



Co-funded by the
Erasmus+ Programme
of the European Union



COMPETEN-SEA

Capacity to Organize Massive Public Educational Opportunities in Universities of Southeast Asia

(574212-EPP-1-2016-1-NL-EPPKA2-CBHE-JP)

WP1.2

MOOCs Recommendations Report

Contributions by:

- Universiti Sains Malaysia
- Universiti Malaysia Sarawak
- Ateneo de Manila University Philippines
- University of the Philippines
- Universitas Brawijaya, Indonesia
- Universitas Sam Ratulangi, Indonesia



TABLE OF CONTENTS

INTRODUCTION	3
1. FEASIBILITY STUDY OVERVIEW	4
1.1 Brief Description of the Feasibility Study	5
1.2 Feasibility Study Goal & Objectives	5
1.3 Scope of Feasibility Study	6
2. SUMMARY OF FEASIBILITY STUDY	8
2.1 Regulations & Initiatives	9
2.2 Infrastructure and Availability and Accessibility	9
2.2.1 Infrastructure Resources	9
2.2.2 Instructional Resources	11
2.2.3 Support Resources	12
2.3 Learner Readiness	12
2.3.1 Learner Readiness – Malaysia	13
2.3.2 Learner Readiness – Indonesia	14
2.3.3 Learner Readiness – the Philippines	14
2.4 Stakeholder Readiness	15
2.4.1 Stakeholders in Malaysia	15
2.4.2 Stakeholders in Indonesia	16
2.4.3 Stakeholders in the Philippines	16
2.5 Summary	16
3. RECOMMENDATIONS	18
3.1 Recommendations for Malaysia	19
3.1.1 Strengths	19
3.1.2 Weaknesses	19
3.1.3 Threats	19
3.1.4 Opportunities	20
3.1.4.1 Relevance	20
3.1.4.2 Efficacy	20
3.1.4.3 Effectiveness	21
3.1.4.4 Sustainability	21
3.2 Recommendations for Indonesia	23
3.2.1 Strengths	23
3.2.2 Weaknesses	23



3.2.3 Threats	23
3.2.4 Opportunities	24
3.2.4.1 Relevance	24
3.1.4.2 Efficacy	24
3.2.4.3 Effectiveness	24
3.1.4.4 Sustainability	25
3.3 Recommendations for Philippines	26
3.3.1 Strengths	26
3.3.3 Threats	28
3.3.4 Opportunities	28
3.3.4.1 Relevance	28
3.3.4.3 Sustainability	29
3.4 Conclusion	30
4. APPENDIX	31
A.1 MOOC Development Readiness Audit	32
A.1.1 Infrastructure	32
A.1.2 Facilities	32
A.1.3 Equipment	32
A.1.4 Platform	32
A.1.5 Human Resources	33
A.1.6 Intellectual Resources	33



INTRODUCTION

The Southeast Asia region has been rapidly developing in the past 20 years. All four countries are in the HSBC's list of top 50 economies in 2050; Indonesia and the Philippines are in Goldman Sachs's Next Eleven list of economies mainly because of their fast growth and large population.

Economic development triggered fundamental educational reforms in all countries of Southeast Asia. This is reflected in the various education development plans in several Southeast Asian countries such as the Malaysia education blueprint 2015-2025, the enactment of the Philippines open and distance learning act (RA 10650) in December 2014, and the Indonesian national act No. 12 of 2012 on higher education and the ministerial act no. 109 of 2013 on implementation of distance education in higher education. The development of these policies and plans drew on many sources of input from the World Bank, UNESCO, OECD, and results from PISA and TIMSS with the aim of achieving parity with the global development of education.

At the same time, studies have confirmed that all countries of the region face similar problems affecting access to and quality of educational systems:

- Growing disparity between wealthiest and poorest, urban and rural population, resulting in unequal access to educational opportunities
- Rapidly growing number of pupils and students overwhelming the existing educational capacities
- Insufficient quality, often obsolete, teaching practices and curricula
- Growing gap between the quality of education offered by 'elite' educational establishments and mass education, etc.

Therefore, massive open online courses (MOOCs) can be a solution (some argue - the solution) to the regional educational problems. The Competen-SEA consortium believes that MOOCs is one of the key platforms, which provide an effective and efficient means to provide marginalized groups with access to relevant learning resources. It has been proven that MOOCs not only promised to bring the Ivy League experience to anyone with a broadband connection — they provided a way for learners, wherever they are, to learn new skills and even earn credentials at little or no cost. MOOCs also make more visible the role of Universities as beacons of knowledge for the entire society as they can transport this knowledge to almost everyone.



1 PART ONE

FEASIBILITY STUDY OVERVIEW

1.1 Brief Description of the Feasibility Study

The Capacity to Organize Massive Public Educational Opportunities in Universities of Southeast Asia (Competen-SEA) project aims to enable several best universities in three Southeast Asian countries to develop accessible, affordable, high quality and effective educational services to various groups of population who are currently excluded from traditional educational outreach. In specific, single mothers are the main target group identified in Malaysia, while in the Philippines, the rural health care workers will be involved. Meanwhile, in Indonesia, people living in the islands of North Sulawesi Province and in the southern part of East Java Province were selected to participate in this initiative. To achieve this aim, massive open online courses or MOOCs was identified as the platform for the delivery of these educational services.

Prior to implementing any initiative, project or program, a feasibility study is necessary, especially when large sums are at stake. In this Competen-SEA project, a feasibility study was carried out to identify whether the proposed massive open online courses or MOOCs initiative is feasible to be implemented in Malaysia, Indonesia and the Philippines as the three partner countries.

The detailed findings of this feasibility study can be found in the document **“WP1.1 MOOCs Feasibility in Southeast Asia: Report”**. A condensed version of the report and recommendations is provided here as an executive summary to help decision makers, stakeholders and interested parties understand the issues, challenges, and best practices for using MOOCs to support learning activities for underserved groups in the region.

It is hoped that this feasibility study will provide a useful information and guideline on how to plan and implement this Competen-SEA project, especially for the identified marginalized groups in each country. For this to materialize, MOOC technology and platform should be utilized to ensure these groups are trained, and be able to improve their living (as in the case of Malaysia and Indonesia) as well as their professionalism (as in the case of the Philippines’ rural health workers).

1.2 Feasibility Study Goal & Objectives

Since the Competen-SEA project involves the development and delivery of self-paced learning content for addressing learning needs of identified marginalized groups within the project partner countries in Southeast Asia, a feasibility study is essential for identifying key factors, resource needs and readiness of the target group for undertaking self-paced learning using the latest MOOC technology.

The feasibility study will focus on four main aspects:

- **Regulations and initiatives** that have been adopted in the partner countries related to self-paced learning, and more specifically, MOOC adoption.
- **Resource readiness** in terms of required infrastructure, instructional and support resources for delivering effective, high quality learning content to the targeted groups in each partner country.
- **Learner readiness** in terms of the Internet literacy of the target groups, and their readiness to adopt online learning tools, MOOC-based learning, and acquire necessary devices and Internet services to support their learning.
- **Stakeholders’ readiness** in terms of how supportive of the respective MOOC initiatives and the universities involved in the Competen-SEA project, as well as the



relevance of the proposed content towards meeting the life-long learning needs of the target groups.

