



COMMONWEALTH *of* LEARNING

# **Towards National Policy Guidelines on Open Educational Resources in Malaysia**



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The Commonwealth of Learning (COL) is an intergovernmental organisation created by Commonwealth Heads of Government to promote the development and sharing of open learning and distance education knowledge, resources and technologies.

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## EXECUTIVE SUMMARY

This report emphasises the importance of open educational resources (OER) for improving equality in education. OER are a worthwhile option to make education more accessible, affordable, shareable and reusable. The adoption, expansion and enculturation of OER with the aid of information and communication technology in Malaysian education will transform educational practices through the effective use of educational resources available with open licences.

Several higher education institutions in Malaysia have joined the OER movement. However, there is not yet widespread understanding about OER and open licences due to the lack of specific guidelines. In Malaysia, the National eLearning Policy (DePAN 2.0) focuses on open courseware, and it is important to develop specific guidelines for the same. With the support of the Commonwealth of Learning, the Universiti Sains Islam Malaysia conducted this study and organised a national consultation to develop draft guidelines that may be adopted by the appropriate education ministries in Malaysia.

Key highlights of the report include the following:

- Open education and OER in Malaysia have been in practice for some time now, though institutional policy on OER is limited.
- The Ministry of Education is responsible for educational content distribution at the school level, while textbooks at the higher education level are recommended by individual teachers or universities, and students have to buy these books to study.
- Government expenditure on printed textbooks has risen by almost 60 per cent from 2009 (MYR 127 million) to 2015 (MYR 202 million).
- Students spend about six per cent of the total cost of their education on textbooks, and parents spend 55 per cent of their income for the education of a child in Malaysia.
- Studies of students' average expenses show that overall, Malaysian students spend over MYR 234 million per year on textbooks.
- Students have adequate access to digital tools, such as mobile phones and laptops. While they are not aware of OER, having access to tools enabling them to access digital resources is important.
- Considering the potential of OER to improve the quality of teaching and learning, reduce the private cost of education, and increase access to lifelong learning opportunities, the national consultation of OER stakeholders recommended that detailed guidelines for OER be adopted by the education ministries in Malaysia.

# CHAPTER 1: THE EDUCATION SYSTEM IN MALAYSIA

## 1.1 Overview of Malaysia's Education System

Malaysia is made up of two separate regions: the peninsula on the Asian continent, and Sabah and Sarawak, located on the island of Borneo. Malaysia has 13 states and three federal territories, the latter being the capital city of Kuala Lumpur, as well as Labuan and Putrajaya. The country has three major ethnic groups: Malay, Chinese and Indian. The mixed profile of the population is also reflected in the education system, evinced by both primary and secondary schools that provide instruction in Malay, Chinese and Tamil. Depending on the higher education institute, teaching and learning in tertiary education is conducted in English or Malay, with some institutions having Arabic as the second language (EP-Nuffic, 2015).

Prior to 2004, primary, secondary and higher education all were the responsibility of the Ministry of Education (MOE). In the period from 2004 to 2013, the government formed the Ministry of Higher Education (MOHE) to oversee matters pertaining to higher education. After its merger with the Ministry of Education, it was renamed the Department of Higher Education. Following the federal cabinet reshuffle on 28 July 2015, the MOHE was officially re-established in accordance with the provisions of the Act relating to higher education. Therefore, currently primary and secondary education fall under the MOE, and higher education is under the MOHE.

According to the MOE website,<sup>1</sup> as of July 2016 there were 7,772 primary schools and 2,408 secondary schools, with a total of 4,873,928 students enrolled and 421,828 teachers. Data extracted from the MOE website are summarised in Table 1. In addition to students in primary and secondary education, there were 200,684 students enrolled in preschool.

Students with special needs are provided education opportunities in special schools and in integration programmes in regular schools. Since 2006, 1,282 Integrated Special Education Programmes (special classes in mainstream schools) have been introduced, and the total enrolment in these programmes by 2008 was 29,169 students (MOE, 2008). As of 2017, according to the MOE website, there are 30 national special education schools and four vocational secondary schools.

**Table 1. Schools, teachers and enrolment figures for primary and secondary schools in 2016**

Level	Number of Schools	Number of Teachers	Student Enrolment
Primary	7,772	239,850	2,685,403
Secondary	2,408	181,978	2,188,525
Total	10,180	421,828	4,873,928

According to UNESCO's World Data on Education, seventh edition (2010/11), in 2008 there were 2,091 (government-assisted) academic and 90 technical secondary schools, as well as 40 Majlis Amanah Rakyat (MARA) junior science colleges. The total enrolment was 2,241,654 students in academic schools, 69,006 in technical schools and 26,752 in junior science colleges. The number for sixth form and matriculation was 105,165 students for the same year, of whom 65.9 per cent were girls.

According to a statistical report published by the MOHE for the year 2015, 1,236,164 enrolments were recorded for all levels of higher education, of which 54.6 per cent were female students. In total, 540,638 enrolments were recorded in public universities, of which 62 per

<sup>1</sup> Statistics for the number of schools and teachers and for student enrolment can be obtained at no cost from <http://www.moe.gov.my/index.php/en/statistik-kpm/statistik-bilangan-sekolah-murid-guru>.

cent were female, and 580,928 enrolments were recorded in private universities, with 49.3 per cent of these being females. In polytechnics, 96,069 enrolments were recorded, 48.1 per cent of which were female, and 18,529 were enrolled in community colleges, 41.7 per cent of which were female (MOHE, 2015). A summary of the enrolment in higher education is shown in Table 2.

**Table 2. Number of enrolments in public universities, private universities, polytechnics and community colleges in 2015**

Category	Male	%	Female	%	Total
Public university	205,384	38.0%	335,254	62.0%	540,638
Private university	294,620	50.7%	286,308	49.3%	580,928
Polytechnic	49,885	51.9%	46,184	48.1%	96,069
Community college	10,794	58.3%	7,735	41.7%	18,529
Total	560,683	45.4%	675,481	54.6%	1,236,164

## **1.2 Responsible Department (Institutional Arrangement)**

### **1.2.1 Ministry of Education**

In Malaysia, the Ministry of Education is responsible for the primary and secondary schooling systems, while the Ministry of Higher Education is responsible for tertiary education. Several departments in the Ministry of Education are related to the implementation and development of educational resources:

- i. Professional Division
  - This educational planning and research division undertakes macro educational planning, policy research and evaluation, as well as post-analysis of educational data. It also monitors the implementation of educational policies and programmes.
- ii. Educational Technology Division
  - Provides educational media and technological services support for educational programmes, to upgrade the quality of the teaching–learning process, and monitors a network of state educational resource centres, teacher resource centres and school resource centres.
- iii. Institute of Aminuddin Baki
  - A national institute of educational management which conducts some development programmes for educational managers, teachers and support staff in the education system.
- iv. Malaysia Examination Board
  - Organises, administers and conducts all public examinations in schools, from primary to upper secondary levels.
- v. Federal Inspectorate of Schools
  - Provides professional supervision of learning.

### **1.2.2 Ministry of Higher Education**

- i. Academic Development Management Division
  - In charge of matters concerning finances, governance and policy formulation in tertiary education, including the use of open resources as educational materials.
- ii. Higher education institutions
  - Every higher education institution (HEI) has its own unit, department or body in charge of educational resources development and implementation.

### 1.2.3 Other Relevant Parties

- i. Department of Special Education
  - Plans, develop and implements special education programmes. Carries out research and develops curricula for special education.
- ii. Department of Islamic and Moral Education
  - Develops Islamic as well as moral education curricula for school and teacher education. It liaises with state Islamic religious departments in the management of Islamic education at Islamic religious schools administered by the states.

Expanding access to higher education locally is a good idea for improving economic growth and restricting the outflow of local currency.

### 1.2.4 Open Education Initiatives in Malaysia

The aim of promoting open and distance education in Malaysia is to increase the productivity and employability of citizens by providing formal education to adult learners. At the same time, this initiative also operates in tandem with the efforts of the government to reduce the flow of Malaysian Ringgit out of the country due to students studying abroad. Open education also works as a mechanism to channel the flow of students into Malaysia, while positioning Malaysia as a provider of international education. Expanding access to higher education locally is a good idea for improving economic growth and restricting the outflow of local currency (Ali, Fadzil, & Kaur, 2006).

According to Ali et al. (2006), the distance education initiative was started by private institutions such as Stanford College, Raffles College, Malaysian Correspondence College, Adabi College and Federal College, which provided places for student being excluded by government-funded schools. The initial distance programmes in Malaysia were initiated based on extensions of on-campus programmes. The first set of programmes was offered by Universiti Sains Malaysia (USM) back in 1971, with 11 bachelor programmes. Nineteen years later, in 1990, Universiti Teknologi MARA (UiTM) started its distance programme by offering diploma courses. This was followed by the Universiti Kebangsaan Malaysia (UKM) and the Universiti Malaya (UM) in 1993, and the Universiti Putra Malaysia in 1994. Open education in other public universities started in or after 1995, based on a directive from the Ministry of Higher Education, with the objective of increasing the number of students in public institutions via distance education. Distance education then was being offered by private higher education institutions such as Multimedia University in 1997, and the Universiti Tun Abdul Razak (UNITAR) in 1998 (Ali et al., 2006).

In 1998, a consortium named Multimedia Technology Enhancement Operations Sdn Bhd, or METEOR, was established by 11 public universities with the aim of further enhancing the visibility of distance education in Malaysia. METEOR in 1999 proposed the creation of an open university, and the recommendation materialised in 2001 with the establishment of Open University Malaysia (OUM). Subsequently, the concept of open and distance education was further developed with the establishment of Asia e University in 2002 and Wawasan Open University (WOU) in 2006.

### 1.2.5 OER Implementation Status in Malaysia

OER are any resources available at little or no cost that can be used for teaching, learning or research. They are typically available with an open licence that allows others to reuse, revise,

remix and redistribute the teaching and learning materials (Educause, 2010). In Malaysia, open education initiatives have gotten to a slow and modest start, especially due to the lack of knowledge or broad understanding of OER. Abeywardena, Dhanarajan and Lim (2013) found that most Malaysian students and teachers were not aware of the benefits of OER. However, awareness about OER is gradually growing, especially amongst academics who appreciate the integration of pedagogy and technology. In their study, Abeywardena et al (2013) found that although the use of OER is claimed not to be widespread, in actuality, 70 per cent of the respondents mentioned that they had used OER in their teaching at some point during their career.

The growth of OER in Malaysia's tertiary education was mostly pioneered by private universities. WOU initiated OER in its Institute of Research and Innovation (IRI) in mid-2010. WOU has created an OER website, OER Asia,<sup>2</sup> as a forum for sharing information, opinions and research studies regarding OER (Embi, 2013).

The initiative in WOU started under the direction of the Council of WOU in December 2010, which decided to consider and develop a proposal for possible adoption of OER-related practices. The university was asked to bring out a detailed implementation plan in order to transform the existing course development process. Phalachandra and Menon (2013) found that the aim highlighted in this initiative was to increase the quality and cost-efficiency of developing and delivering course materials.

In response to this instruction, an internal discussion paper titled "OER Integration in WOU – Policy Directions, Strategic Outputs and Action Plan" was prepared and discussed extensively within the university. This led to the formulation and adoption of a WOU OER Policy,<sup>3</sup> followed by the acceptance of a WOU Open Licence. A comprehensive plan of action to mainstream the OER Policy has been developed and is being implemented at WOU (Menon & Ali, 2012).

Figure 1, adopted from Chye (2016), summarises OER activities in Malaysia. These OER activities were presented by Professor Dato' Ho Sinn Chye, Vice-Chancellor and CEO of WOU, in September 2016.

Other public universities that have initiated activities related to OER include the Universiti Teknologi Malaysia (UTM), the Universiti Putra Malaysia (UPM), the Univeristi Kebangsaan Malaysia (UKM) and the Universiti Teknologi MARA (UiTM). UTM published open courseware in the year 2011. UTM open courseware consists of high-quality OER such as lectures notes, lesson plans and exercise questions (Embi, 2013). UPM, UKM and UiTM have conducted extensive digital content development for their registered students as well. However, the licensing of the contents developed as OER was still vague.

**Awareness about OER is gradually growing, especially amongst academics who appreciate the integration of pedagogy and technology**

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<sup>2</sup> <https://oerasia.org/>

<sup>3</sup> WOU OER Policy: An OER policy for WOU with implementation strategies has been adopted by the OER Steering Committee, Senate and Management Board and endorsed by the Board of Governors of the university. The broad OER Policy declaration is: "WOU will promote and implement the creation, reuse, remixing, repurposing and redistribution of open educational resources (OER) within an open licensing framework."

