researchers, Governmental Employees, Students, Entrepreneurs	MA (14) PhD. (5) Dr. (1) Prof. (2)	<25 (1) 25-34 (12) 34-49 (4) 49-55 (3) >55 (2)	13	9	22
Thailand	Professors and experts from Universities	Ph. D.	34-50	14	2	16

4 Findings

This study yields aspects of OER pedagogical perspectives among Asian and European scholars including (1) initiative effort of the OER movement, (2) the OER impact on teaching and learning, and, (3) obstacles and directions to overcome, which are discussed below.

OER Initial Efforts and Movements in the participate countries

OER initial efforts and movements were examined in the participating countries including China, India, Thailand, Latvia, Slovakia, Czech Republic and Hungary, which is discussed as follows.

China

Chinese government supported the majority of OER movements. Several governmental OER policies and action plans have been implemented. For example, a non-profit consortium, Chinese Open Resources for Education (CORE), was established in 2003. Its purpose was aimed to introduce high quality open courseware from top-ranked universities around the world. The OER development phases in China include (1) preliminary understanding phase (2001~2003), (2) extensive research phases (2004~2009), and (3) in-depth study phase (2010~present). With the concept of OER further impact on China's education, the Ministry of Education has released several policies, which aim to promote the high quality teaching and learning content and to service learning society. This is an example of government support that can foster OER development. In addition, the research related to OER also promotes the teaching and learning innovation, such as the impact of MOOCs. Universities have placed their courses on the MOOCs platforms, and take active steps to implement the new changes.

India

The India OER movement and initiatives have focused on infrastructure development such as the use of broadband. In addition, majority of OER projects were focused on developing reusable content and were funded by the India Government. For example, the National Knowledge Commission (NKC), has recommended for improvement of educational access and quality in India. India has recently launched a new learning repository for OER. The Development of School Education and

Literacy, Ministry of Human Resource Development, Government of India, and the Central Institute of Educational Technology, National Council of Educational Research and Training have collaboratively developed the National Repository of Open Educational Resources (NROER). The repository currently includes videos, audio, interactive media, images, and documents, and aims to “bring together all digital and digitizable resources” for the for all classes, subjects and languages in the Indian school system. There are few more significant initiatives for creating open educational tools and resources in India and all of them are directed towards OER in the basic sciences and engineering sciences. One of the major programs in India is the National Program on Technology Enhanced Learning (NPTEL). It is being carried out by seven Indian Institutes of Technologies (IIT’S), the Indian Institute of Science, and other premier institutions around the country and being funded by the Human Resource Ministry. The NPTEL objective aims to enhance the quality of engineering education by developing curriculum-based video and web courses for the students. Faculty from these various institutions are involved in developing their classroom course materials in electronic form. The NPTEL also provides an opportunity for teachers and students from rural are as to learn from these high quality lectures and improve the quality of teaching in these rural colleges. Other initiatives in India include Ekalavya Project, A-View (Amrita Virtual Interactive e-Learning World), E-Grid, National Knowledge Commission, National Institute of Open Schooling, and National Repository for Open Educational Resources (NROER). For details, please refer to Appendix A.

Thailand

Thailand OER initiative projects have developed from both public and private sector in the past decade. These initiative projects have involved from the individual level to the institutional level and national levels. However, most of OER initiatives in Thailand are focused on prototypes, reusable content development, and system development. As such, there is no formal national policy and strategy to support the development of OERs in Thailand yet although some educational policy makes reference to OER.

- National Level — Several OER initiative projects were initiated by national agency such as NECTEC Learning Square, Thailand Cyber University Project, and an open TV channel.
- Institutional Level — Several OER initiative projects were initiated at the institutional level such as the OpenLearn System developed by Innovative Educational Technology Research Center (iNET), Faculty of Education at Chulalongkorn University. Some open materials are being offered by the central hub university network, such as e-learning materials, and as well as an open content for cultural learning that created by Prince Songkhla University from Southern part of Thailand. Other open content has been openly accessible but not labeled to the open license yet.
- Individual level — Several faculty members and teachers have created and shared their classroom materials as part of OER creation within their learning networks. For details on Thailand OER initiatives, please refer to Appendix B.