The first aspect of the feasibility study – regulations and initiatives – looked into policies, regulations and current initiatives related to self-paced or e-learning in general and MOOC in particular adopted in each country. As each country differs in terms of its regulations, policies and initiatives, this feasibility study will provide further insight on how they have adopted (or intend to adopt) this latest trend in learning and training.

The second aspect, resource readiness, relates to infrastructure availability and accessibility. More specifically, information pertaining to infrastructure, as well as instructional and support resources were investigated. Infrastructure readiness involves investigating the end-user community Internet access penetration as well content storage and delivery platform in each partner country. Meanwhile, instructional resources involve subject matter experts, educators, content developers, illustrators, video and audio production staff who are needed in the course of developing and delivering the MOOC content. In addition, support resources refer to technical staff and instructional support staff needed to train, maintain, and support end-user needs in the process of delivering the MOOC contents to the target learners.

The third aspect, namely learner readiness, looked into the readiness levels of the targeted users of the proposed MOOC initiative in each country. More specifically, in Malaysia, the proposed MOOC initiative is to train and empower the single mothers on entrepreneurial skills through MOOC platform. In Indonesia, its people living in the remote rural areas in North Sulawesi province and coastal communities in the southern part of East Java Province have been selected as the target learners to learn about entrepreneurship in their areas using the MOOC platform. Meanwhile, in the Philippines, the rural health care workers were identified as the targeted audience to receive the professional development training using this platform.

The fourth aspect relates to stakeholders' readiness. The relevant stakeholders of the proposed MOOC initiative in each partner's country were also identified and interviewed. These stakeholders were approached with the intention to obtain their input and feedback with regards to the participants' readiness on MOOC, whether these groups themselves are supportive to the proposed initiative for the targeted learners, and whether any potential collaboration between them and the universities responsible in this initiative.

The outcomes and findings of the feasibility study are expected to provide guidelines and blueprints for communities wishing to adopt these MOOC-based learning resources as part of their community enhancement projects, as well as to serve as a reference for other developing countries wishing to adopt MOOC technologies for self-paced learning as an emerging learning paradigm for sustainable growth.

1.3 Scope of Feasibility Study

The feasibility study will be conducted for Indonesia, Malaysia and the Philippines, the three countries from Southeast Asia involved in the Competen-SEA project.

There will be a mixture of background studies as well as target-group surveys to provide both macro and micro view of the targeted learners for the Competen-SEA project. Since the targeted learners for each country differ in terms of their locations, composition, literacy levels, and access to Internet broadband, specific issues raised for individual learner groups in specific countries may not be generalizable to the entire region. Nonetheless it is believed



that the survey results will still serve as case studies for other communities and agencies interested in community development to understand the issues faced by marginalized groups, often found in rural communities with limited resources and lower income levels, in adopting new learning technologies such as MOOC-based learning.



2 PART TWO

SUMMARY OF FEASIBILITY STUDY

2.1 Regulations & Initiatives

A review of the regulations and initiatives for Malaysia, Indonesia, and the Philippines is conducted as part of this feasibility study. The understanding of the motivations and history of the development of online learning and its evolution to MOOC-based learning in the three countries, commonalities and issues faced by the respective countries in terms of government policies and addressed challenges can serve as input to the ASEAN committee on science and technology (COST) to develop a pan-ASEAN MOOC blueprint; and to accelerate the adoption of MOOC-based online learning in the other Southeast Asian region countries.

The review of regulations and incentives for the three countries involved in this Feasibility Study can be found in Section 2 of ***“WP1.1 MOOCs Feasibility in Southeast Asia: Report”***.

2.2 Infrastructure and Availability and Accessibility

The deployment of MOOC resources involves several key components to support flexible learning experiences of the target users. Generally the components can be classified as:

- Infrastructure resources
- Instructional resources
- Support resources

2.2.1 Infrastructure Resources

This study assumes that core Internet backbones exists and has been developed sufficiently to interconnect major population centers within the country as well as sufficient connectivity to the global Internet. Consequently the Infrastructure readiness for MOOC deployment focuses on the following key areas:

- End-user community Internet access penetration
- Content storage and delivery platform

As an overview, Table 1.1 highlights the Internet penetration for the region. Nonetheless the actual penetration tend to be clustered around urban population centers and hence does not necessarily reflect Internet accessibility by the target user groups of this project. Actual on-site surveys should be conducted to determine realizable Internet bandwidths before MOOC deployment is carried out.

Table 1.1: Growth in Internet Penetration for Southeast Asian countries

Internet Penetration	2012 ¹	2014 ²	End 2016 ³	% Change (2012-2016)
Singapore	74.2 %	82.0 %	82 %	11 %
Malaysia	65.8 %	67.5 %	71 %	8 %
Brunei	60.3 %	68.8 %	86 %	43 %
Thailand	26.5 %	34.9 %	67 %	153 %
Vietnam	39.5 %	48.3 %	53 %	34 %
Philippines	36.2 %	39.7 %	58 %	60 %
Indonesia	15.4 %	17.1 %	51 %	231 %
Cambodia	4.9 %	9.0 %	45 %	818 %
Laos	10.7 %	14.3 %	26 %	143 %
Myanmar	1.1 %	2.1 %	26 %	2264 %

The details of the Internet access penetration for ASEAN region can be found in Section 3.2.1 of **“WP1.1 MOOCs Feasibility in Southeast Asia: Report”**.

In terms of the Infrastructure Resources for Content Storage and Delivery Platforms, it is not the purpose of this study to nominate a specific platform as the ideal solution. The respective countries in the ASEAN region may have invested in existing platforms for MOOC content deployment; the local availability of data centers to support deployment of specific platforms within each country differ; while available bandwidths for international Internet peering for each country varies across the region. Consequently, a platform that has wide deployment in

¹ “The future of broadband in South-East Asia: A Report from the Economist Intelligence Unit”, White Paper, *The Economist Intelligence Unit*, 12 Sep. 2014. URL: <https://www.eiuperspectives.economist.com/sites/default/files/SE%20Asia%20Huawei%20report%20Sep%202019.pdf> [Last Accessed 2 May 2017]

² Rajnesh Singh, “Improving Broadband Access in Southeast & Central Asia”, Asia Pacific Regional Development Forum (RDF2016), *Internet Society*, 6-7 June 2016, Manila, Philippines. URL: <https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Documents/Events/2016/May-RDF2016/Presentation/SINGH%20ITU-RDF%20Connectivity%20in%20ASEAN%20and%20Central%20Asia%20Jun16.pdf> [Last Accessed 2 May 2017]

³ Simon Kemp, “Digital in 2017: Southeast Asia”, Online Presentation, *we are social*, Jan 26, 2017. URL: <https://www.slideshare.net/wearesocialsg/digital-in-2017-southeast-asia> [Last Accessed 2 May 2017]

one ASEAN country may not be easily accessible or have sufficient in-country support in another.

Nonetheless, it should be noted that many existing MOOC platforms were designed for urban learners with good Internet broadband access. Unfortunately the deployment scenario for many Competen-SEA target communities does not meet these requirements in general. As most of the target users reside in rural areas where Internet infrastructure is poor or unreliable, it is not possible to adopt centralized MOOC architectures and expect the users to have a satisfactory experience.