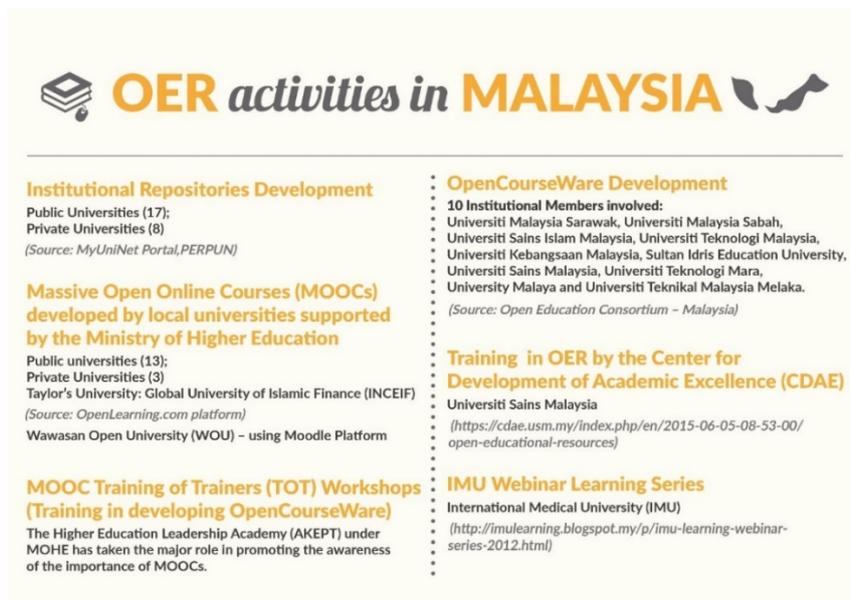


Figure 1. OER activities in Malaysia (adapted from Chye, 2016)

The initiatives to spur excellence in higher education in the country were part of the government's agenda. The Malaysia Education Blueprint (MEB) 2015–2025 for both the MOE and the MOHE has given insights on improving the quality of education in Malaysia. One of the MEB shifts for schools was to provide equal access to quality education meeting international standards. Furthermore, to improve the quality of education, schools have started initiatives to implement 21<sup>st</sup>-century learning in classrooms, with activities that emphasise student-centred learning. In line with this, the MEB for higher education has outlined ten transformational ideas, wherein shift number nine focuses on the development of globalised online learning, encompassing the use of blended learning, OER and MOOCs. To bring about this change, several strategies were listed, including producing four MOOCs of the compulsory courses to be taken by first-year students in 20 public universities. The development of niche courses by each public university was then to be continued, starting in 2015. These are among the newer steps toward creating extensive resources in education.

One of the earliest forms of structural movement on OER was via the involvement of Malaysia in the Open Education Consortium (OEC).<sup>4</sup> This is a global network of educational institutions, individuals and organisations that support an approach to education based on openness, including collaboration, innovation and collective development and the use of open educational materials. The OEC is a non-profit, social benefit organisation which is registered in the United States and operates worldwide (Open Education Consortium, n.d.). The mission of this particular consortium is to promote, support and advance openness in education around the world. As of 2016, ten public universities were listed as involved in the OEC:

- i. Universiti Kebangsaan Malaysia
- ii. Universiti Malaysia Sabah
- iii. Universiti Malaysia Sarawak
- iv. Universiti Pendidikan Sultan Idris
- v. Universiti Putra Malaysia
- vi. Universiti Sains Malaysia
- vii. Universiti Teknikal Malaysia Melaka
- viii. Universiti Teknologi Malaysia
- ix. Universiti Teknologi MARA
- x. University of Malaya

<sup>4</sup> <http://www.oeconsortium.org>

The involvement of Malaysian institutions in the OEC is in line with the consortium’s vision that “everyone, everywhere has access to the high quality education and training they desire; where education is seen as an essential, shared, and collaborative social good.”

### 1.2.6 The New Development of MOOCs

The acceptance and usefulness of OER in Malaysia have led to another buzz concept, the massive open online course (MOOC). On 10 September 2015, the MOHE announced the launch of 60 MOOCs offered by 20 public universities in Malaysia. All of these courses are available for free and are now open for enrolment by students at these universities and by members of the public. The courses encompass a wide selection of topics in business, engineering, entrepreneurship, finance, healthcare, languages and technology. Courses are delivered primarily in Bahasa Malaysia, English and Arabic, depending on the topic or subject matter.

In 2015, the Universiti Sains Islam Malaysia (USIM) was successfully registered with iTunes U.<sup>5</sup> The main objectives for having iTunes U available to students and academic staff are for them to use iTunes U as a supplementary resource to digitalise lectures and to optimise technology-driven pedagogy in classrooms. The initial stage has been the uploading of USIM digital content collections, and ready-made materials focusing on Arabic and English content.

### 1.2.7 The Status of Access to Education

As a country becomes increasingly developed, the reach and, presumably, the quality and attainment of education outcomes rise along with income levels. Malaysia seems to fit this trend, with many key education indicators showing tremendous improvement since the country achieved independence in 1957. At that time, over half of the population had no formal schooling, six per cent had some secondary-level schooling, and only one per cent had attained a post-secondary education. In 2011, however, the enrolment rate at the primary level had increased to 96 per cent and enrolment at the secondary level was at 86 per cent, both of which are commendable. Given these rates, which are assumed to be representative of access to formal education among Malaysians, the rate of dropout<sup>6</sup> should also be considered in the equation (Patel, 2014). Table 3 shows the dropout rate in Malaysia spanning back to 1995.

**Table 3. The dropout rates in Malaysia from 1995 to 2013.**

Year	GDP Per Capita (MYR)	Dropout Rate (%)	
		Primary	Secondary
1995	13,672	1.21	5.52
2005	12,776	0.23	2.53
2010	17,717	0.16	2.65
2012	27,925	0.19	1.93
2013	33,540	0.1	1.96

Source: Educational Planning and Research Division (EPRD), Malaysia Ministry of Education and World Bank Data (Patel, 2014)

However, Table 3 does not consider students who left the mainstream schooling system during critical transition phases (such as the move from Year 6 to Form 1).<sup>7</sup> There was a lack of

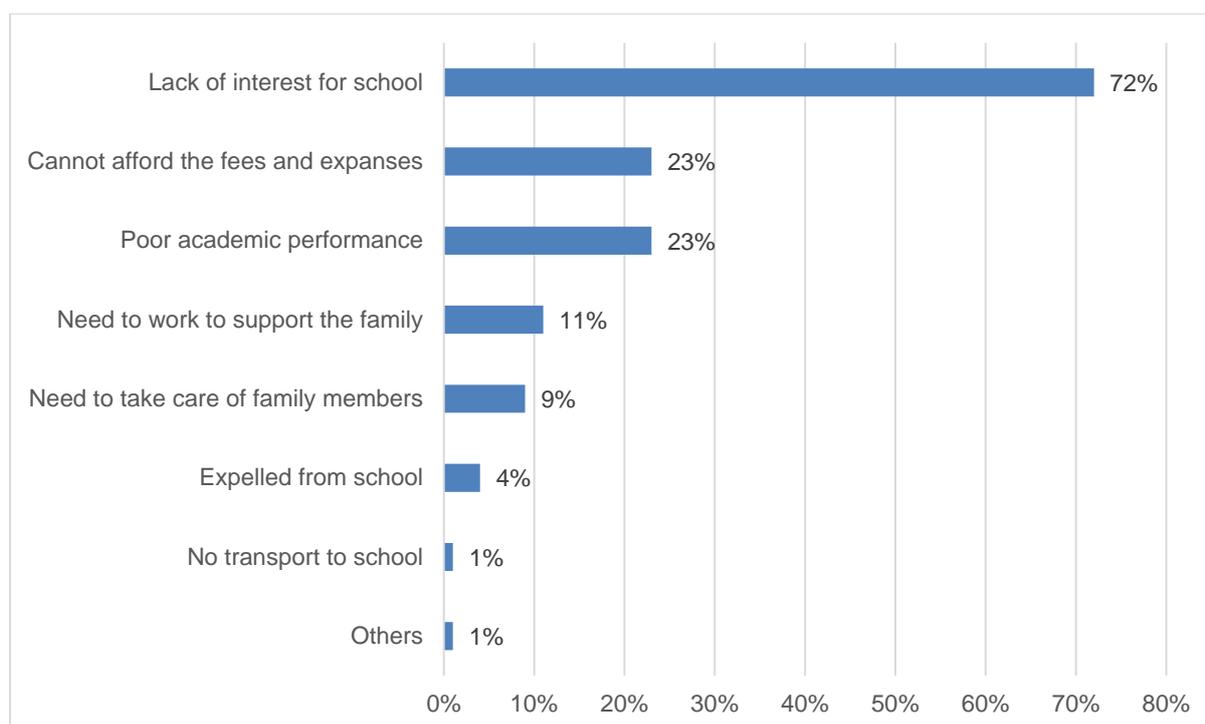
<sup>5</sup> <http://itunes.usim.edu.my>

<sup>6</sup> Dropout rate is defined as the percentage of pupils leaving the government school system before completing a full cycle of primary or secondary education.

<sup>7</sup> Malaysia’s education system requires students to sit the Primary School Assessment Test / *Ujian Penilaian Sekolah Rendah* (UPSR) during their Year 6 of primary school, prior to Form 1 secondary school enrolment. Grading of the students during enrolment is based on the results of the UPSR. Read more on this at <http://jpwpl.moe.gov.my/index.php/soalan-lazim>.

information about the students who left the system and where they ended up, making the actual cost of dropouts impossible to calculate.

A survey was conducted by Wan Jan (2013) with the aim of understanding the issues that parents perceived to be the reasons for a child dropping out. The study revealed that 23 per cent of dropouts could not afford the fees and other expenses, 11 per cent needed to work to support the family, and nine per cent needed to take care of household members. The remaining dropouts had a lack of interest in school (72 per cent), poor academic performance (23 per cent), were expelled from school (four per cent), had no transport to school (one per cent) and other related reasons (one per cent), as presented in Figure 2.



**Figure 2. The reasons parents give for their child dropping out (Source: Wan Jan, 2013)**

While it was difficult to obtain official rates and data on dropouts, the education system does need to revisit this problem. The study indicated that dropouts who had begun working showed some signs of continuing the poverty cycle. They tried to supplement the family income by leaving school before completing a full secondary education, and many ended up working in the same unskilled occupations as the head of the household. Parents of these children viewed vocational and technical education positively. These education options should be explored further to boost skill and income levels. Figure 2 shows that 43 per cent of students drop out for several reasons, including inability to afford the fees and other expenses (23 per cent), the need to work to support the family (11 per cent), and the need to take care of the family (nine per cent). While there were no specific data to support the willingness of these 43 per cent to continue their education, the idea of increasing access to education will give them better options for pursuing their formal teaching and learning processes, especially with the advantages of openness and free resources offered by OER.

### **1.3 Key Challenges and Opportunities**

Malaysia has taken steps to address inequities in the system, including special programmes for the indigenous population, support programmes for poor students, and narrowing the gap between rural and urban populations by upgrading and expanding educational facilities and

deploying greater numbers of qualified teachers. As a result, it has made significant strides in expanding opportunities for increased access to education.

However, the performance on national exams shows significant variations across states as well as within states, suggesting that there are still some issues preventing equal access to quality education. In a pluralistic society like Malaysia, such issues often create embarrassing silence, in particular when one ethnic group is seen to be disadvantaged in order to benefit or in comparison to another.

As mentioned previously, the Malaysia Education Blueprint (MEB) 2015–2025 emphasised equal access and equity. Access and equity issues become ever more pertinent when seen in the light of the national policy of making Malaysia a regional hub in education. This is because Malaysia cannot be seen as a regional hub for higher education when its citizens, albeit of particular social classes or ethnicities, seek higher education elsewhere.

### **1.3.1 Government Action Plan to Bridge the Gap in Access to Education**

Through several initiatives, the Malaysian government has developed many approaches to improve the quality of education. Remodelled and upgraded infrastructures and learning environments, including qualified, trained teachers, have changed the Malaysian teaching and learning landscape. Transformed, holistic curricula have now been designed to meet learners' needs and emerging national development objectives. In bridging gaps to access to quality inputs, steps have also been undertaken to address nationwide disparities. Still, it has been found that not all students are presented with the same opportunity to learn; persistent variations in test scores exist in and out of Malaysian states (UNESCO, 2015a). The *Education for All 2015 National Review Report: Malaysia* (UNESCO, 2015a) is also concerned about the poor scores of Malaysian students in the Programme for International Student Assessment (PISA) and Trends in International Mathematics and Science Study (TIMSS) — instruments that assess higher-order thinking skills, creativity and innovation.

Efforts to bridge the gap between urban and rural education continue to be the MOE's focus. To ensure the quality of education, attention should be directed at the number of teachers, student enrolment and the physical structure of schools.