Latvia

The OER movement and initiatives in Latvia is focused on innovative teaching and learning and the level of creation and collaboration on both national and international level. For example, the first MOOC in Latvia “Open Minded” is an education initiative designed in collaboration with University of Latvia (UL) providing for personal development and exciting learning process together with Latvia’s leading lecturers. The main aspects are showed: promoting of education internationalization; fostering quality of national educational materials in competition international resources; providing a variety of opportunities for use of the material; obtaining economic benefit, and developing of innovation like Massive Open Online courses (MOOCs).

Slovakia and other Central-Eastern European countries

The OER movement and initiatives in Slovakia and Central Europe (Czech Republic and Hungary) are focused on creating practical and reusable content for lifelong learning and professional development. In Slovakia, the educational institutions have been

using the Internet and other digital technologies to develop and distribute education for several years. However, until recently, much of the learning materials were locked up behind passwords within proprietary systems, unreachable by the general public. The OER movement aims to break down such barriers and encourages usage of freely shared digitized materials, improving their efficiency and accessibility, and bringing more equity to education, training and learning.

Respondents were asked to express their opinion and experience with OER and opening knowledge to the public under the framework of OER (according to country of their origin). The high-level educational experts who responded to the questionnaire, almost in 100% said that they were familiar with the concept of OER and also had some work to do with it. Those respondents who previously or currently hold a high position (as a secretary of state, as a director of a company, or a state-owned methodological centre or vocational training institute), had in majority previous projects or project materials with regard to OER. They participated in projects aiming at disseminating the methods of OER with the support of European Union or national funding, contributed to preparing a high quality training material for general aims or specific fields of OER, and aimed at decreasing the costs of providing educational resources.

It can be concluded that there is a positive correlation between an expert dealing with research activities regarding OER and his or her positive attitude towards OER, i.e. the more an expert is familiar with research related to OER, the more positive opinion he / she has on this training method.

4.2 OER on the Impacts on Teaching and Learning

China

Based on the results from the respondents, there were several factors identified by Chinese respondents of OER's impacts on teaching and learning. These factors include

(1) enriching the educational resources content, (2) diversifying the educational resources form, (3) satisfying the learners' individual need, (4) extending the teachers' teaching presentation, (5) driving teachers to explore new teaching methods, and (6) breaking through the traditional classes. However, there are some issues of concerns about teaching and learning as well, including (1) needing more people such as technicians, teachers, and advisories to collaborate more closely, (2) social and ICT infrastructure lagging behind making it hard to influence and apply OER on a greater scale. It might be a reason why many researches focus attention on theoretical research development, but less on practical. To solve the existing problem, some practical examination researches are needed in the future. In addition, previous research still has not made much effort on the development of government policies.

India

OER and its benefits have been observed to have positive impact on teaching and learning by Indian academia. These benefits include (1) enabling learning researches that can be integrated into a student's learning environment, (2) addressing learners' specific needs, (3) saving teachers effort in lesson planning and preparation, (4) benchmarking their own practice in terms of content, approach, and general quality, (5) enhancing networking and collaboration among teachers that ultimately improve the possibilities for new collaborations in fields of common interest, and (6) developing multiple teaching methods of presentation of content for learning and knowledge and skills development.

Thailand

In Thailand, respondents indicated that there were several impacts of OER for teaching and learning, especially during a trial Instructional Design prototype. For example, some respondents described a teaching method such as embedding inquiry learning and service learning for OER. Other respondents articulate a need to increase an awareness of the ethical dimension when contributing classroom materials to an OER, for the reason that some original class materials were proprietary. The previously mentioned 4Rs framework and level of openness (Wiley, 2009) are also become

increasingly important to scholars when creating reusable content.