The feasibility study proposes the use of a hierarchical MOOC architecture where MOOC course design, content development, and course beta-testing is done by the institutions concerned using a master MOOC system, and the finished content is then replicated to as many distribution MOOC systems as necessary, depending on the location of the target users. Typically the distribution MOOC systems should reside in the local ISP data centers, or else be located at the learning center managed by the local organization responsible for coordinating course users and providing mentoring and other course management services. This is illustrated in Figure 1.1.

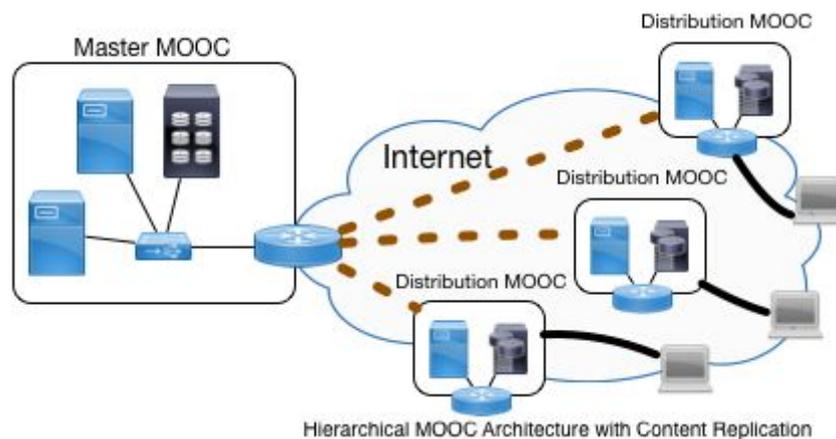


Figure 1.1: Hierarchical MOOC Architecture

Selection of any MOOC platform targeting rural users should take the issues and considerations highlighted by the proposed Hierarchical MOOC Architecture into consideration so that the deployment would be feasible and usable by the targeted groups. Details of the justification and explanation of various MOOC Architectures can be found in Section 3.2.2 of **“WP1.1 MOOCs Feasibility in Southeast Asia: Report”**.

2.2.2 Instructional Resources

Instructional Resources include the subject matter experts, educators, content developers, illustrators, video and audio production staff, that are needed in the course of developing and delivering MOOC content. While it is ideal for the entire spectrum of expertise to be available, very often several of the roles would be fulfilled by one or two persons who take on multiple roles as part of the development and delivery of the MOOC materials. With the wide availability of consumer-accessible tools and equipment today, including smartphones that can perform several functions such as recording and editing of video and audio, that has become increasingly more practical for subject matter experts and educators to produce MOOC content and materials by themselves. Additional details regarding the various roles of

the Instructional Resources are given in Section 3.3 of ***“WP1.1 MOOCs Feasibility in Southeast Asia: Report”***.

Nonetheless, looking beyond the ability to use tools and equipment, proper instructional design is critical for the success of any learning platform. One of the objectives of Competen-SEA is to help train and increase the competencies of personnel involved in development, deployment and evaluation of the MOOC-based learning content for the target groups. This will be covered under Work Package 2 of the Competen-SEA project.

Information regarding the infrastructure design and equipment to be purchased for the project to support MOOC creation and production is documented in ***“WP2.1 Institutional Development Plans and Infrastructure Development”*** Report. The capacity building activities conducted as part of Work Package 2 will be reported in Deliverable 2.2.

2.2.3 Support Resources

Support resources refer to technical staff and instructional support staff needed to train, maintain, and support end-user needs in the process of delivering the MOOC contents to the target learners. A more detailed description of the roles of the various support resources can be found in Section 3.4 of ***“WP1.1 MOOCs Feasibility in Southeast Asia: Report”***.

A brief list of support resources that should be available include:

- **On-site (rural) technical support** for assisting users with Internet configuration, training in MOOC software usage, troubleshooting access issues, etc. (it is expected that target users in rural areas will not be as Internet-savvy as urban users).
- **On-site (rural) learning facilitators** to guide users with hands-on components of MOOC courses, to encourage peer-participation and engagement.
- **Content matter experts** who are responsible for keeping the MOOC content up to date and revise content where necessary.
- **Quality assurance team** to monitor and check on the delivery, student engagement and quality of the evaluation components.
- **Network administrator** to manage and maintain the Master MOOC to Distribution MOOC communications channels, and proper running of the various servers and data center equipment.

In addition, a Readiness Audit checklist is provided in Appendix A.1 for reference.

2.3 Learner Readiness

Apart from the regulations and policy study, the readiness levels of the targeted learners from each partner country need to be investigated. In specific, their background, previous knowledge and skills, as well as their motivation and interest on the proposed training need to be investigated. Of equal importance is the targeted learners' technological readiness in terms of ICT and Internet skills as they will be trained using the MOOC platform. Without adequate levels of readiness in these areas, their participation and engagement in this Competen-SEA project will be affected, which in return, will influence the sustainability of the project.

2.3.1 Learner Readiness – Malaysia

In Malaysia, the targeted learners are from two different communities. A group of single mothers from northern states of Peninsular Malaysia (involving semi-urban and rural areas) as well as another group of single mothers from rural and remote areas in Sarawak (East Malaysia) have been identified as the potential participants. These single mothers will be trained on several knowledge domains including entrepreneurial skills as well as basic ICT skills. They were asked about their previous knowledge and skills on these topics, and whether they are motivated and interested to participate in this initiative.

A mixed method research design was conducted to obtain the single mothers' levels of readiness. A set of 29-item questionnaire was adapted to measure the single mothers' readiness on (i) entrepreneurship and business, as well as (ii) ICT and MOOC. For the qualitative approach, more specific questions were asked in an interview, and these include (i) their knowledge on online learning and MOOC (ii) personal characteristics and strengths, (iii) readiness in terms of technology access and ICT skills, (iv) motivation, and (v) challenges and barriers to MOOC participation. A total of 103 single mothers were involved in the survey, while nine other respondents participated in the interview.

Some of the main findings are:

- a. In terms of MOOC readiness, the respondents do have basic ICT skills in using computer (such as word processing, email and browsers) and majority of them either own or use smart phones. They are also able to access the Internet either from home, or using their mobile data. In addition, they are quite comfortable in using social media.
- b. Although they are mostly non-professionals and non-degree holders with low monthly income, majority is interested in online learning. Even though they never had any previous experience in participating in any formal online learning session, they are motivated to be involved, especially in learning about business or entrepreneurial skills. Therefore, continuous education in entrepreneurship is welcomed.
- c. The respondents prefer a blended learning approach rather than a fully online MOOC courses. They need to have face to face interaction as it provides peer support for their learning to happen. However, time constraints and lack of technology skills are two main barriers for them to participate in this MOOC training.
- d. In terms of entrepreneurial skill readiness, about half of the respondents are currently involved in some kind of business, while others are interested and motivated to venture into it. However, for some, their main concern is the lack of financial resources to run a business. They also realize of some of the most important skills in doing business.
- e. A strong support group or peer group is needed to support their learning activities, especially since they never had any experience in using MOOC platform.
- f. For the Sarawakian respondents, a layered approach with different roles assigned for learners as facilitators, mentors, activists in addition to being a learner would be needed to provide a support system to build community bonding.
- g. The issue of preservation of indigenous knowledge for future generations was raised as a concern by the Sarawakian community leaders.