### **1.3.2 How OER Can Be Used to Foster Educational Equity**

While OER can help address access and equity issues, it is also a fundamental tool to empower teachers. Teachers using OER are equipped with the abilities to create, distribute and connect, reaching a broad audience that crosses classroom boundaries. By making resources available to anyone through eLearning, myriad educational materials can be created. Through the fast-paced revolution in computing and the Internet, OER can drive global communities to reach their educational goals. Some of the ways OER can achieve educational equity are as follows (deGuia, 2016):

- **Availability of free, quality materials.** Since OER are available in the public domain and/or with open licences, they are freely reusable and accessible by anyone.
- **Accessibility.** As OER are accessible through Internet-equipped laptops, mobile devices and cell phones, OER make learning convenient via Wi-Fi-enabled schools, homes, libraries, restaurants and malls. Through USB drives, permissible content is shared in public and private spaces. OER are also available offline in print for those who do not have access to the Internet.
- **Personalised learning spaces.** The bedrock of effective teaching comprises differentiated instruction to bridge individual needs. While responding to students' dynamic qualities and interests, OER engage instructors, home tutors, teachers, parents and students on different topics and using complementary teaching resources. By

navigating through OER, existing videos, simulations, units and activities that meet varying learning needs and interests can be gathered.

- **Curation.** Organised collections of OER on specific topics help improve the quality of learning at specific levels.
- **Shaping a multifaceted curriculum.** Amidst the challenges of inadequate curriculum development and limited planning time geared towards 21<sup>st</sup>-century learning, effective education today does not only focus on lectures and textbooks. Instead, 21<sup>st</sup>-century learning relies on creativity, innovation, problem solving, critical thinking, communication and collaboration. In this respect, research and inquiry are the primary drivers of learning, and OER provide valuable input for flipped classrooms, technology integration, inquiry and problem-based learning resources.

## CHAPTER 2: ICT IN EDUCATION POLICY AND MASTER PLAN

### 2.1 ICT in Malaysia's Education Landscape

From the broad perspective, the Malaysian government has introduced various initiatives to facilitate the greater adoption and diffusion of ICT to improve capacities in every field of education, and life in general. Details about ICT in the development of Malaysian education can be found in Said (2009). The MOE uses ICT to deliver teaching and learning. As such, all efforts are concentrated on developing new media as tools in the service of richer curricula, enhanced pedagogies, more efficient organisational structures in schools, stronger links between schools and society, and the empowerment of disenfranchised learners (Chan, 2002). These efforts include the development of the Malaysian Smart School system, the use of the Internet in schools, computerisation programmes in schools, electronic book projects, and training sessions for stakeholders. According to Chan (2002), more than 3,000 teachers and about 260,000 students benefited from a single training session provided by the Curriculum Development Centre, which had been started as far back as 1992. The programme focused exclusively on ICT literacy at first, but starting in 2000, the emphasis shifted to getting teachers to use ICT in the classroom during lessons. This programme had been introduced to 636 primary and secondary schools, the majority of which were rural. Figure 3 summarises the efforts to establish ICT within the Malaysia education landscape.

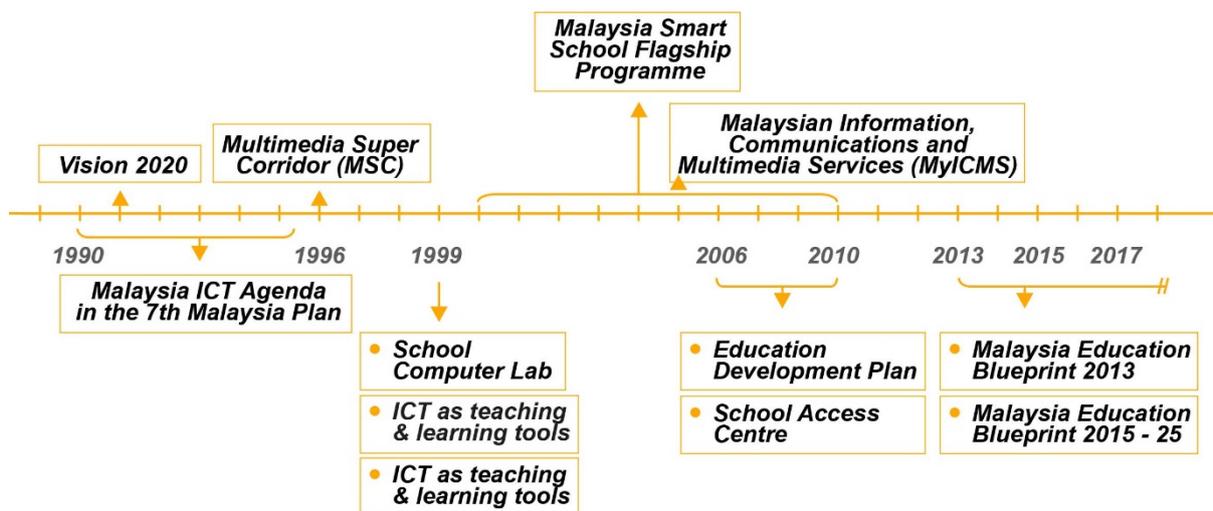


Figure 3. Timeline showing the efforts to integrate ICT into the Malaysian education landscape

#### 2.1.1 The Malaysia Digital Maturity Index

Based on the level of knowledge and skills required for using digital resources, it is important to measure the digital literacy amongst Malaysians. A study carried out by Azman, Salman, Abdul Razak and Hussin (2014) aimed at determining the level of digital maturity amongst ICT-mobile phone (smartphone and Internet) users by looking at the intensity of usage of smartphone applications (apps) and functions, and the level of indispensability of the Internet and its related characteristics and functions. A nationwide survey was conducted among 2,124 respondents, based on the population ratios of the main ethnic groups in Malaysia.

The Malaysian government has introduced various initiatives to facilitate the greater adoption and diffusion of ICT

As stated by that research team, technology has become more sophisticated nowadays, with the emergence of

a variety of gadgets and the use of the Internet. In 1990, Malaysia began to develop an Internet initiative with the establishment of the Malaysian Institute of Microelectronic Systems (MIMOS) and the launching of Joint Advanced Integrated Networking (JARING) as the primary Internet service provider. JARING was fully connected to the Internet when the satellite was installed in 1992 to link Malaysia and the USA. Due to this, the government has introduced many initiatives to utilise the consequent benefits, such as the Multimedia Super Corridor and high-speed broadband (HSBB).

With all these developments, it is important to consider the readiness and digital maturity amongst ICT users. The study found that Malaysians have reached a satisfactory level of digital maturity with regard to ICT use. This means that the standard of digital maturity amongst users and society is encouraging; this can be seen when mobile users download various apps, such as WhatsApp, Skype, Waze and others, which make their daily lives easier. The findings also showed that more than 70 per cent of the respondents in Malaysia were using mobile apps and downloading these from the Google Play Store for various purposes.

In terms of the aspirations about OER implementation in Malaysia education, we can conclude that most of Malaysian society is ready for this idea, since the level of digital maturity is satisfactory. The problem is whether or not the respondents in this study were students. Hence, it is not a valid basis for assuming that Malaysians, especially students, have a satisfactory level of digital maturity to be ready to accept OER.

### **2.1.2 Infrastructure and Connectivity**

The concept of eLearning, as seen by the MOE, includes a system that enables information gathering, management, access and communication in various forms (Hassan, 2002). Thus, the first phase of an eLearning project for most higher education institutions (HEIs) is the acquisition of an adequate ICT infrastructure to enable them to offer an excellent eLearning platform to students. Upgrading the ICT infrastructure was an urgent matter beginning in 2000. Government started to provide the IT infrastructure to support eLearning delivery and learning management system in HEIs. Most HEIs now have sufficient computer labs and are wired with broadband Internet access, and some have wireless mobile computing capabilities. Lecturers are provided with at least a Pentium 4 desktop if not a laptop. The infrastructure for eLearning has become one of the methods HEIs use when competing to attract students to enrol in their programmes (Hussain, 2004).

## **2.2 Review of Existing Policy, Master Plan and Guideline**

### **2.2.1 National eLearning Policy (DePAN)**

The first National eLearning Policy, or in the Malay language, Dasar e-Pembelajaran Negara (DePAN),<sup>8</sup> was enacted in 2011 to provide a framework and direction for the implementation of eLearning in higher education. During the launch of this policy in April 2011, the MOE emphasised the impact of eLearning on the education system. The Minister of Education, Khaled Nordin, said that collaborative learning had become the philosophy of teaching and learning, and could even provide opportunities for career options and much more (Buletin Pembangunan Akademik UKM, 2011).

DePAN was constructed with five pillars: Infrastructure, Organisational Structure, Curriculum and e-Content, Professional Development, and Acculturation. In the first version of DePAN, every pillar had a focus and activities to be implemented during three implementation phases, namely, the Early Phase (2011–2012), the Implementation Phase

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<sup>8</sup> Dasar e-Pembelajaran Negara (v. 1.0) can be downloaded at [https://smart2.ums.edu.my/pluginfile.php/2/course/section/2/dasar\\_e-pembelajaran\\_negara\\_depan.pdf](https://smart2.ums.edu.my/pluginfile.php/2/course/section/2/dasar_e-pembelajaran_negara_depan.pdf).

(2013–2014) and the Mature Phase (2015 onwards). The second version of DePAN (DePAN 2.0) has revised the phases as follows: Phase 1 (2015), Phase 2 (2016–2020) and Phase 3 (2021–2025), in line with the implementation phases of the National Education Blueprint (Higher Education) 2015–2025. DePAN 2.0 has six pillars rather than five:

1. Infrastructure and Infostructure
2. Governance
3. Online Pedagogies
4. e-Content
5. Professional Development
6. Acculturation

**The growth of responsible individuals in OER implementation is very much related to how an institution prepares the route for the organic growth of eLearning.**

DePAN 2.0<sup>9</sup> has yet to be officially launched, but the content is already available online. The discussions to finalise the details were conducted at the national level through the National eLearning Council (MEIPTA).

### 2.2.1.1 Infrastructure and Infostructure

The strategies to structurally upgrade the infrastructure are the first pillar of DePAN 2.0. The details of the implementation phase for infrastructure and infostructure, extracted from DePAN 2.0, are presented in Table 5.

**Table 5. Infrastructure and infostructure development targets by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016–2020)	Phase 3 (2021–2025)
<b>Infrastructure &amp; Infostructure</b>	Internet & Wi-Fi Coverage	1–5 Gbps Internet access (streaming of SD videos)	6–10 Gbps Internet access (streaming of HD videos)	Minimum 10 Gbps Internet access (streaming of full HD videos, tele-presence)
		1 Mbps/student and 80% coverage	2 Mbps/student and 90% coverage	2.5 Mbps/student and 100% coverage
	eLearning Platform	eLearning platform 2.0 and MOOC-ready	eLearning platform 2.0 MOOC- and mobile-ready	eLearning platform 2.0 MOOC-, mobile- and learning analytic-ready
	ICT Equipment and Software	100% of lecturers and 90% of students have computer / notebook / tablet / smartphone	100% of lecturers and 95% of students have computer / notebook / tablet / smartphone	100% of lecturers and 100% of students have computer / notebook / tablet / smartphone
		50% of lecturers have access to e-content development software	75% of lecturers have access to e-content development software	100% of lecturers have access to e-content development software

### 2.2.1.2 Governance

Although the development of human resources is institutionalised, the need for human resources was emphasised by putting some structural requirements in DePAN. The growth of responsible individuals in OER implementation is very much related to how an institution prepares the route for the organic growth of eLearning. Thus, putting in place a universal set of guidelines for all educational institutions was a good start. The details of the implementation phase for governance are described in Table 6.

<sup>9</sup> Dasar e-Pembelajaran Negara (v. 2.0) can be downloaded at [http://www.cade.upm.edu.my/dokumen/PTPA1\\_DePAN\\_v2.pdf](http://www.cade.upm.edu.my/dokumen/PTPA1_DePAN_v2.pdf).

**Table 6. Governance development targets by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016–2020)	Phase 3 (2021–2025)
Governance	Policy & Action Plan	eLearning policies formulated and adopted holistically	eLearning policies are updated per current demands in terms of the use of new technology, ethics and copyright	eLearning policies are harmonised with the standards of international eLearning policies
		HEI has comprehensive eLearning action plan	HEI implements the comprehensive eLearning action plan	HEI harmonises the action plan with international standards
	Leadership & eLearning Unit	eLearning leadership has the latest skills and is recognised at the institutional level	eLearning leadership has the latest skills and is recognised at the national level	eLearning leadership has the latest skills and is recognised at the global level
		eLearning Unit is established and fully operational	eLearning Unit collaborates in eLearning activities at national and regional levels	eLearning Unit collaborates in eLearning activities at the regional and international levels
	Human Resources & Financial Allocation	HEI has human resources and appropriate staffing to carry out all eLearning activities	HEI provides training, certification and career paths in human resources related to eLearning	Human resources related to eLearning acquire international certification
		HEI allocates 0.5% of the annual operating budget for the implementation of eLearning	HEI allocates 1.0% of the annual operating budget for the implementation of eLearning	HEI allocates 1.5% of the annual operating budget for the implementation of eLearning

### 2.2.1.3 Online Pedagogies

The online pedagogies component focuses on the proportions of blended learning, open courses and e-assessment, while e-content focuses on original e-content, open e-content and e-content standards. The aim of these two agendas is to ensure that the effort to produce innovative educational content will be supported at all levels and that implementation will be continuous. A breakdown of the online pedagogies targets is presented in Table 7.