Latvia

Learning by use of OER stimulates development of innovative teaching and learning practice for lifelong learning in formal, non-formal and informal education. There is a possibility to make learning more individualized and oriented to collaboration. Digital-supported learning gives better links between formal and informal learning. The respondents emphasize implementation of OER as one of the effective learning forms, which provides students with access to additional learning resources. This also engages students in independent learning and develops learning directed by personal interests. On one hand, it is challenging for university lecturers to realize their potential. On the other hand, the influence of a professor's personality is very important on the student, and it is not supported in face-to-face communication creating an impersonal feeling. This aspect is crucial in acquiring study programs of natural sciences; there are situations in which is the need for practical works.

Slovakia and other Central-Eastern European countries

Without exception, these respondents considered OER as the ‘future’ of education. They deemed OER as an important factor in changing the learning methods and practices of the next generation. They generally considered it as the basis for adaptive learning, a future training method where everyone who is interested in a specific topic, can reach it through ICT-based tools without any costs. Some respondents who are more intimately involved in andragogy and pedagogy, mentioned that OER can be a very useful instrument in organizing further education of pedagogues (e.g. legal, administrative or financial) because these trainings are very difficult to hold in person due to lack of time and a meeting space easily accessible to all involved teachers.

One of the more radical opinions in undertaken OECD researches (2012) indicates that the OER movement will lead to a future in which all of the components of education will be freely accessible online and that students will have the opportunity to construct a course of study themselves — though it might not give them a proper

degree if the course of study does not suit the formal requirements of an individual country — from the wide and growing pool of open content. Others envision a less disruptive future for OER, suggesting that the model for higher education will persist in a form not wholly different from what it is today, i.e. OER will not totally re-structure education, just enhance current learning methods with high-quality, open, digital content.

Regardless, OER will expand student access to educational resources across a broader time frame. In particular, those target groups who do not have the necessary free time to study i.e. adult learners, students who work full time while pursuing their education, and other non-traditional students may benefit from open resources because they can organize an independent, self-directed study plan for themselves. From a financial perspective, open resources are one important opportunity to address the rising costs of education, and they also have the potential to facilitate new styles of teaching and learning which can lead to further cost reduction. Giving the faculty the ability to pick and choose the individual resources they want to use — and to modify those resources and “assemble” them in new, unique ways — promises greater diversity of learning environments.

4.3

Obstacles and suggestions to OER for Teaching and Learning

Respondents were asked to define the obstacles to OER in terms of impact on respondents’ teaching and learning and what directions they would suggest to overcome when using OER for teaching and learning.

China

Several obstacles were mentioned by respondents including (1) content quality maintenance, (2) motivation and incentive mechanism for OER development, (3) sustainability for OER, and (4) continuous financial support. The remaining questions raised by respondents include (1) how to get the sustainable financial and human

resources support to develop higher quality resources? And (2) how to encourage social members to make maximum use of the OERs?

India

The obstacles indicated by respondents in India were primarily in the uptake and sustainability of OER practice. In addition, they mentioned technical and implementation issues such as low speed internet infrastructure, poorly indexed materials, inadequate search engines, the requirement to register with a site or download an application in order to retrieve or run a resource, and unreliable hardware or software on the hosting site are all the issues that remain to be solved.

The direction to overcome suggested by respondents include (1) logistics needed for OER practice and (2) strategic plans for promoting OER in higher education. The respondents express the volume of resources and technical and implementation issues as logistics needed for OER practices. While examining to the strategies to promote OER in India, respondents opined the following

- Implementing a consistent strategy for institution-wide OER use.
- Identifying individuals and small groups using OER on their own initiative and co-opting them into a more organized strategy for diffusion.
- The study also suggests that universities should capitalize on the professional development opportunities that they already offer to teaching staff in order to foster an awareness of OER.
- Implementing open pedagogic models.
- Providing learners with a repertoire of rich and diverse resources that may include reused content.
- Teaching in open networks.

In addition, the study has drawn on the Higher Education Academy's Evaluation and Impact Assessment Approach to propose a six-level framework for appraising the impact of OER use on the practice of individual teachers: awareness, reaction,

engagement, learning from, applying one's learning and effects on students' learning.