2.3.2 Learner Readiness – Indonesia

From the survey of 100 respondents conducted at Tambakrejo, Sumbermanjing Wetan District, Malang Regency, it was found that nearly 60 % are in the productive age, predominantly from 21-40 years old, and all reside in the village except one respondent. Most respondents are fishermen who are not running a formal business. They are temporary workers who would usually be termed as self-employed.

Some of the major findings are:

- a. Almost 100 % of the respondents have mobile phones. About 65 % of them have smartphone-type devices. However, a majority of 85 % do not have tablets and computers and do not have access to such equipment.
- b. More than 50 % have internet access from their home. This indicated that the access is obtained from local providers, via mobile data packets (a prepaid data service).
- c. Most of them access the internet daily, while less than 3 % of them access it once a week. Most of the Internet usage involve accessing social media and keeping up with the daily news.
- d. About 50 % of them encounter difficulty in accessing the menus on their smartphones. Fortunately, respondents who own tablets or phones with larger screen sizes are able to navigate the menus reasonably well.
- e. Most of the respondents acquire their technology and Internet skills from their sons and daughters.

The study revealed that the respondents are eager to acquire new knowledge to increase their quality of life via online courses or online training. However, they are not willing to adopt any technology or enroll in courses that incur additional costs in terms of equipment, Internet subscriptions or course fees.

Nonetheless more than 75 % of them are interested in following any courses which have the potential to help them run their businesses better, for the possibility of generating new income and for improving their family welfare. Hence, they are keen to enroll in any course or training modules related to entrepreneurship. They also claim to have high spirits, discipline and good emotional quality in order to be successful in their business.

2.3.3 Learner Readiness – the Philippines

In the Philippines, the rural health workers who offer health care services to the communities have been identified as the targeted learners in this MOOC initiative. A small group discussion was conducted with several rural health workers from the Local Government Units of Abra de Ilog, Oriental Mindoro and Rosales Pangasinan. The discussion was carried out to obtain their input on their preferred online course topics, preferred course formats, and session lengths. Some of the major findings include:

- a. The international classification of diseases (ICD) codes and troubleshooting as the preferred course topics.
- b. The courses are downloadable in PDF format, or in audio visual format, with short-quizzes or mini evaluations
- c. Course lengths are varied, with a maximum of 12 weeks.

- d. Several other comments and suggestions were also made by the interviewees, such as the need to clear one module prior to learning of the next module, and personal tracker for each participant

Another group discussion was also conducted with the rural health workers of the Municipality of Paombong in the Province of Bulacan, involving two nurses in charge of the Paombong Rural Health Units. Although they had never taken any online course but their preference was on courses related to their tasks of patient data management and health insurance claims. They also preferred video as the type of learning, and proposed a learning time around 30 minutes daily.

2.4 Stakeholder Readiness

Prior to implementing any initiative - especially a large scale project – stakeholders' input and feedback is necessary. In this Competen-SEA project, stakeholders to the proposed trainings in each partner country were approached and interviewed to obtain their opinions and suggestions. While these stakeholders – either directly or indirectly involved with the learners – gave positive feedback on all trainings, they have also recommended various suggestions on approaches and strategies to further improve those trainings.

2.4.1 Stakeholders in Malaysia

In Malaysia, an entrepreneurship training through MOOC platform will be offered to the identified single mothers. Various stakeholders were approached to obtain their opinions and suggestions to this proposed initiative. Their feedback regarding the single mothers' level of MOOC readiness and whether these groups are supportive in this MOOC initiative were investigated. In the case of Malaysia, Penang and Sarawak were the two states in which the project will be carried out, and therefore, the stakeholders from these states were involved. In addition, in Sarawak, the socio-economic profiling of the communities and their localized learning needs were also identified as some of the targeted learners are living in remote area and thus, the needs of the community and the targeted learners might be different than those in semi urban area as in Penang.

In Penang, three relevant stakeholders were approached, and they are: (i) Penang State Women Development Corporation, (ii) Penang Single Mothers' Association, and (iii) Non-governmental organization (NGO) which deals with single mothers. An interview was conducted with the representatives from each stakeholder.

Some of the main findings from Penang are: (i) the participants need some ICT skills as majority of the have little knowledge on those skills, (ii) the association welcomes the entrepreneurial skills training – to assist the single mothers who are very much interested in embarking into business, (iii) face to face training and interaction is recommended besides the online learning through MOOC platform, and (iv) networking and support group is very important to provide motivation to the MOOC potential participants.

Meanwhile, in Sarawak, 15 community leaders, councillors, NGO representatives, and telecenter coordinators from the Miri, Ba'Kelalan and Bario areas were involved in the stakeholders' discussions for initial requirement elicitation and learning scenario modeling.

Findings from Sarawak including: (i) the need for support groups – an important step to provide motivation to MOOC participants. This support system for networking community is an essential element for community bonding, and (ii) identification of MOOC content –



education as a life-long learning experience, well-being of the single mothers' family and how to increase their financial sustainability.

2.4.2 Stakeholders in Indonesia

In Indonesia, two different groups of stakeholders were approached to discuss the issues related to this feasibility and the rollout of the proposed MOOC project. The first one involved the Communication and Informatics Office of Sangihe Islands District in North Sulawesi Province. Meanwhile, the Industrial and Trades Office of North Sulawesi Province was identified as the second stakeholder.

For the focus area of East Java, the stakeholders from the Department of Marine and Fisheries, East Java Province was selected based on the existing collaboration between Institute of Research and Community Services of Faculty of Fisheries and Marine Science at Universitas Brawijaya, Malang.

The responses from the various stakeholders were encouraging, and they opined that the proposed MOOC project as beneficial to the society involved. They also proposed various suggestions on how to proceed with the implementation and delivery of the MOOC courses, such as the involvement of volunteers from various religious and youth organizations. Nonetheless, more detailed study of the telecommunications infrastructure readiness of the target group will be provided later. In addition, the Industrial and Trades Office of North Sulawesi Province were keen to assist with providing content and materials for the MOOC development.

2.4.3 Stakeholders in the Philippines

In the Philippines, several stakeholders from the Province of Pangasinan were approached to obtain their feedback on the proposed MOOC initiative for the rural health workers. These stakeholders are: (i) Provincial Health Office (PHO), Province of Pangasinan, (ii) The Department of Science and Technology (DOST), Philippine Council for Health Research and Development (PCHRD), (iii) the Department of Interior and Local Government (DILG), Local Government Academy (LGA), and (iv) the Department of Health (DOH), Health Human Resource Development Bureau (HHRDB), Learning and Development Division (LDD) which handles the DOH e-Learning Platform.

Several outcomes of the meetings with these stakeholders include: a draft memorandum of understanding with PHO, involvement of at least four other university partners in the province on the Competen-SEA orientation with PHO, a potential collaboration in terms of technical and financial support with DOST, the possibility of having the DILG LGA web site for the MOOC courses to be developed, as well as a collaboration between DOH HHRDB LLD and the Competen-SEA Philippine project partner and its possibility of hosting the MOOC courses.