**Table 7. Online pedagogies development target by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016–2020)	Phase 3 (2021–2025)
Online Pedagogies	Blended Learning	30% courses in public HEI operated in the form of blended learning	50% courses in public HEI operated in the form of blended learning	70% courses in public HEI operated in the form of blended learning
	Open Courses	Each public HEI will offer at least 3 open courses (MOOCs)	Each public HEI will offer at least 15 open courses (MOOCs)	Each public HEI will offer at least 30 open courses (MOOCs)
	e-Assessment	5% e-assessment in blended learning	10% e-assessment in blended learning	15% e-assessment in blended learning

#### 2.2.1.4 e-Content

The e-content component focuses mainly on content development and is related to OER. It is important to highlight that DePAN 2.0 has committed to making 15 per cent of all courses available as OER by 2025, while 40 per cent of all courses will have original e-content developed. A breakdown of the e-content targets is presented in Table 8.

**Table 8. e-Content development targets by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016–2020)	Phase 3 (2021–2025)
e-Content	Original e-Content	10% of all courses offered have original e-content	25% of all courses offered have original e-content	40% of all courses offered have original e-content
	Open e-Content	5% of all courses offered by public HEIs are developed and offered to the public (OCW)	10% of all courses offered by public HEIs are developed and offered to the public (OCW)	15% of all courses offered by public HEIs are developed and offered to the public (OCW)
	e-Content Standard	e-Content standards are established	e-Content standards are enforced	e-Content standards align with international standards

#### 2.2.1.5 Professional Development

As highlighted in the governance component, the professional development component will ensure that the minds behind content production or pedagogical improvements are also being addressed. People who are knowledgeable and trained in eLearning will ensure the growth and sustainability of e-content in an institution. It is also important to note the acceptance of a Technological–Pedagogical–Content–Knowledge (TPACK) framework (Koehler, Mishra, Kereluik, Shin, & Graham, 2014) for the professional development of all teachers by 2025. Table 9 lays out the details of this component.

**Table 9. Professional development targets by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016–2020)	Phase 3 (2021–2025)
Professional Development	Knowledge	50% of staff have TPACK competence	75% of staff have TPACK competence	100% of staff have TPACK competence
	Skills	50% of academic staff have core competencies in eLearning	75% of academic staff have core competencies in eLearning	100% of academic staff have core competencies in eLearning
		5% of the academic staff have advanced eLearning skills	15% of the academic staff have advanced eLearning skills	25% of academic staff have advanced eLearning skills
		75% of students have eLearning skills	100% of students have eLearning skills	100% of students have the skills to manipulate and produce eLearning content
		50% of staff in institutions of higher learning are blended learning practitioners	75% of staff in institutions of higher learning are blended learning practitioners	100% of staff in institutions of higher learning are blended learning practitioners
	Practice	1% of staff carry out research and development related to eLearning	5% of staff carry out research and development related to eLearning	10% of staff carry out research and development related to eLearning

### 2.2.1.6 Acculturation

Acculturation is highlighted as part of DePAN to ensure that eLearning will be a collective effort. This component includes enculturation, awards and recognition of e-content as academic publications. Table 10 presents details of this component.

**Table 10. Acculturation target by phases**

Domain	Focus Area	Phase 1 (2015)	Phase 2 (2016 – 2020)	Phase 3 (2021 – 2025)
Acculturation	Enculturation	100% of academic staff use eLearning	100% of academic staff become producers of eLearning	100% of academic staff become innovators in eLearning
		60% of students use eLearning	25% of students become producers of eLearning	5% of students become innovators in eLearning
	Recognition	A form of recognition is established to recognise movers in eLearning at the institutional level	A form of recognition is established to recognise movers in eLearning at the national level (MEIPTA / MHE)	A form of recognition is established to recognise movers in eLearning at the regional or global levels, via MHE
	Publication	HEIs establish guidelines and mechanisms to recognise e-content as publications	HEIs enforce the mechanisms to recognise e-content as publications	Established guidelines and mechanisms at each HEI are co-ordinated at the national level

### 2.2.2 The Code of Practice for Open and Distance Learning

The Code of Practice for Open and Distance Learning (COPODL),<sup>10</sup> released in 2013 by the Malaysian Qualifications Agency (MQA), focuses on strengthening the programme accreditation process through open and distance learning (ODL).

This document acknowledges that it is important for every programme to have appropriately qualified academic staff in sufficient numbers, and that the work environment encourages recruitment and retention, including options such as flexible working hours. The faculty/department/unit should consider the various responsibilities and specialised tasks

**Overall, the policy and practice environment in Malaysia is open to the use of OER.**

required of ODL academic staff, such as knowledge about andragogy, IT-related technical skills and student support. Teaching, research, consultancy services and community engagement are the core interrelated academic activities. Nevertheless, it must be acknowledged that the degree of involvement in these areas varies between academic staff and amongst academic institutions. Notably, COPODL recognises the indirect use of OER in course design and development: “Learning materials for the programme must be provided in the following ways: adopting existing materials; adapting existing materials; creating original materials; or any other appropriate approaches.”

<sup>10</sup> The 2013 version of COPODL can be downloaded at <http://www2.mqa.gov.my/QAD/garispanduan/2014/COP-ODL.pdf>.

Overall, the policy and practice environment in Malaysia is open to the use of OER, and there is a need to develop policy guidelines to help universities and teachers integrate OER in their teaching and learning. The availability of Malaysian MOOCs is yet another significant opportunity to boost Malaysia as a knowledge creator in the world, by sharing courses with an open licence for reuse and adaptation by others in as many effective ways as possible.

## **CHAPTER 3: EDUCATIONAL CONTENT – GENERATION, USE AND DISTRIBUTION**

### **3.1 Learning Resources in Malaysia at All Levels**

The Government of Malaysia supports resource-based learning and encourages schools to employ a range of educational resources. Learning resources at school level must go through a formal evaluation process, at either the provincial or the district level, to ensure they meet the requirements set by the Department of Educational Technology in the MOE, whereas in tertiary education, the evaluation process is undertaken at the institutional level and addressed by the respective educational technology centres or individual faculty. Collectively, learning resources used in schools and higher learning institutions are locally developed.

Learning resources are generally understood to be texts, videos, software and other materials that assist students in meeting the expectations for learning, as defined by provincial or local curricula. Before a learning resource is used in a classroom, it must be evaluated to ensure that criteria are met, such as suitability for the curriculum, social considerations, age and developmental appropriateness. Usually, the evaluation of resources relies on the professional expertise and judgement of classroom instructors.

#### **3.1.1 Relevant Authorities in Content Development**

The Textbook Division of the Ministry of Education (MOE) was formed in 1967. The government had wisely thought it was time to ensure the quality of books published for schools. The Textbook Division is responsible for controlling: the standard of textbooks; the usage of textbooks in schools; the prices of textbooks; and their supply and sale. To fulfil these functions, the division evaluates and approves all textbooks for use in primary and secondary schools.

Since 1975, the Textbook Loan Scheme (TLS) has been in operation through the Textbook Division. From primary to upper secondary education, the scheme focuses on all levels of education at government and government-aided schools. While the initial aim of the TLS was to help low-income students/parents, the TLS also provides children with access to education. Shortly after, in 1983, this scheme also impacted People's Religious Schools (SMAR). Since 2008, the MOE has provided free textbooks to every student, irrespective of socio-economic background. In addition to giving free textbooks to schools, the Textbook Division has jumpstarted teaching and learning innovations by complementing these textbooks with CD-ROMs. The CD-ROMs include illustrations, texts, video, audio, interactive multimedia, animation, and interactive activities such as simulations, computer games and interactive assessments. These learning resources are curriculum-oriented, appropriate to the target groups and of high quality, thus meeting the standards for and focus upon learning and teaching. These CD-ROMs have been employed in Malay and English language classes, in science and mathematics (MOE, n.d.).

With respect to higher learning, the Department of Higher Education of the MOE plays a big role:

- Planning, implementing, monitoring and evaluating the policies, programmes and resources of HEIs to achieve excellence in higher education.
- Planning the establishment of HEIs and ensuring that their facilities are conducive to teaching and learning and comparable to international standards.

### 3.1.2 Textbook Development Cost

Effective teaching and learning need an effective delivery system. Textbooks are no longer considered an important element of knowledge acquisition. Learning activities are done through electronic media, so ICT has become the main means of imparting knowledge and gathering information in higher education. ICT has actually changed students' learning behaviour, helping them move from content-centred curricula to competency-based curricula, and from teacher-centred to student-centred forms of delivery (Oliver, 2002).

As per the definition of OER by Educause (2010), these are any resources available for learning, teaching or research at little or no cost. The emphasis on cost is an important component of the definition, which comes from the need to make publicly funded resources available to the public for free. As stated by Wiley, Green and Soares (2012), education is a matter of sharing, and the OER approach is designed specifically to enable highly efficient and affordable sharing. In addition, Wiley et al. (2012) also noted that the cost of having a 250-page book transcribed by hand was about \$250 at that time. The cost of printing that same book with a print-on-demand service is about \$5. The cost of copying an online version of that same book is about \$0.0008. The cost of shipping either the written or printed book is about \$5. The cost of distributing an electronic copy of the book over the Internet, however, is approximately \$0.0007. The focus here is reducing or even eliminating the distribution cost of textbooks and other educational materials.

Textbook publishing for primary schools in Malaysia is based on the requirements of the Integrated Curriculum for Primary Schools – *Kurikulum Bersepadu Sekolah Rendah* (KBSR). Therefore, textbook development must also be based on the National Education Policy (Ghani Azmi & Abdul Rahman, 2008).

The Textbook Division in the MOE is the primary body responsible for acquiring textbooks and other basic instructional materials, and for controlling the price of these materials for schools. In contrast, learning materials for tertiary education are institution specific, and students are provided by their lecturers and course co-ordinators with lists of required and recommended materials.

The Textbook Division acquires textbooks for primary schools using direct purchase, price quotations, tenders and direct negotiations. Ghani Azmi and Abdul Rahman (2008) noted at the time of their report that the pricing of the textbooks covered three main costs:

- i. Initial costs, i.e., expenditures incurred in the preliminary stage of production and publishing, which may include photocopying and translation costs.
- ii. Pre-printing costs, i.e., all expenses incurred from the construction of the manuscript to the filming stages of publishing.
- iii. Printing costs.

In determining the prices of textbooks, the unit also took into account:

- i. all the costs incurred during publishing;
- ii. the rates of component costs and the pricing formulas approved by the MOE;
- iii. the fulfilment of the materials' specifications;
- iv. the components, concepts and working processes in the publishing of the books;
- v. the size of the printing orders; and
- vi. the management, distribution, copyright licensing and profits of the materials.

**Table 11. Textbook supply costs for 2009 and 2016**

Textbook Supply				Total Cost (MYR / USD)
2008 for 2009	17.36 million copies			127.2 million / 28.56 million
	Copies Printed	BTB	BCS	
		1.60 million copies	16.00 million copies	
2015 for 2016	29.23 million copies			202.25 million / 45.40 million
	Copies Printed	BTB	BCS	
		11.16 million copies	18.08 million copies	

In general, exact numbers for textbook development, production and distribution costs are relatively limited. Table 11 presents the costs of textbook supply for 2009 and 2016. According to a local news publication, *Utusan Malaysia*, the textbook supply in 2015 for use in 2016 was 29,234,080 copies at a cost of MYR 202,250,442; the MOE also said that the number of newly issued textbooks (BTB) and reprints (BCS) was up to 11,159,035 and 18,075,045 copies, respectively (Sharaime Shaik Ahmedullah, 2016).

Based on a figure from a local news report by Berita Harian in 2008, Rahman, Norlidah Alias and Hussin (2013) stated that almost 17.36 million textbooks were printed for primary and secondary schools to meet the needs of the 2009 schooling session. This total included 1.6 million BTBs at a cost of MYR 10.7 million, and 16 million BCSs at a cost of MYR 86.5 million. In addition, MYR 10 million were provided to address unforeseen needs, such as damage to textbooks caused by natural disasters. The overall supply of textbooks totalled MYR 127.2 million.

The increase from MYR 127,200,000 in 2009 to MYR 202,250,442 in 2016 is staggering. Most probably it was aided by the fact that beginning in the 2007 and 2008 budgets, fees for major examinations were abolished in stages, while every student, regardless of the family's income and background, was entitled to textbook loans under the Textbook Loan Scheme (Ghani Azmi & Abdul Rahman, 2008).

As high as the number may be, the cost of education was borne not only by the government, but also by parents (or carers/guardians). As noted by Rasiah and Hassan (2011), parents have to meet a number of costs in order to educate their children. These include school fees, school uniforms, books and equipment, pocket money for meals, school trips and other charges. While some parents may have to bear the total cost of schooling, some poorer parents also receive financial assistance through educational support programmes, such as subsidies, scholarships, textbooks-on-loan and hostel facilities.