Thailand

The obstacles indicated by the respondents in Thailand context include lack of policy and strategy support from the government, lack of OER awareness, and lack of incentive and motivation from institutional systems. A way to overcome these obstacles is by incorporating university's social responsibility as one of the influential factors in Thailand higher education institutions to be aware of the OER as a necessary social movement to do so.

Latvia

Implementation of OER in learning and teaching in Latvia context could be a challenge for an educational institution to change delivers education of higher quality and efficacy and gain competitiveness and growth for educators. There are important enablers and barriers on OER development in Latvia, and its need suggestions on governmental, institutional and personal level, how they can be overcome.

Slovakia and other Central-Eastern European countries

The respondents expressed their wish that OER should be more widespread and mentioned that significant ongoing researches in this field (primarily) financed by EU resources; however, for a higher user rate, stronger marketing activities and supporting instruments are needed. One respondent also pointed out that a change in the view of learning is also required, i.e. the student's role is more prominent in the absence of the traditional formal teacher-student relationship. All of them also perceived significant bottlenecks in the way of disseminating and developing OER: lack of political will and the opposition of the majority of the teachers resulted in a serious lack of funding and competences, in spite of the available EU tendering opportunities. Few of the answers were also dealing with a question of intellectual property regulation and copyrights in regards with the shared content and materials, especially, when they can be modified. In order to have a higher visibility of OER, a change

in the professional perspective is needed — and according to some respondents, the current restructuring in the educational sphere in our region (e.g. centralization, decrease in financial resources to universities and vocational training institutions) does not advance at all the dissemination of OER and other ICT-based, freely available educational methods.

5 Summary & Conclusion

Most of the respondents from participating countries stated that they are in one way or another active in the area of OER, either engaged individually, as an initiative of institutions, or support by government funding with specific projects or programs. OER activities seem to be spread across the global educational spectrum in the view of surveyed countries. Development and implementation of OER, its obstacle and impact on the current teaching and learning, and the direction to overcome were raised as most frequently mentioned research are as to be solved. Future research particularly focuses on the pedagogy approach through OER practice need to examine not only from faculty perspective but also from students' perspective. Teaching and learning strategies through the use of OER need to be explored as we move toward the future of open learning environment in an open education era.



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Appendixes

Appendix A — OER Initiative Movement in India

Name	Description
National Program on Technology Enhanced Learning (NPTEL)	The NPTEL project is being carried out by seven Indian Institutes of Technologies (IIT's), the Indian Institute of Science, and other premier institutions around the country and being funded by the Ministry of Human Resource Development. The NPTEL objective is to enhance the quality of engineering education by developing curriculum-based video and web courses for the students.
Ekalavya	The content is developed in various Indian languages and is distributed through the internet. The Ekalavya project has also developed an Open Source Educational Resources Animation Repository (OSCAR) and provides web-based interactive animations for teaching various concepts and technologies.
A-VIEW (Amrita Virtual Interactive e-Learning World)	Is an award winning indigenously built multi-modal, multimedia e-learning platform that provides an impressive e-learning experience which is almost as good as a real classroom experience, developed by Amrita e-Learning Research Lab.
E-Grid	E-Grid is one of the main Open Educational Resources initiatives of India that develops and maintains pedagogically sound and refereed Educational Resources in identified subjects.
National Knowledge Commission	The National Knowledge Commission is a high-level advisory body to the Prime Minister of India, with the objective of transforming India into a knowledgeable society.

National Institute of Open Schooling	The National Institute of Open Schooling (NIOS) (also called the National Open School) is an autonomous organization dedicated to improving the educational system of India.
National Repository for of Open Educational Resources (NROER)	The Ministry of Human Resource Development (MHRD), Government of India has launched a National Repository of Open Educational Resources (NROER). The development of it has been a combined effort of the Department of School Education and Literacy, Ministry of Human Resource Development, Government of India, the Central Institute of Educational Technology, National Council of Educational Research and Training and Metastudio, which is the platform that hosts the Repository.