2.5 Summary

Overall, the feasibility study indicates some important findings pertaining to the MOOC initiative. This initiative is very much welcomed by the intended learners and the relevant stakeholders, however, some concerns need to be addressed prior to its implementation.



3 PART THREE

RECOMMENDATIONS



3.1 Recommendations for Malaysia

In general, Malaysia is on the right track in the use of MOOCs in their education system, especially with the nation-wide initiative of Malaysia MOOC and which is supported by the Ministry of Higher Education. The policy related to e-learning and the MOOC guidelines have helped the higher learning institutions in designing, developing and managing MOOCs. However, as this MOOC platform is relatively new in this country, its impact and effectiveness are yet to be seen, especially in non-degree and lifelong learning related courses.

3.1.1 Strengths

Malaysia possesses capacity and technological advantages, a well developed fixed-Internet infrastructure and well connected telecommunication services for most of the urban population. In addition, all public and many private universities are interconnected via a high speed research network (MYREN), enabling multidisciplinary expertise to collaborate and develop MOOC content effectively. Technical staff for content capture, editing and MOOC deployment are also available to support MOOC development and delivery.

3.1.2 Weaknesses

The current focus of the Malaysia education blueprint 2015-2025 is on professional and higher educational institution learning needs. Most of the MOOC content are predominantly in English, and targets subjects relevant to university level and professional learners. There is also a lack of content in local languages suitable for lifelong learning targeting rural and disadvantaged communities.

In addition, while there are various initiatives to help address the social-economic needs of disadvantaged and rural communities, the use of MOOC-based content as a key enabler of providing access to lifelong learning for these target groups is still in its infancy.

The rural communities targeted in this project still have limited Internet access. Consequently content delivery and engagement with the target learners would need to adopt bandwidth-friendly approaches, rather than depend on the current bandwidth-hungry, video-centric MOOC content as the primary means of knowledge delivery.

3.1.3 Threats

The learner engagement issue remains important for long term success of MOOC-based learning programs. Many of the target learners have to deal with family and livelihood issues on a daily basis, making it difficult to focus on learning new skills and knowledge via MOOC-based environments. Consequently, MOOC courses with long commitment periods would not be suitable for these learners. Instead, short courses with a maximum commitment of 6 weeks duration should be the norm.

In addition, there is a lack of incentives and motivation for the learners to complete online courses. This includes the need and capacity for establishment/institutions to create and sustain new pathways for such learners so that they earn credentials and certifications that can be used to secure jobs.

There is also a lack of policies at the national level to address the lifelong learning needs of disadvantaged communities at the present. Consequently, efforts to address such needs are

being carried out on ad hoc basis by various agencies, NGOs and government ministries. A coordinated approach to address the socio-economic needs of these learners is still lacking, while the task of formulating comprehensive solutions must be supported by relevant policies at the national level.

The greatest limitation currently is the lack of local language specific content for the target learners. These learners are less well educated, and are only proficient in dialects or indigenous languages, or at most conversational Malay language which is used for daily communications. Content targeting their specific languages and educational level need to be developed. This is constrained by the limited number of subject matter experts that are trained in content development and delivery needed to run these programs. Consequently, capacity building for these subject matter experts who can be involved with the target communities is an important goal towards overcoming these issues.

3.1.4 Opportunities

While the focus of the CompetenSEA project for Malaysia is on single mothers, we recognize the fact that single mothers are not the only marginalized community group in Malaysia.

3.1.4.1 Relevance

Two of the ten shifts in the Malaysia Education Blueprint 2015-2025 are the aspirations towards a nation of lifelong learners (Shift 3) and a globalised online learning (Shift 9). Lifelong learning (LLL) is envisaged to maximize the potential of individuals who are currently outside of the workforce through “reskilling and upskilling opportunities”. Globalised online learning is a measure to enhance the quality of education, reduce the delivery cost of teaching and learning and share Malaysian expertise globally. It tailors towards the outcome of a more democratic access to education and a personalized learning experience. MOOC is seen as an important model for achieving Shift 9.

MOOC has the characteristic of providing interactive user forums and highly flexible modes of education delivery. This allows it to meet the demands of education for all and especially useful for LLL. Both LLL and MOOC are concepts and modes that have the potential of bridging the gap between the advantageous and marginalized groups in society.

MOOC is relevant to the stakeholders key result areas because it provides a mechanism for their intervention work with their target groups. For example for the Ministry of Women, Family and Community Development (MWFCD), establishing programmes for single mothers’ empowerment is a key result area in the ministry and one of the pertinent ways for the ministry to empower single mothers is through the encouragement for them to take up sustained lifelong learning/education. MOOC will add value to their work towards this end.

3.1.4.2 Efficacy

Married women in Malaysia often leave formal labour force to care for their families. When they become widowed or divorced, often they are left with very few means of obtaining sustainable livelihood. To develop new skills require many resources that the single mothers do not have. Options for education that allow flexible contact hours, inexpensive enrollment cost and capital and little necessity for travel will provide single mothers with opportunities and access to capacity building and increased opportunities for sustainable livelihood.



MOOC will also help increase the reach of programme of the stakeholders-agencies due to the “massive” concept of the online learning approach.

3.1.4.3 Effectiveness

Although the effectiveness and impact of MOOC for single mothers can yet be determined, some anticipated positive effects of MOOC programme for them may be considered. It is important to recognise that single mothers in Malaysia should be given substantive equal opportunities to access lifelong learning so that they can also gain the benefits of development on the same basis as other citizens. MOOC’s features of flexibility, convenience, low-costing and high accessibility are potentially effective in providing these opportunities for single mothers. Unlike other groups of learners, single mothers in Malaysia, as a group of women who share many similar and common experiences, may have specific learners’ needs. In order to provide effective lifelong learning outcomes to single mothers, their readiness to MOOC and elements related to MOOC must be investigated and assessed.

3.1.4.4 Sustainability

MOOC is potential valuable for single mothers, especially those who have had limited formal education because it gives them the opportunities to build or rebuild their skills and knowledge for the purpose of creating livelihood activities and resources. Single motherhood in Malaysia (and possibly in many Asian countries, due to similar socio-cultural contexts) is often associated with a situation where women have forgone their opportunities for higher education or skills development in exchange for playing the primary role of caregivers in the marriage and home. A MOOC programme or package that offers a mixture of subject matters that aims at empowering single mothers from the perspectives of economy, skills and wellbeing can provide a sustainable LLL aspect for single mothers.

The experiences and outcomes from this project can be replicated and scale up for other marginalized groups. It is expected to have a spillover effect on other marginalized groups and women in general. This means that MOOC that is initially built for single mothers have a potential to be used for a much wider audience by customizing individual components to address specific needs of the given group. As an example, MCMC has a programme for empowering small business owners through online learning. The MOOC content developed via this project can be repackaged and expanded to address the needs of these learners as well.

Another potential area that is worth pursuing is the preservation of indigenous knowledge via the use of MOOCs. The learning platform and the empowerment activities opens up opportunities not possible before for the networked single mothers community. A new dimension in terms of the role of MOOCs becomes possible. The rural community is now able to share their traditional knowledge as part of their participation in learning activities. The same technology that helps in delivering learning material can now be used to record indigenous knowledge from the source in the context of problem solving scenarios. This helps to apply indigenous knowledge towards modern solutions as well as contextualise scientific knowledge for specific local needs.