Based on the percentage of textbook spending per individual in higher education, the number is small compared to schooling expenditure. From an analysis conducted by Ismail, Awang and Mohd Noor (2016), based on a survey with more than 400 respondents, the total cost for pre-university per year averaged MYR 11,996.16. From this number, only 11.75% was allocated for reference books, textbooks and stationery. However, for university education, the average cost per year is about MYR 64,131, of which about 5.77% is spent on books and stationery. A recent report in *The Star* stated that Malaysia is the fifth most expensive country in the world for higher education. Parents spend 55 per cent of their income to educate a child (Chan, 2015).

## 3.2 Survey on Access to and Cost of Educational Materials

### 3.2.1 Research Background

To understand access to ICT and to educational materials, including textbooks, we conducted a survey amongst students in Malaysia. By and large, in Malaysia, awareness of and exposure to OER are still in their infancy. So, the study was also conducted to understand how OER can most effectively improve efficiency in education and student learning. The purpose of this survey was to support the adoption of OER policy and ICT in education, and to improve the quality of learning outcomes and the fostering of innovation.

### 3.2.2 Research Methodology

The study adopted a survey approach using an online questionnaire. The samples involved students from Malaysian HEIs, comprised of public HEIs, private HEIs, polytechnics, community colleges, secondary schools and primary schools. The questionnaire used in the study was developed based on an instrument supplied by the Commonwealth of Learning (COL). This instrument was made available online and distributed through networks and contacts in educational institutions. The survey received 814 responses.

### 3.2.3 Results and Findings

#### 3.2.3.1 Respondents' Profiles

Table 12 presents the demographic data of the respondents. The majority (70 per cent) were female and in the 21–25 age group (61.9 per cent). The majority were undergraduates (74.2 per cent). The respondents were from different disciplines, with 28.9 per cent studying social sciences, followed by commerce and management (25.6 per cent). Survey data also revealed that about 16 per cent of the respondents had some kind of disability, and that making course contents digital would help them.

Figure 4 shows that the majority of respondents (59.8 per cent) studied in blended learning scenarios. Only 3.4 per cent were taking fully online courses, and 36.7 per cent were studying in face-to-face classes.

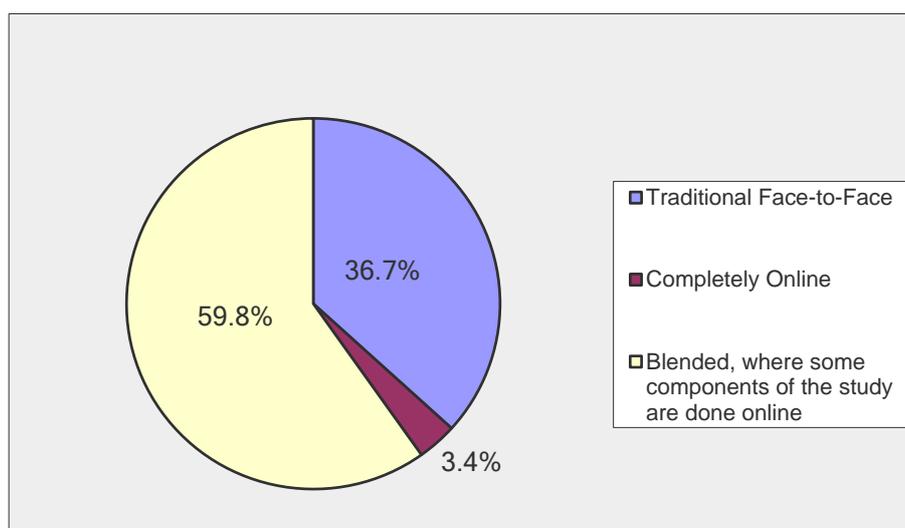


Figure 4. The way the courses were being taught

**Table 12. Demographic data of the respondents**

	<b>Percentage</b>	<b>Frequency</b>
<b>Sex</b>		
Female	70.0%	570
Male	30.0%	244
<i>answered question</i>		814
<b>Age Group</b>		
Below 20	35.0%	285
21–25	61.9%	504
26–30	0.7%	6
31–35	0.6%	5
36–40	0.4%	3
41 and above	1.4%	11
<i>answered question</i>		814
<b>Programme of Study</b>		
Undergraduate	74.2%	604
Graduate or postgraduate	16.2%	132
Elementary school students	1.5%	12
Secondary school students	5.2%	42
Matriculation	0.5%	4
Community colleges / polytechnics	2.5%	20
<i>answered question</i>		814
<b>Disability of Learners</b>		
No disability		73.2%
Yes, I have one or more physical disabilities that require accessible or adaptive technologies		6.6%
Yes, I have one or more learning disabilities that require accessible or adaptive technologies		5.0%
Yes, I have both physical and learning disabilities that require accessible or adaptive technologies		5.2%
Prefer not to answer		10.0%
<i>answered question</i>		814
<b>Discipline</b>		
Humanities	9.3%	76
Social Sciences	28.9%	235
Commerce and Management	25.6%	208
Health and Medical Sciences	3.6%	29
Natural Sciences	8.6%	70
Engineering and Technology	19.8%	161
Agriculture and Natural Resources	2.2%	18
Fine and Performing Arts	2.1%	17
<i>answered question</i>		814

### 3.2.3.2 Access to ICT and the Internet

It is interesting to note that about 98 per cent and 95 per cent of the respondents had their own smartphone and laptop, respectively. Access to smartphones will be about 100 per cent soon, based on the responses of those who planned to buy these in the next year (see Figure 5).

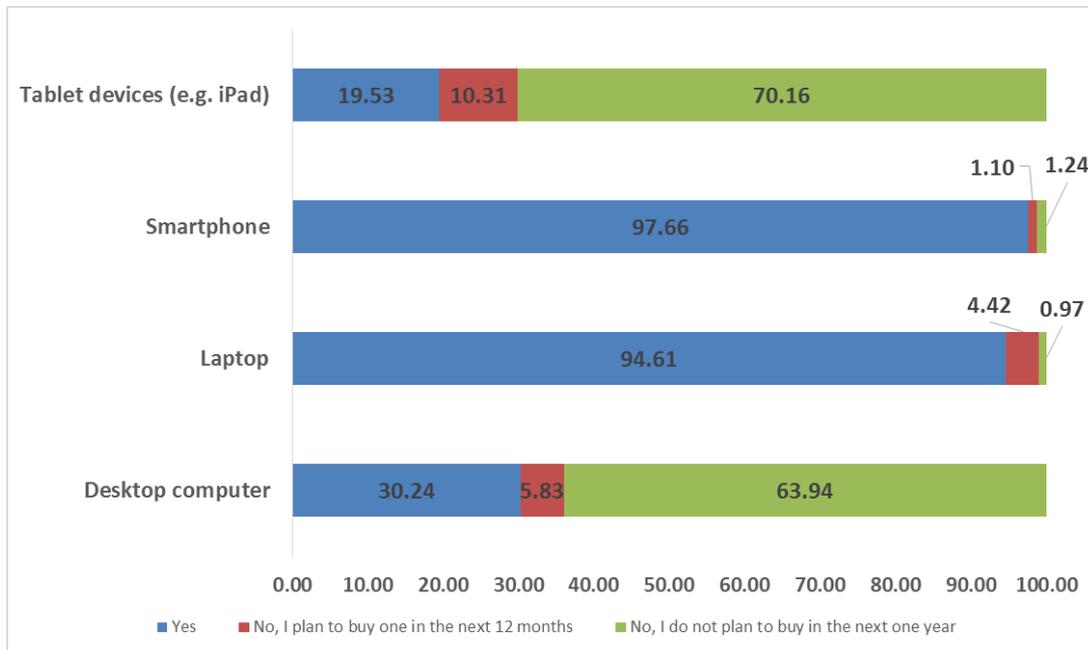


Figure 5. Access to ICT

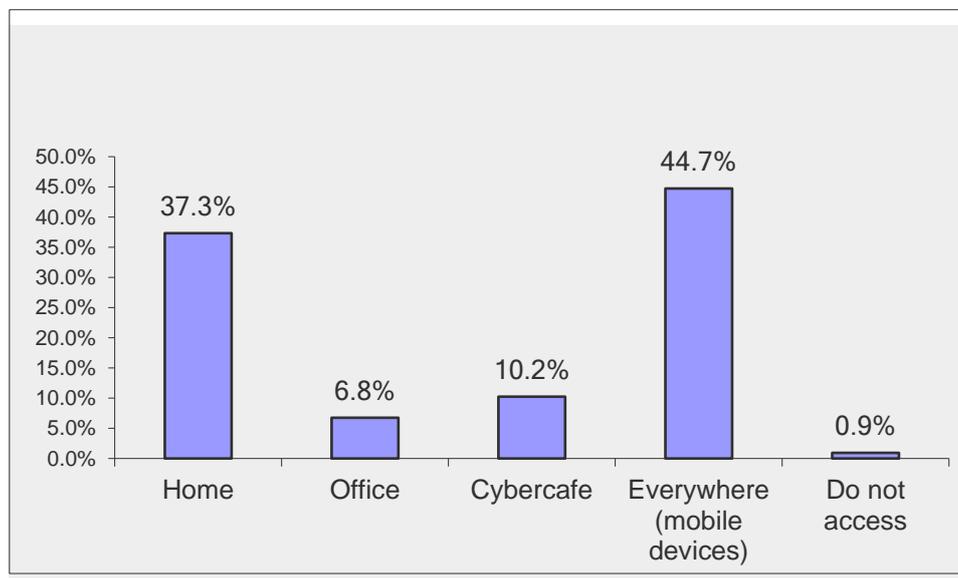
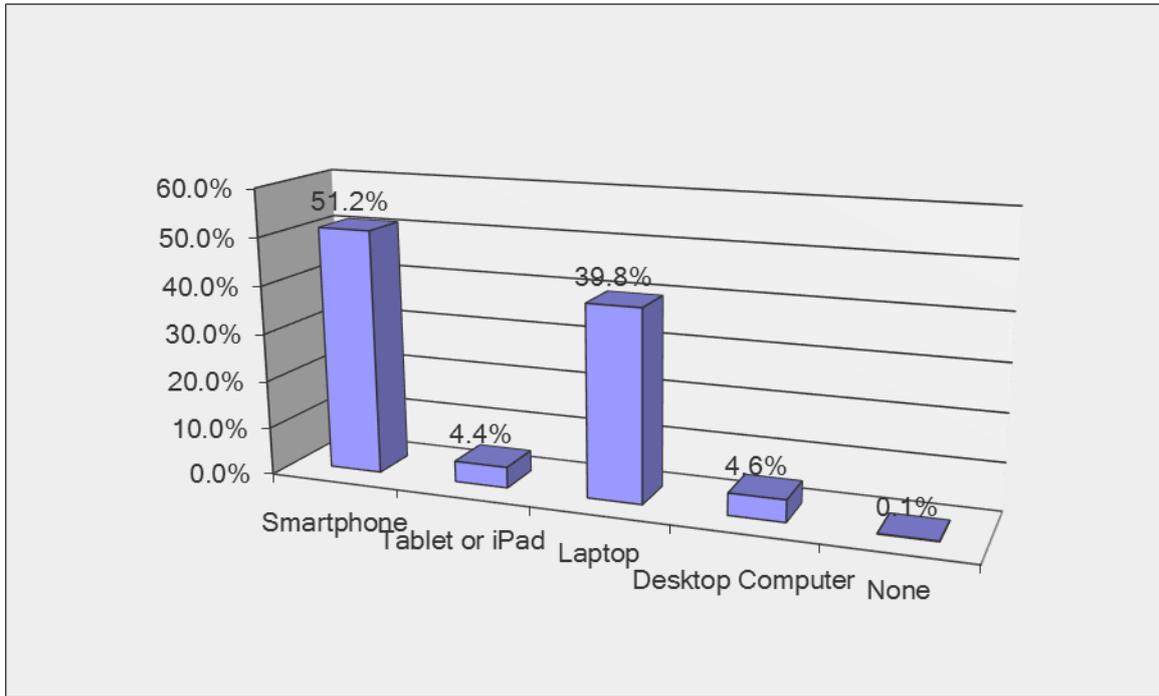


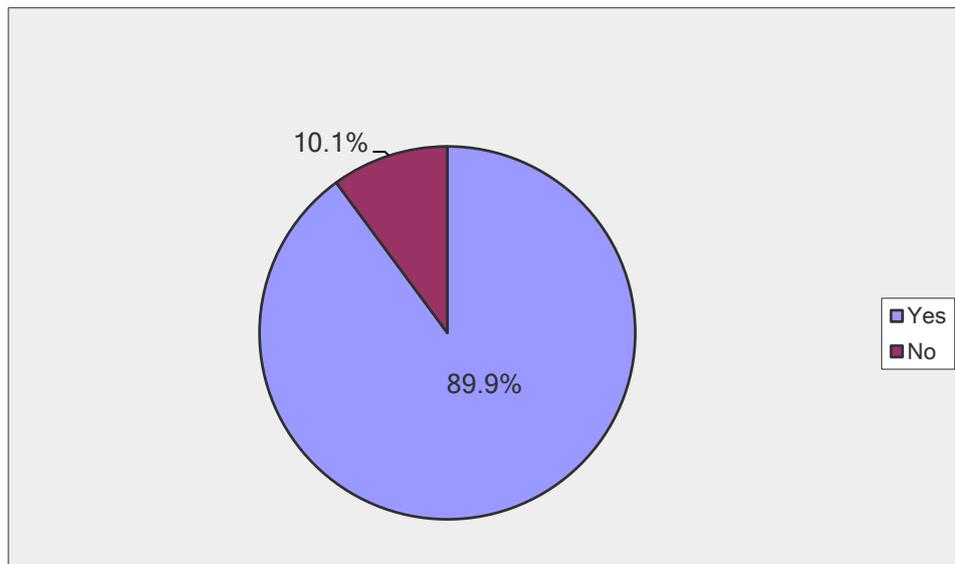
Figure 6. Access to the Internet

Figure 6 shows that respondents were connected to the Internet at all times, with 44.7 per cent having access to the Internet via their mobile phone and 37.3 per cent accessing the Internet at home, with 17 per cent of the respondents having access to the Internet at cybercafés or during office hours. Only 0.9 per cent claimed not to have an Internet connection at any given time.