Appendix B — OER Initiative Movement in Thailand

Name	Description	License Use
OpenLearn System	A system that modified from Moodle was developed by Innovative Educational Technology Research Center (iNET), Faculty of Education at Chulalongkorn University. The Open Learn System consists of lecture archives that were opened to public under Internet Protocol Television (IPTV) or Video on Demand (VOD) system. Along with this attempt, Wikipedia of Education in four areas of (1) Curriculum and Technology, (2) Educational Policies Studies, (3) Arts & Music, and as well as (4) Research and Psychology were made openly available to teachers and educators.	CC-BY-NC-ND 3.0 Thailand
Baan Pim http://www.pim.in.th/	A website that provide an open content on the cooking receipt of Thai cuisine. This is an OER development from private sector that receives the revenue from advertising.	CC-BY-NC-ND 3.0 Thailand
e-Learning Website http://edltv.thai.net/	The preparation of the content of the e-learning system distance learning via satellite	CC-BY-NC-ND 3.0 Thailand
Thailand Cyber University Project (TCU) http://www.thaicyperu.go.th/	TCU Project is funded by the Commission of Higher Education, Ministry of Education in Thailand. TCU aims to support cooperation and collaboration among universities in order to promote and support online distance education (e-Learning) in Thailand. Presently, TCU is offering over 700 available courses on the website.	N/A

Intellectual Plook http://www.trueplookpanya.com	A open TV channel	CC-BY-NC-ND 3.0 Thailand
South e-Learning Project http://south.psu.ac.th/	An e-Learning Project that create by southern part of Thailand, which intend to provide an open content to its target learners.	N/A
CAI Studio http://www.caistudio.info	A learning platform that provides a open content and media at no cost	N/A
NECTEC Learning Square http://learnsquare.com/ learnsquare/	A platform of open courseware, a collaboration project of Electricity, NECTEC, and NSTDA	GNU General public license V 2.0
Field Trip http://fieldtrip.ipst.ac.th/	A open platform of virtual tour learning	CC-BY-NC-ND 3.0
Malay Teaching Platform http://malayu.nectec.or.th/	A teaching learning platform that is a collaborative project among NECTEC, border patrol police, offices, and education centers outside of school.	N/A
NETCET – Karen http://karen.nectec.or.th/karen_index.php	A website provides open learning content for Karen, which is a collaborative project between NECTEC and Border Patrol Police.	N/A
Thai MOOC	This is initiated by Central Hub University Network	N/A
Sukhothai Thammathirat Open University http://www.stou.ac.th/Eng/	Open textbook in Thai language and e-Learning course that initiate as institutional level.	Copyright under university intellectual property
iNET--Innovative Educational Technology Research Center, Faculty of Education, Chulalongkorn University http://www.lic.chula.ac.th/e-learning/ http://www.edu.chula.ac.th/inet	An initiated project based on University Social Responsibility (USR), by Central hub university network, led by Chulalongkorn University,	CC-BY-NC-ND 3.0

Appendix C — OER Questionnaire

Part I: OER Scholar Opinion

1. What is your opinion(s) on an open knowledge to public under the framework of Open Educational Resources (OERs)?
2. Please specify your ongoing or published work(s) /research related to OER.
 - a. Status of OER _____
 - b. Status of OER in other countries _____
 - c. OER Synthesize OER research _____
 - d. OER Development _____
 - e. Other _____
3. What is your opinion(s) on impacts of OER on pedagogy / andragogy / teaching and learning?
4. What is your opinion (s) on OER on faculty development? And how should it be successfully process?
5. What is your opinion (s) on research related to OER and its impact on teaching and learning?
6. What is your opinion (s) on obstacles on OER development in your context, and how they can be overcome?
- 7 Additional Commons

Part II: Demographic and Behavioral Information

1. Gender
2. Age
3. Education
4. Current Position
5. Nationality

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