These participatory MOOCs can be used to facilitate knowledge creation and sharing and in this process, allow learners to create value for other learners as well as bring insights to unresolved problems by throwing in a fresh perspectives. The experience gained from working with developmental conferencing over the past 12 years at Unimas shows ways in which multi-stakeholder participation can serve as the platform for not only sharing best



practices but also for applying time-tested methods to achieve cross-community problem solving.

3.2 Recommendations for Indonesia

Policies have been put in place to support the adoption and development of MOOCs for education. Nonetheless, the challenge of the lack of Internet infrastructure for most rural areas hamper the deployment of traditional MOOC content and course structures. Innovative, resource-friendly, offline MOOC design needs to be adopted to address some of these issues.

3.2.1 Strengths

A recently published study by APJII, an association of Internet providers in Indonesia, shows that the number of Internet users in Indonesia is growing exponentially, from 42 million users in 2010 to 143.36 million users in 2017. About 74.62 % are from the middle and lower class, while the penetration are above 40 % in all main islands. About half of the Internet users own tablet or smartphone, while more than 80 % of the them tend to use those devices to access Internet. In addition since 2015, a growing numbers of public and private universities are interconnected via a research and education network (IDREN). These advantages enable Indonesia HEIs to collaborate on deploying MOOC and develop MOOC contents effectively as it has been demonstrated through SPADA, an open online learning system (<http://spada.ristekdikti.go.id/>). Most of HEIs have sufficient technical capacity in developing and delivering MOOC.

3.2.2 Weaknesses

Although the Internet penetration is growing exponentially in mainland islands, people living in rural and coastal areas are the disadvantaged communities due to the lack of Internet infrastructures. Electricity in those areas is also limited. This situation is a true obstacle when developing and delivering MOOC-based learning resources for those target users. Consequently, the MOOC content delivery would need to adopt bandwidth-friendly or even offline MOOC without the need for constant Internet connectivity, as well as resource-friendly type of MOOC content for the knowledge delivery.

In addition, based on the results of Indonesia Competen-SEA Learners' Readiness Survey, rural people are not aware of MOOC and never have any experience in undertaking any MOOC before. MOOC-based content as the source of lifelong learning may not receive a positive response from these target groups.

Among the coastal communities, MOOCs represent a new educational method. They could not easily understand what is a MOOC, nor how it can be used for learning. Hence, exposure and training is needed to understand the importance of MOOCs and how MOOCs can be used to acquire new knowledge and skills to increase their quality of life.

3.2.3 Threats

The lack of Internet infrastructures in some areas outside the main urban centres, especially in the rural and coastal areas, is definitely the biggest challenge for the implementation of MOOC in Indonesia. As the MOOC is focused on increasing awareness of coastal area conservation through ecotourism educational program and to build the capacity on entrepreneurship to this society, then the lack of infrastructure could cause the MOOC delivery would not be guaranteed to reach the right target. In addition, based on the latest APJII report, people in Indonesia tends to access social media apps rather than browse for

information on the Internet. MOOC-styled self-directed learning activities that require learners to learn independently may be ineffective for some learners who are easily distracted by their existing habits in using mobile devices.

In Indonesia, more focus tends to be given to the formal compared to informal education. This gives a perception that their need for education is over when people complete their basic level education. That perception could affect the motivation of adult learners when participating in the online learning. Unless the benefit of learning is clearly explained and visible in the near future, then the learning commitment could be low as it needs to compete with their main works and other livelihood issues. Additionally, the familiarity of most people with teaching being conducted via traditional face-to-face learning methods could influence their preference and participation in online learning.

Most Indonesians are basically multilingual as they usually communicate using their local languages for daily transactions and conversations, and only use Bahasa Indonesia as the national language in formal situations. This language issue could become an important concern in the implementation of MOOC as it could lower the acceptance level among the learners.

3.2.4 Opportunities

3.2.4.1 Relevance

Based on the conducted survey, most people in rural and coastal areas are not familiar with MOOCs, while the stakeholders are still using the traditional learning approach in executing their capacity building programme. However, a majority of the respondents appreciate the use of MOOC as an alternative learning resource due to its flexibility of delivery in terms of time and space. More outreach campaigns are needed to promote their use, as well as to increase the familiarity of using MOOCs among the target learner groups, in order to improve the acceptance and usage among the general population.

3.1.4.2 Efficacy

People in rural and coastal areas usually support their own livelihood and their family from the income of their jobs on a day-by-day basis. The consequence of this demanding work is that they need to dedicate most of their time to work. MOOC provides a good opportunity for people living in rural and coastal areas to improve their knowledge and skills without leaving their jobs.

Additionally, educational content delivered through MOOC has its advantage with broader coverage of users. The stakeholder-agencies could have benefit in reaching out to a broader audience with their programmes through MOOCs.

3.2.4.3 Effectiveness

It was reflected from the survey that people are basically aware that the Internet technology has opened a way for conducting learning activities in a broad scale. The reason that some of them are still in doubt about the effectiveness is probably because they mostly have no involvement in online education before. This holds them from investing time and money for online education unless the benefit is perceptible. In such condition, as MOOC is tended to become a low-cost and more adaptive approach compared to formal education, then it could be an effective method to target adult people in order to increase their quality of life.



The communities in coastal areas are open to new knowledge. Government programmes to improve their skills and knowledge are relatively easy to carry out in this area. They are familiar with communications and the Internet. Almost 100 % of the surveyed people have mobile phones. Nonetheless, only about 65 % of them are of the smartphone type. 85 % of people do not have tablets and computers. Furthermore, they do not have access to those equipment. Although they do not have computer and tablet many of them able to use computer rental services. Fortunately, they still able to access the Internet. More than half of them have Internet access from their home. This indicated that the access is obtained from local providers, via mobile data Internet services.

3.1.4.4 Sustainability

In terms of social and technical feasibility, MOOC could be implemented in the target areas by taking into consideration local conditions and needs.

For example, the Office of Fisheries and Marine has routine capacity building programs which involves the community, named POKMASWAS (KELOMPOK MASYARAKAT PENGAWAS). POKMASWAS is the active participation of surrounding communities, non-governmental organizations, and business entities facilitated by the government through the development of the Office of Marine and Fisheries in each Province (Dinas Perikanan dan Kelautan). The guidance of POKMASWAS can be done through the use of the MOOC-based delivery model using customized curriculum.

Nonetheless, curriculum have to be developed by considering the local resource capacity, the target learner's needs, and the respective stakeholders capabilities. A general MOOC course can first be designed by subject matter experts from universities with the collaboration of relevant stakeholders, which is then tailored to the specific needs of the target community in terms of the language of delivery, as well as to select activities and learner engagement methods that are more suited to the specific community of learners.

3.3 Recommendations for Philippines

3.3.1 Strengths

The Philippines accords the highest importance to education and enshrines the inalienable right of every Filipino to education in **various legal frameworks**: the 1987 Philippine Constitution and the Enhanced Basic Education Act of 2013 (or Republic Act 10533), among others. Cognizant that geographical and geophysical factors constrain the Philippine government from delivering quality and relevant education to all, the government has pursued initiatives such as the Open High School Program and the incorporation of eLearning technologies in the Philippine government's promotion of Alternative Delivery Modes (ADMs).