**Figure 7. Devices used to access the Internet**

Most of the learners (51.2 per cent) used their smartphone to access the Internet, while about 40 per cent used their laptops. Again, Figure 7 indicates that almost all of the surveyed learners had access to the Internet.



**Figure 8. Access to the Internet for learning resources related to subject of studies**

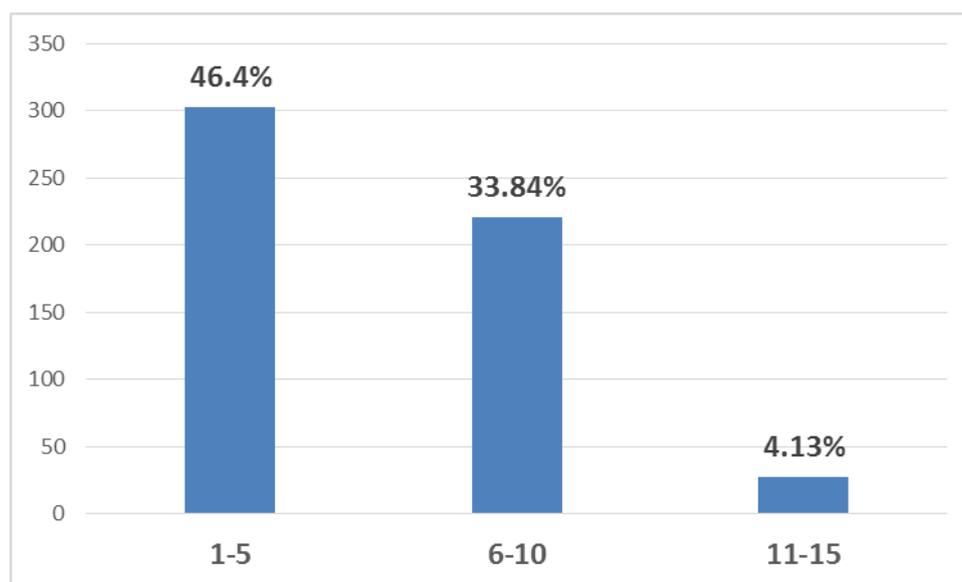
The optimisation potential for OER is probably reflected in Figure 8. A high percentage (89.9 per cent) of the respondents indicated that they used the Internet to search for subject-related materials, while only 10.1 per cent used the Internet to search for non-educational content. Education-related information covers books, journal articles, video lessons, maps, pictures, illustrations and other graphics, news, dictionaries, Wikipedia and multimedia resources.

### 3.2.3.3 Access to Resources

**Table 13. Searching for Learning Resources on the Internet**

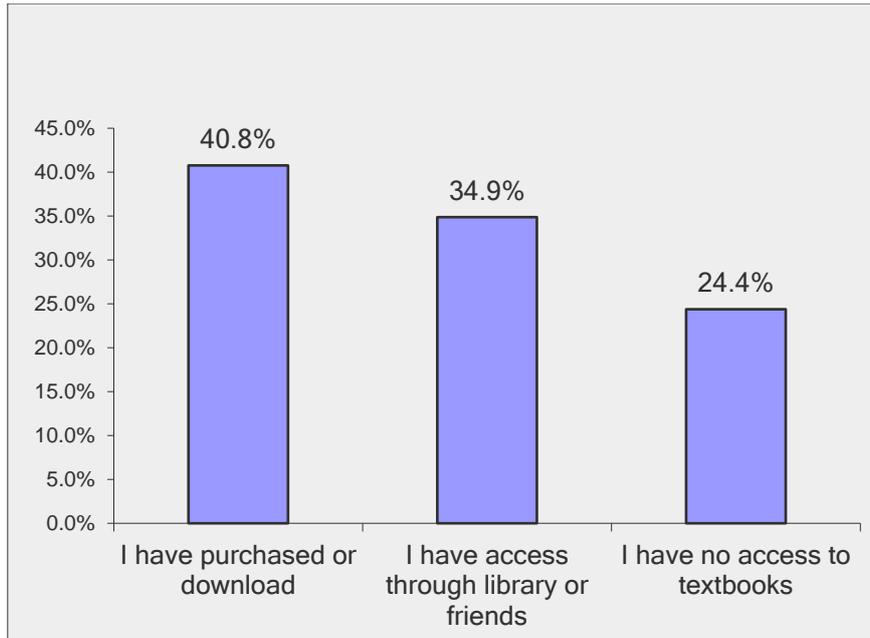
Answer Options	Frequency	Percentage	Weighted Score	Rank
Books	714	87.71	432.75	8
Journal Articles	725	89.07	457.5	5
Video Lessons	722	88.70	435.5	7
Maps	705	86.61	296	9
Pictures, Illustrations and Graphics	718	88.21	530.5	1
News	716	87.96	453.25	6
Dictionaries	716	87.96	489.25	3
Wikipedia	711	87.35	458.75	4
Multimedia Resources	712	87.47	492.75	2

Table 13 shows that respondents searched for pictures and graphics the most, followed by multimedia resources, dictionaries and Wikipedia entries. About 46 per cent of respondents indicated that they were assigned one to five textbooks, while 33.84 per cent indicated that they were supposed to access about six to ten textbooks to complete their studies in a particular year (Figure 9).



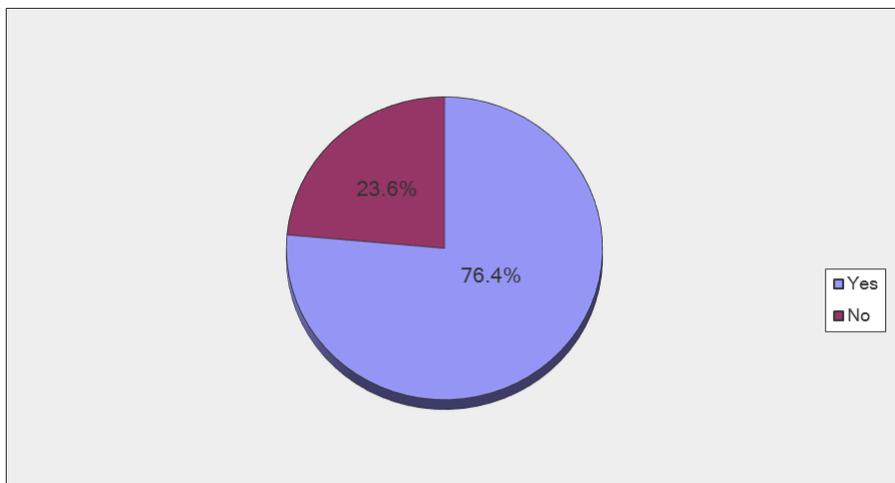
**Figure 9. Number of textbooks assigned in a year**

About a quarter of the respondents did not have access to textbooks during their studies.



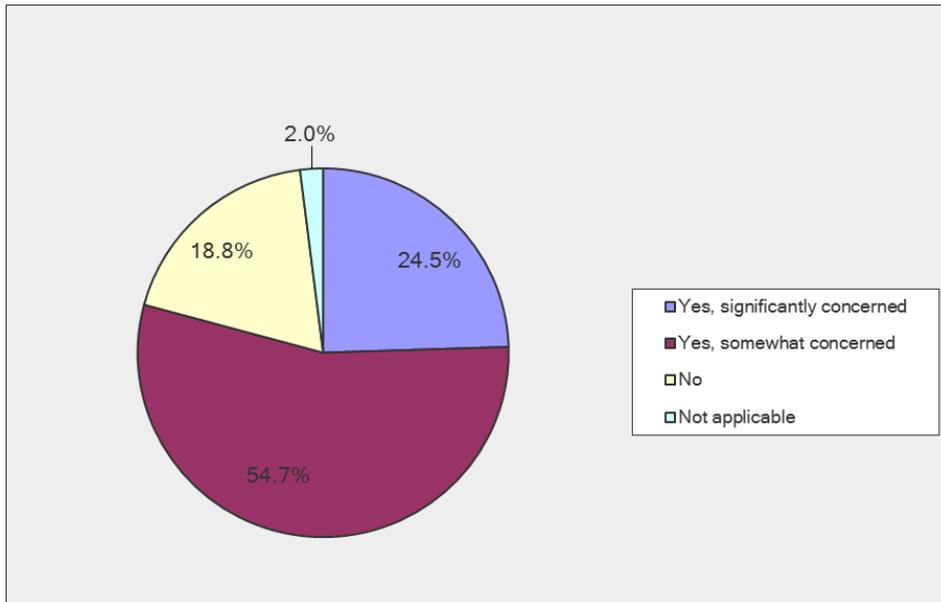
**Figure 10. Textbook accessibility/acquisition channel**

Figure 10 shows that out of the required textbooks for study, mostly respondents either purchased/downloaded the textbooks (40.8 per cent) or accessed these through libraries or friends. About a quarter of the respondents did not have access to textbooks during their studies. When asked whether they decided against buying a textbook due to its costs, 76.4 per cent answered in the affirmative (Figure 11). Most of the respondents were concerned that their grades would suffer if they did not purchase textbooks (Figure 12). At least 20 per cent of the respondents indicated that the cost of textbooks impacted their decision about what discipline they would study (Figure 13).