The passage and signing into law in 2014 of Republic Act 10650--"The Open Distance Learning Act"--has added impetus to the expansion of educational services. Its rationale is "to expand and further democratize access to quality tertiary education through the promotion of *open learning* as a philosophy of access to educational services, and the use of *distance education* as an appropriate, efficient and effective system of delivering quality higher and technical educational services in the country" (Sec. 2, Declaration of Policy).

In addition to the presence of frameworks that support open and distance e-learning (ODEL), another strength where the Philippines is concerned is the **existence of open universities**, such as the open universities of the Ilog State University (IFSU), the Polytechnic University of the Philippines (PUP), and the University of the Philippines (UP). Moreover, **some Philippine government agencies have programs that promote open and distance e-learning**, such as the Technical Education and Skills Development Authority (TESDA) Online Program and the Newly-Elected Officials (NEO) Program of the DILG - Local Government Academy (LGA).

Based on the results of the **Philippine Competen-SEA's Learners' Readiness Survey** conducted among **114 rural health workers of Pangasinan** (the target stakeholders and beneficiaries of the Philippine Team's Competen-SEA Project), a characteristic of this target population that could be regarded as a strength is their **considerably high educational attainment**, with a majority of the survey respondents (56 %; n= 64 of 114) reporting the **completion of a baccalaureate (college) degree** as their highest educational attainment. Moreover, of the 114 respondents, **10 percent** either: have completed a master's (MA or MS) degree (4 %; n=5); or have some units leading to a master's (MA or MS units) degree (4 %; n=4); or have completed a medical (MD) degree (2 %; n=2).

The Philippine Competen-SEA's Learners' Readiness Survey also reveals, not only that the target project participants are **functionally literate**, but also that they are **computer literate**. To the question "**Do you know how to use computers?**", 82 of 114 survey respondents, or **72 percent**, answered "**yes.**" Of the 32 who replied that they do not know how to use computers, 23 of them (or 72 % of the 32 who reported that they are not computer literate) are barangay health workers.

In summary, the high educational attainment (i.e., the completion of a baccalaureate degree if not higher; at 66 %; 75 of 114 Rs) and the computer literacy of two-thirds of the respondents (at 72 %; 82 of 114 Rs) can be deemed as **strengths** auguring for the implementation of massive open online courses among the rural health workers of Pangasinan.



The **Philippine Competen-SEA's Stakeholders' Readiness Study** indicates additional strengths that could contribute to the long-term sustainability of a MOOC program for Pangasinan's rural health workers. First is the **existence of partnership arrangement between the Ateneo de Manila University / University of the Philippines and the Pangasinan Provincial Health Office (PHO)**. The parties have executed a **Memorandum of Understanding (MOU)** for the co-creation and co-management of a **Massive Open Online Course (MOOC) on Local Health Systems**, with the employees of the Pangasinan PHO as the intended participants.

In addition to the MOU between the Philippine Competen-SEA Team (Ateneo de Manila and UP) and the Pangasinan PHO, another **Memorandum of Agreement** is being forged with the **Department of Health**. This MOA augurs well for the prospect of having the MOOC on Local Health Systems (and other MOOCs that would be subsequently developed) included in and credited towards units for the Continuing Professional Development (CPD) Program.

3.3.2 Weaknesses

The delivery of massive open online courses (MOOCs) requires a strong digital infrastructure that would allow downloading of large-size files, or the streaming of high-definition videos, as well as participation in social media platforms and discussions forums. However, based on the *Fourth Quarter 2016 State of the Internet Report* by Akamai Technologies, Inc., **the Philippines ranked 108th (out of 138 countries/regions) in terms of Internet speed**, at 4.5 megabits per second (Mbps)--2.5 Mbps lower than the global average connection speed of 7.0 Mbps. The Philippines, in fact, had the **lowest average connection speed among the 15 surveyed Asia Pacific countries/regions**.

The Philippines also has **low broadband penetration** (*from Broadband - September 2016 study*), with only **3.40 fixed-broadband subscriptions per 100 inhabitants**. As such, **the Philippines ranked 110th out of 187 countries and regions**.

What factors have contributed to **the Philippines having the slowest Internet speed in Asia**? In addition to the geography of the 7 107 Philippine islands, the lack of competition among Internet service providers would help explain slow Internet speeds in the country.

Another weakness of the Philippines with regard to ODeL or MOOC readiness is the **absence of a specific government agency and/or long-term program on ODL or MOOC**. Although the Philippines now has a Department of Information and Communications Technology (DICT), this agency is new and has not been around for long, given that it was only last 23 May 2016 that the legislation that created the DICT (Republic Act 10844) was enacted. Thus far, the DICT has been focusing its attention on trying to address low Internet penetration through its Juan, Konek! Free Wi-Fi Internet Access in Public Spaces project, which provides thousands of free Wi-fi hotspots.

It still remains to be seen if the Department of Information and Communications Technology would take the lead in promoting, consolidating, and streamlining initiatives on ODL and MOOCs in the country. **Right now, initiatives or programs on ODL and MOOCs are done on a per-agency or per-university basis. Standards development in the Philippines is still in the early phase.**

Finally, based on the results of the Philippine Competen-SEA's Learners' Readiness Survey, a possible weakness in promoting MOOCs among the Pangasinan rural health workers is their **lack of awareness of and experience in undertaking massive open online courses**. Of the 114 health workers surveyed, **79 percent (n=90) are not aware of MOOCs**



as a learning platform. Moreover, **not a single survey respondent (0 %) has ever registered for/enrolled in a MOOC.**

3.3.3 Threats

Although MOOCs offer many advantages--such as enhanced accessibility, increased potential for student engagement, and the possibilities of lifelong learning opportunities--there are threats or challenges to making ODL and MOOCs expand in the Philippines. These include “individual instruction,” or the challenge of tailoring the learning environment to the needs of each student when MOOCs involve course delivery to a large number of participants; (2) “the assessment of student performance,” including the related challenges of authenticating original work (and, relatedly, detecting plagiarism) and preventing cheating; and (3) long-term administration--or more pointedly, developing revenue models to make MOOCs self-sustaining, considering the costs of MOOC development and implementation can be significant, on the one hand, and that MOOCs are usually offered free or at no cost to the participant.

Another issue and challenge related to MOOCs is: “delivering valuable signifiers for completion such as credentials, badges or acceptance into accredited programs.

All the aforementioned challenges may cause the target MOOC participants to believe that MOOCs are not as effective pedagogically as traditional learning modalities are; or that MOOCs would not make them as attractive or marketable to prospective employers (in view of many MOOCs not being part of accredited programs), as traditional learning modalities would make them. **The strong appeal of traditional learning modalities might be the most compelling threat in promoting MOOCs in the Philippines.**

3.3.4 Opportunities

3.3.4.1 Relevance

The opportunity to make the target participants of the Philippine Competen-SEA Project see and appreciate the relevance of MOOCs exists. This is revealed by the finding of the Learners’ Readiness Survey that 53 percent, or 60 of the 114 rural health workers of Pangasinan who answered the survey, are interested to be considered as a participant for a MOOC on Local Health Systems that would be offered to some employees of the Pangasinan Provincial Health Office. Even though 79 percent (n=90) of the survey respondents are not aware of MOOCs as a learning platform; and even though none of them (0 %) has ever registered for/enrolled in a MOOC, more than half (53 %; 60 of 114) of the survey respondents would like to be considered as a participant of a MOOC on Local Health Systems. In summary, the openness of the target Competen-SEA Project participants to alternative learning modalities--including MOOCs--is an opportunity that could be tapped. Notwithstanding their very limited awareness of MOOCs, the majority of the surveyed rural health workers of Pangasinan believe that learning via MOOCs could be relevant to them and are interested to try it out.

3.3.4.2 Efficacy and Effectiveness

Earlier sections of this report have mentioned slow Internet speed as a weakness in the Philippines e-infrastructure. With the signing into law of the **open distance learning act** (Republic Act 10650) in 2014, and with the creation of the **Department of Information and**



Communications Technology, the opportunity to improve Internet connection speeds and to address low Internet penetration is given strong impetus. There is indeed a lot of room and opportunity to improve the Philippines' connection speed, which happens to be the lowest in the Asia Pacific Region (as of 2016).

Given that fast Internet access is crucial to the MOOC learning model, and considering too that we are still in the process of working towards faster connection speeds for the country, what opportunities are possible right now to make MOOC learning possible and effective? First, MOOC providers should consider providing **lower-resolution versions of videos**, because high-definition videos would take a long time to download--if not fail to download altogether. Second, MOOC providers should be open to the option of **providing some of their content material offline**; for example, some of the content can be pre-loaded into flash drives that would be given to the participants.

Third, the reality that **the Philippines has the highest mobile connectivity in the Asia Pacific** (at 14.3 Mbps; the Asia Pacific average is 13.8 Mbps), as well as a **high cellular penetration** (at 118.1 for every 100 inhabitants of the Philippines) should be viewed as an opportunity for MOOC development in the Philippines. This implies that **MOOC developers should create MOOC programs that participants would be able to view on their mobile phones..**

3.3.4.3 Sustainability

The current Memoranda of Understanding or of Agreement of the Philippine Competen-SEA Team -- first, with the Pangasinan Provincial Health Office; and, second, with the Department of Health -- are opportunities to co-create and co-manage MOOCs. To sustain the MOOC on Local Health Systems as well as future MOOCs through several batches of health workers taking such courses, **the opportunity to make the completion and passing of MOOCs credited as part of one's Continuing Professional Development Program should be pursued.** In this regard, it is important to work together particularly with the Department of Health's Health Human Resource Development Bureau (HHRDB), Learning and Development Division (LDD) which handles the DOH e-Learning Platform.

Another opportunity for sustaining MOOC programs for Pangasinan health workers is presented by a **possible collaboration between the Pangasinan Provincial Health Office and Pangasinan universities that have open universities.**

3.4 Conclusion

A feasibility study has been carried out in each of the Competen-SEA partner countries, in which several important aspects were investigated. Two main areas of feasibility study were conducted, namely Regulations, Policy and Initiatives, and Resource Readiness, encompassing issues of Infrastructure Readiness, Learner Readiness and Stakeholder Readiness. In general, there are several main differences observed among these three countries in terms of Regulations and Policies, as well as their MOOC initiatives. These indicate that e-learning (and MOOC) is important and the guidelines, policies, and regulations were proposed and enacted to ensure that the relevant programs and initiatives benefit the society and the country. In terms of learner readiness, in general, the targeted participants in each country are ready for the MOOC initiative. They also provided some input on the aspects or topics to be covered in the proposed initiative. However, this study indicates one important finding in that these targeted learners do need some kind of support for their learning and participation. As online learning is relatively new to them, peer support as well as technical support are required to assist their learning.

Meanwhile, the findings also reported about the resource readiness in terms of infrastructure, instructional and support staff. It discussed about the infrastructure including the Internet accessibility, MOOC architecture as well as content storage and delivery platforms for the MOOC initiative. It also reported about the human resources required in the initiative, involving the instructional staff to develop and conduct the MOOC courses, and support staff to manage the technical matters. Finally, based on the findings from the aspect of stakeholder readiness, they have provided positive feedback on the proposed MOOC initiative in each country. They have also proposed some input on how to assist the implementation of those initiatives. Moreover, some stakeholders are willing to participate, collaborate and contribute to the initiative so that the participants will benefit in the long run and the project will accomplish its goals.

The specific recommendations for the partner countries in Southeast Asia highlights the strengths, weaknesses, threats and opportunities in leveraging MOOCs to address the learning needs of the targeted communities in each country. It is hoped that this report would serve as a guide for the development of more comprehensive policies and blueprints to support the learning goals of various marginalized communities in the future.



4 PART FOUR

APPENDIX

A.1 MOOC Development Readiness Audit

In order to facilitate planning and deployment of MOOCs, the following questions can be used as a starting point for performing a Readiness Audit.

A.1.1 Infrastructure

1. What is the existing networking infrastructure?
 - a. At the Master MOOC Development Location
 - b. At respective Distribution MOOC Locations/Centres
2. What is the minimum sustainable bandwidth available?
 - a. From Master MOOC to Internet/ISP
 - b. From Internet/ISP to respective Distribution MOOC
3. What is the minimum bandwidth available to the end users?
4. Do the users have constant access to the Internet, or is it available only during certain hours of the day/days of the week?

A.1.2 Facilities

1. Does the MOOC development team have the facilities?
 - a. Is there suitable space (e.g. sound studio/room) for audio/visual recording, content creation, post-editing etc.?
 - b.
2. Do the targeted learner groups have access to in-person location/facility?
 - a. How many participants can be accommodated at a given time?
 - b. Are there computing resources and Wi-Fi/LAN access for targeted learners?
3. Are there suitable on-site technical support personnel to help learners?
4. Are there suitable on-site learning facilitators to conduct the in-person sessions?

A.1.3 Equipment

1. What is/are the equipment / devices needed?
 - a. Video recording
 - b. Audio Recording
 - c. Post-production
 - d. Content Creation
 - e. Graphics/Diagram Creation
 - f. End-user device to test access to MOOC content

A.1.4 Platform

1. Which MOOC platform to be used? Purely online or blended?
2. Can the MOOC platform support Hierarchical architecture with Distribution MOOCs located close to the target learner groups?
3. Can the MOOC client support offline learning? Downloading of materials?
4. Can the MOOC platform scale the type of content transferred based on the available bandwidth? (e.g., text and images for low bandwidth, video for high bandwidth)

A.1.5 Human Resources

1. Who are the subject matter experts, training providers, technical assistants, etc.?
2. What kind of basic skills/training do they need in order to deliver the MOOC course effectively?
3. Are there facilitators and tutors available for both the online and in-person engagement sessions?
4. Are there QA personnel to vet content and check that all MOOC items conform to organization/national MOOC guidelines and standards?
5. Are sufficient support staff or volunteers for technical on-site support available?
6. Are network/system administrator(s) available for operating, troubleshooting, maintaining and upgrading of central MOOC servers and distribution MOOC servers?

A.1.6 Intellectual Resources

1. Are there any existing intellectual resources or materials that can be repurposed for MOOC?
2. Does the organization encourage the use and reuse of Open Educational Resources (OER), including Creative Commons resources?
3. What license (Standard Copyright, Creative Commons) should be adopted for new content under development?