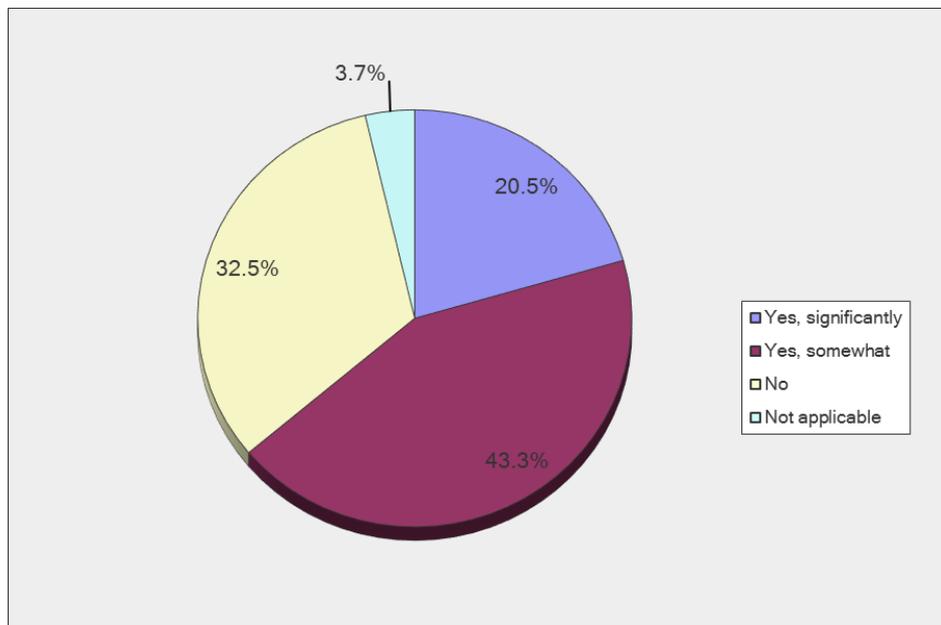


**Figure 11. Decided not to buy textbooks due to cost**

**76.4 per cent of the respondents decided not to buy a textbook because it was too expensive.**

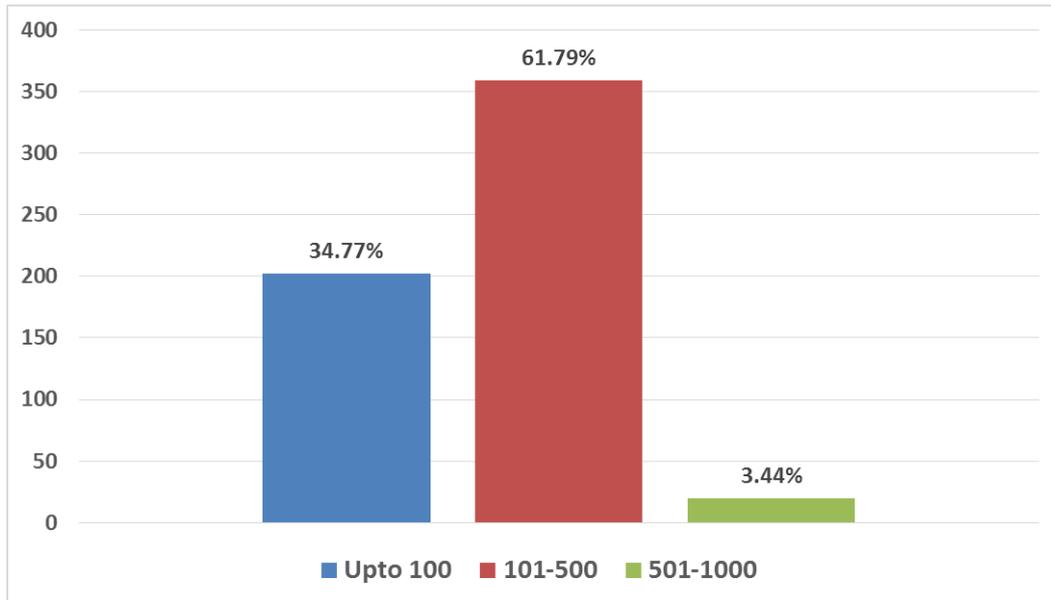


**Figure 12. Concern over grades**



**Figure 13. Cost having an impact on choice of discipline**

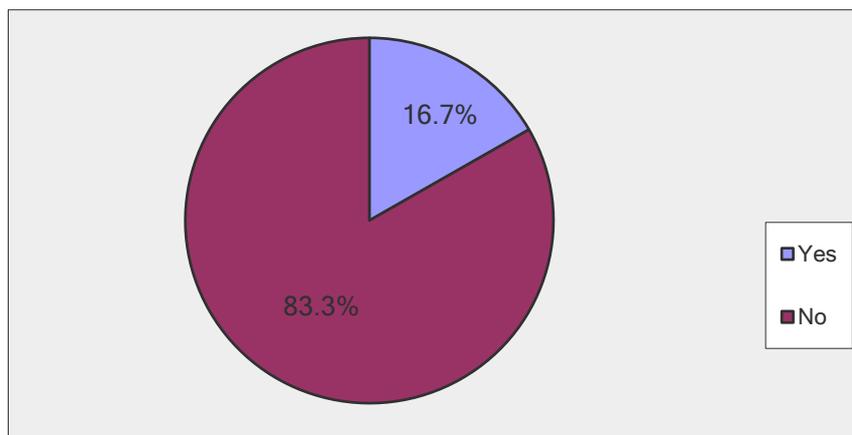
**Malaysia has high potential for implementing OER, as long as students' and academics' awareness and acceptance of OER are addressed adequately.**



**Figure 14. Textbook expenses (MYR)**

When asked about spending on textbooks, 34.77 per cent of respondents indicated that they spent up to 100 MYR per year, while about 62 per cent spent up to 500 MYR. On average, the respondents spent about 190 MYR per year. This may look quite low, but if we extrapolate this data to the number of students in higher education in 2015, the total expenses would be MYR 234,871,160 annually. According to Adnan (2008), students prefer to photocopy books because the cost is cheaper than buying the textbooks; they can save almost 75 per cent of the cost of buying imported books and 50 per cent if buying local books. In addition, Adnan (2008) also stressed that the main reason they opted to photocopy the books was insufficient funds. The result from the survey also supported this statement, as 76.4 per cent of the respondents decided not to buy a textbook because it was too expensive.

The majority of the respondents in this study were not aware of OER (Figure 15), with only 16.7 per cent knowing about them. Although a high number of respondents searched for educational materials on the Internet, the low OER awareness indicated the need for developing a strategy to increase student awareness of OER. Analysis of these overall results indicates that Malaysia has high potential for implementing OER, as long as students' and academics' awareness and acceptance of OER are addressed adequately.



**Figure 15. Awareness about OER**

### 3.3 Size of the Educational Content Market

The market for educational content in Malaysia has never decreased, due to Malaysia's vision of being a knowledge society by 2020.

Advancements in information technology have led to a new online education system landscape in Malaysia. The Malaysian government has focused on building an education system which enhances the unique identity of students by providing the specific education they actually need. This can be achieved very easily by utilising the online education concept and platform. The Education Bureau launched the E-textbooks Market Development Scheme in 2012 to subsidise non-profit organisations in the creation of e-textbooks as economical alternatives for students.

It is anticipated that Malaysia's online education market will grow at the rate of 16.4 per cent from 2016 to 2023. This projection depends on strong government initiatives and rising smartphone and tablet use in the country. Therefore, the size of the educational content market should align with these expectations and requirements. The mobile eLearning segment is anticipated to dominate the market over the forecast period; that segment is estimated to account for a market share of 35 per cent by the end of 2023 due to increasing Internet penetration and rising numbers of mobile and tablet users in the country.<sup>11</sup>

Given the high rate of Internet access through mobile phones and the low access to teaching and learning materials, it is important to invest in OER development. Learners are spending huge amounts of money on buying textbooks or are not buying textbooks at all. OER can help higher education students have access to free textbooks.

**OER can help higher  
education students have  
access to free textbooks.**

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<sup>11</sup> <http://www.researchnester.com/reports/malaysia-online-education-e-education-market-global-demand-growth-analysis-opportunity-outlook-2023/220>

## CHAPTER 4: NATIONAL CONSULTATION ON OPEN EDUCATIONAL RESOURCES IN MALAYSIA

While the open courseware movement is strong in Malaysia, institutional policies on OER are rare. As part of its OER adoption strategies, the Wawasan Open University (WOU) has developed a policy on open licences (2012), with CC BY-NC-SA as the licence for all courseware developed by the university. WOU also has a quality assurance process in place for the development of learning materials to be released as OER. Menon (2014) stated that use of OER significantly reduces course development time and therefore results in cost savings for the university. There are also several open access (OA) repositories in Malaysia that provide access to research literature. However, not all of these are available with open licences for use as OER. Nevertheless, these provide access to high-quality publications for learners. As of January 2017, ROAR<sup>12</sup> listed 37 repositories in Malaysia, while DOAR<sup>13</sup> listed 21 repositories in Malaysia. Some of the important repositories are listed in Appendix 2. Zainab (2010) concluded that OA contributions, such as OA journals and OA repositories, could make Malaysian research available and visible worldwide. Free and open access can increase the chances for use and exchange of ideas amongst scholars, researchers and even the public. Similarly, OER will also play a substantial role in the globalisation and accessibility of education.

### 4.1 National Consultation on OER

With the support of COL, the University Sains Islam Malaysia (USIM) organised a two-day national consultation on OER, in Kuala Lumpur. The objective of the workshop was to engage with relevant stakeholders to discuss the need for an OER policy in Malaysia, discuss and refine a draft OER policy, and discuss a strategy for the adoption and implementation of such a policy. This workshop was inaugurated by the Deputy Vice Chancellor of USIM, Professor Dato' Dr. Zulkiple Abd. Ghani, during the first session of the workshop. Thirty-four participants (see Appendix 3) from the MOE, MOHE, community colleges, public universities and private universities attended the workshop. Broadly, the participants agreed that there is a need to create more awareness about OER in Malaysia, and that as DePAN already has some support for OER, it may be useful to release a set of guidelines. While many universities in Malaysia are already members of the Open Education Consortium, a full understanding of the various open licences is not common. Participants in the workshop raised some important issues for consideration in the guidelines.

#### 4.1.1 Creating Awareness about OER

Currently, there is a lot of buzz about OER. Some see them as totally revolutionising how we bring learning materials into our education system and use them, while others see OER from a more pragmatic perspective. OER are a very recent development in education. They require a huge paradigm shift and attitude change, and this is a much bigger challenge

A significant awareness drive is needed to promote OER.

than introducing a new tool or knowledge. Many in education do not understand the potential of OER and feel that these resources threaten their ownership of intellectual property. It takes some time to understand that open licences, such as Creative Commons licences, clearly recognise and can reinforce someone's intellectual ownership. Open licences are simply to make the sharing process easy while protecting the creator's copyright.

<sup>12</sup> <http://roar.eprints.org/>

<sup>13</sup> <http://www.opendoar.org/index.html>

Low awareness and proper understanding amongst educators and researchers producing learning resources is a problem. Although many academics are willing to share their work, they often hesitate to do so in this new environment for fear of losing their rights to their work. A significant awareness drive is needed to promote OER.

#### 4.1.2 Quality Criteria

In recent years, due to the massification and expansion of higher education, there has been pressure on capacity as well as a decline in the quality of education providers (NIAD-UE, 2015). Hence, the government took the initiative to overcome these problems by developing higher education-related legislation. This effort focuses on ensuring that there is quality improvement in the higher education system.

In Malaysia, some of the legal instruments related to maintenance of quality in education are:

- Education Act 1996
- University and University Colleges Act (1971, amended 1996)
- Private Higher Education Institutions Act (1996)
- Malaysian Qualifications Agency Act 2007

**It is important to recognise explicitly the role of OER in the quality assurance process in educational institutions.**

Previously, any developments in and challenges to quality assurance in private higher education institutions were addressed by the National Accreditation Board (LAN). LAN was established based on the National Accreditation Board Act and is the primary quality assurance body for private higher education providers.

For public universities, quality assurance has been left to their internal quality assurance mechanisms, although they are regularly monitored by the government's Quality Assurance Division (QAD). This dualistic system has resulted in the decentralisation of quality control and assurance between public and private institutions (NIAD-UE, 2015). There should be a consistent quality assurance framework, and this requires education restructuring to streamline such a development.

The Malaysian Qualifications Agency (MQA) was established based on the MQA Act of 2007. It merges the LAN and QAD as well as centralises the control and assurance of quality for both public and private institutions of higher education into a single agency. The MQA also has been given responsibility for the implementation of the Malaysian Qualifications Framework (MQF), which is the basis for quality assurance and is a reference point for the criteria and standards for national qualifications. It is important to recognise explicitly the role of OER in the quality assurance process in educational institutions. In order to improve the quality of teaching and learning, it is important to integrate OER into teaching practice.

#### 4.1.3 Intellectual Property Rights and Licensing

OER are freely available for reuse without the need to seek the permission of the copyright holder. Basically, though, free educational resources and materials are not necessarily considered OER. This is because a given educational resource may be made available on the Internet but the materials might be restrictively licensed. According to Miao, Mishra and McGreal (2016), the licensing framework internationally used for OER is Creative Commons. It is recommended that Malaysian educational institutions use open licences that permit remixing. Some of the open licences that can be used are CC BY, CC BY-SA, CC BY-NC and CC BY-NC-SA.

#### **4.1.4 Review System**

The review process and quality assurance checks for educational materials are currently done by the education provider. While quality assurance agencies look into the overall process, it is important for educational institutions to develop their own mechanisms for reviewing OER and internally assuring quality.

## CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

From a social and pedagogical perspective, OER can support lifelong learning and personalised learning. Therefore, it is important to explore how learning takes place within the framework of OER. It has been predicted that the emergence of personal learning environments will move the power over learning from the institutions to individual learners (White & Davis, 2011). Learning is a social process based on ongoing communication, exchange of ideas and opinions, and the reconsideration and reworking of study results. In this context, teaching and learning materials are not necessarily created by one teacher or even by a group of teachers; learners should be actively involved in the process of designing curricula and syllabi and in the creation of knowledge (Yuan, MacNeill & Kraan, 2008).

Using OER implies support for an open curriculum whereby learners have the flexibility to select a range of individual units/courses to suit their personal needs for developing expertise. An increase in non-formal and informal learning can be expected to enhance the demand for assessment and recognition of competencies gained outside formal learning settings.

Learners should be actively involved in the process of designing curricula and syllabi and in the creation of knowledge.

### 5.1 Recommendations

Having reviewed the OER landscape in Malaysia, and its relevance in the context of integrating ICT in teaching and learning in the Malaysian education system and the Blueprint 2015–2025, the stakeholder consultation strongly recommended adoption of these guidelines for OER. The main objective of these guidelines is to provide direction in the use of OER for enhancing accessibility to and quality in educational resources in Malaysia as a strategy within the teaching and learning tapestry, including younger and older learners, women and other under-represented groups and communities.

The inclusion of OER in the redesign of the learning landscape, and the simplification of the entire educational process, could allow the various levels of institutions to bring on board an entirely new cohort of learners of all ages who enjoy the social experience of knowledge acquisition in the lifelong learning context. The draft guidelines are in Appendix 1. We also recommend that the following steps be taken at the national level.

#### 5.1.1 First Priority: Awareness Raising

If OER are to contribute to increasing access to and sharing of knowledge and resources in Malaysia, it is crucial that all contributing parties — from policy and decision makers at all levels, to teachers and academics — be made aware of OER's potential, so that they will be able to make informed decisions on whether and how OER can be used in their local situation. Raising awareness of OER and their attendant issues must be the primary goal of the designated spearheading institution, as it is clear that continuing and concerted awareness-raising actions must be a priority.

#### 5.1.2 Second Priority: Communities and Networking

The strength of the OER community and the continuing adherence of its members underline the importance of this type of national forum for discussion and information sharing. Building and supporting such a community should be centralised: as a laboratory of ideas and a clearinghouse, a standard setter, a capacity builder at all levels and in all organisations, and a catalyst for national (and, in the future, international) co-operation.

### **5.1.3 Third Priority: Developing Capacity**

Individuals and institutions interested in creating or adapting and reusing OER are in need of support to help them develop their own capacity to do so. The interactions of a community focused on the elaboration of a “do-it-yourself/do-it-together” resource would serve this function. Such a resource was seen as particularly important to promote OER creation and use in Malaysia. In this context, the development of the content will be value-added, with elements of tagging to facilitate for a more rigorous search mechanism to locate OER.

### **5.1.4 Fourth Priority: Quality Assurance**

If the OER movement is to take hold widely, the resources must be — and be seen to be — of high quality. When information is taken from websites worldwide, the user often lacks a frame of reference for determining the quality of the information being accessed. The OER movement would benefit from an exploration of current international quality-assurance mechanisms and general guidelines and, potentially, from linking with existing quality assurance agencies.

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## APPENDICES

### Appendix 1: Draft Guidelines for Open Educational Resources in Malaysia

#### 1. Objective of the Guidelines

The main objective of these guidelines is to provide direction in the use of OER for enhancing the accessibility and quality of educational resources in Malaysia. Therefore, the guidelines seek to strengthen commitment to OER by all concerned stakeholders in the country. The guidelines will help improve access to learning materials developed with public funds by releasing these in digital format or otherwise under an open licence. Adoption of the OER guidelines will also foster collaboration and sharing amongst educational, training and research institutions to create learning resources, improve the pedagogical practices and professional growth of educators as well as lower the cost of access to quality resources for learners.

#### 2. Context of the Guidelines

Releasing publicly funded teaching and learning materials under an open licence (preferably the most current version of Creative Commons attribution licences) will bring the following advantages in Malaysia:

- i. Increased equal access to quality learning resources;
- ii. Enhanced free and open access to knowledge which can be reused and repurposed in different forms;
- iii. Stronger ICT-enabled learning as well as open learning through better engagement of learners;
- iv. Promotion of a culture of sharing and openness amongst educators, researchers and other content creators and publishers;
- v. Transformation of teaching and learning by enabling innovative pedagogical practices;
- vi. Facilitation of inclusive education for learners with varying abilities;
- vii. Expanded outreach to disadvantaged and marginalised communities;
- viii. Promotion of a healthy academic culture of sharing knowledge, thereby enhancing educational opportunities to foster development and knowledge societies; and
- ix. Improved visibility for Malaysian education institutions.

Malaysia has several related and supporting policies that are helpful in strengthening these OER guidelines. Some of these are:

- i. Malaysia Higher Education Blueprint 2015–2025 (Higher Education)
  - Shift 3: “The Ministry will continue to build on the strategies and initiatives first set forth in the Lifelong Learning (LLL) Enculturation Blueprint as follows:
    - Strategy A: Rebranding LLL – The Ministry and HLIs [higher learning institutions] will increase public awareness of the benefits of engaging in LLL, and the range of programmes offered to learners, through a variety of promotion campaigns. HLIs will also improve

- the infrastructure for promotional activities and increase networking with relevant bodies and agencies.
- Strategy B: Enculturating LLL as a way of life — HLIs will develop and enhance innovative LLL programmes such as work-based learning and executive education so that more opportunities will be available to a wider population. The Ministry will also continue to ensure that funding is accessible and attractive to all.
  - Strategy C: Raising the quality of LLL programmes — HLIs will ensure that their programmes and courses are relevant to the learner’s objectives and needs. This includes ensuring that LLL programmes are accredited and comply with the Malaysian Qualification Framework (MQF). Such compliance will enable LLL to serve as an alternative pathway towards formal education and qualification.”
- Shift 9: “The Ministry will introduce strategies, each with its own corresponding initiatives, to achieve the aspirations of Global Online Learning (GOL). Amongst these are the following:
    - The Ministry, through the National eLearning Centre (NeLC), will facilitate the updating of the National eLearning Policy (DePAN) to incorporate a new MOOCs strategy. HLIs will also be encouraged to keep up with current best practices and technologies for the deployment of GOL.
    - The course curricula at every Malaysian HLI need to be revised to allow for the recognition of courses completed by students via MOOCs. This should be done in consultation with the Malaysian Qualifications Agency (MQA). Malaysian HLIs will also be encouraged to undertake international benchmarking, with the target of having Malaysian MOOCs become part of international MOOC consortiums.
    - The Ministry will develop a common platform to enhance the use of MOOCs for lifelong learning. The Malaysian public can then enrol in low-risk and low-cost courses, which will provide them with the opportunity to access high-quality credit-bearing courses. These credits could, in turn, be recognised towards a diploma or even a degree programme. The MOOC initiatives of Malaysian HLIs can also be used to support the continuous professional development of Malaysian civil servants, in collaboration with other training agencies. In this way, the MOOCs initiative can become the catalyst for the enculturation of lifelong learning amongst Malaysians.”
- ii. Malaysia Education Blueprint (2013–2025)
- Shift 1: Provide Equal Access to Quality Education of International Standard:
    - Every Malaysian child deserves equal access to an education that will enable that child to achieve his or her potential. The Ministry thus aspires to ensure universal access and full enrolment of all children from preschool through to upper secondary school level by 2020.
- iii. Malaysia eLearning Policy (DePAN) version 2.0
- Table 3: “Online pedagogies:
    - In Phase 2 (2016–2020), 50 per cent of all courses offered by each university should be handled in the form of blended learning. In

addition, ten per cent of e-assessment should be implemented in blended learning. Also, at least 15 courses should be offered via open platform (MOOCs) by each university.”

- Table 4: “e-content:
  - In Phase 2 (2016–2020), all institutions should develop original e-content for 25 per cent of the courses offered. At the same time, ten per cent of the courses offered by each university should be developed in the form of open courseware (OCW). Also, the e-content standard should be fully implemented at all institutions of higher learning.”

Other relevant policies or guidelines are:

- the *Copyright Act (1987)* and the *Copyright Amendment Act (1997)*;
- the Malaysian Qualification Framework (Code of Practice for Open and Distance Learning, 2011); and
- the National Policy on Credit Recognition for Massive Open Online Courses (MOOCs).

### **3. Operational Definitions**

In these guidelines, the following definitions are used:

- “Intellectual property (IP)” refers to the exclusive rights, including economic and moral rights, arising from creative works developed to support teaching and learning.
- “Outputs” are the tangible products that are created by an individual or group of individuals — for example, course design documents, learning materials, curricula and learning activities expressed in any tangible form, including print, video, audio and digital formats.
- “Outcomes” are the consequences and benefits which may arise from the development or use of IP — for example, strategic collaborations or monetary return on IP.
- “Copyright” is the subsection of IP law which grants original creators (authors, musicians, artists and other creators) and owners by virtue of creative works produced in the course of employment the rights of ownership and protection against unauthorised uses of their works, for a fixed period.
- “Licences” refer to the legal mechanisms and tools for copyright holders to grant permissions and/or specify conditions for the use of their copyrighted works.
- “Open licence” is a type of licence that grants permission to access, retain, reuse, revise, remix and redistribute a work with few or no restrictions. Creative Commons provides a suite of open licences.
- “Open educational resources (OER)” are teaching, learning and research resources and materials in any medium, digital or otherwise, used to support education/training/research, that resides in the public domain or has been released under an open licence that permits zero-cost access, reuse, revision, remixing, retention and redistribution by others, with no or limited restrictions.
- “Public funds” refers to funds that come from the public treasury. This is revenue generated from tax payments, and it is used to fund activities that benefit the public, including teaching and learning.

### **4. Areas of Responsibility**

- Any relevant institution with governing power over its own institutions (educational, training and research institutions) shall promote and foster the adoption of OER as a matter of priority, recognising the emergence of OER to increase access to educational/training resources at all levels so as to ensure quality education/training

in Malaysia. Along with the stated organisations, other directorates will work collaboratively to promote these OER guidelines.

- Each institution shall establish an OER team to drive OER development and implementation as well as strategies for OER sustainability.
- Each of the responsible authorities should identify champions to promote and create awareness at their respective institutions and report to the Ministry of Education.

## **5. Scope of the Guidelines**

The guidelines shall be applied to all publicly funded teaching and learning materials developed by various ministries of the Government of Malaysia and their subordinate offices. Educational/research institutions and autonomous bodies developing teaching and learning materials using public funds will be guided by these guidelines and shall undertake appropriate steps to adopt OER. Also, private universities, institutions and organisations shall be encouraged to apply the guidelines when they develop any educational resource using public funds, donated funds or their own funds. However, the *Copyright Act* (with amendments) shall be followed in all cases when works are released with an open licence.

## **6. Specific Objectives**

- To formulate the necessary strategic inputs, outputs, tasks and performance indicators to achieve OER integration in teaching and learning at all levels of education, in harmony with the national and institutional curriculum requirements.
- To take measures for raising awareness, building capacities and developing positive attitudes towards the concepts and practices related to OER, amongst all stakeholders; this includes the required structured training, campaigns, conferences, best-practices sharing and any other mechanism for effective OER creation/integration at all levels.
- To prepare guidelines and manuals for OER use, creation, integration and licensing at the institutional level.
- To establish an OER repository containing openly licensed materials created by educators and learners at national and institutional levels.
- To provide an infrastructure-enabling environment, including the required infrastructure, hardware, software, Internet connectivity and new technologies for effective OER creation/integration at the institutional level.
- To ensure that the implemented guidelines are monitored by incorporating a feedback mechanism that will enable relevant institutions to take informed decisions regarding any revisions required, according to changing requirements in the national education system and international developments in the field.

## **7. Guideline Statements**

### **7.1 General**

- a. The relevant institutions shall be committed to the philosophy of OER in raising awareness, building capacity and fostering positive attitudes in educators and learners for the development and use of OER, with a view to enhancing quality and equity in education.
- b. As educational resources that are freely and openly available, OER shall be utilised by educators and learners in the production of teaching and learning materials to meet institutional and national curriculum requirements.
- c. The government shall be committed to investing in materials development and curriculum design on a regular basis and encourage the creation of high-quality, openly licensed learning resources to improve the calibre of teaching and learning.

- d. Besides educators and learners, educational institutions should also be encouraged to pool and share resources in order to develop OER. Further, the state will encourage institutions to incentivise materials development activities in different ways to reward collaborative activity and encourage the production of new materials.
- e. The existing enabling environments for ICT, including infrastructure, Internet connectivity and emerging technologies such as mobile technology, shall be fully utilised to facilitate access to and redistribution of openly licensed teaching and learning resources.

## **7.2 Copyright and Licensing**

- a. All teaching and learning materials developed with public funds shall be released under an appropriate open licence and made available online, in editable digital formats, to the public.
  - Teaching and learning resources will be openly licensed when the copyright of the work is held by the concerned ministry, department or educational institution.
  - Teaching and learning resources will be openly licensed when created by a grantee or contractor receiving public funds from a ministry, department or educational institution.
- b. The preferred open licences are the most current versions of the Creative Commons Attribution (CC BY), Creative Commons Attribution-ShareAlike (CC BY-SA), Creative Commons Attribution-NonCommercial (CC BY-NC) and Creative Commons NonCommercial-ShareAlike (CC BY-NC-SA) licences.
- c. Any agency of the government will reserve the right to license the copyrighted work in the most current version of the Creative Commons Attribution-NoDerivatives (CC BY-ND) and/or Creative Commons Attribution-NonCommercial-NoDerivatives (CC BY-NC-ND) licences under the following conditions:
  - Where any derivative would affect the reputation of the agency or the integrity and authenticity of the work (the CC BY-ND licence is suggested);
  - Where the derivative or otherwise commercial circulation of the work would adversely affect the agency's operation and economic viability.

## **7.3 Exceptions**

These OER guidelines will not apply if releasing the work with an open licence would:

- be contrary to existing legislation, a court order or a specific government guideline;
- constitute a breach of contract or lead to the disclosure of a trade secret;
- affect legitimate commercial interests or business models;
- prevent the patenting of an invention; or
- impact the authoritativeness and integrity of the work.

## **8. Strategies**

- a. Institutions engaged in curriculum design and material development at all levels of education shall be encouraged to invest resources in the production and sharing of high-quality, openly licensed educational resources and the ongoing improvement and updating of curricula and teaching materials. A national scheme for educators to be recognised and rewarded for collaborating and sharing in the creation of new OER, as well as adapting existing OER, would be initiated.
- b. Advocacy and capacity building for copyright and open licensing would be supported at the national level.
- c. Appointed institution(s)/organisation(s)/department(s)/unit(s) shall be responsible for: establishing and maintaining a national repository of OER; establishing quality assurance mechanisms, such as peer review or user ratings; capacity building amongst

- educators in OER development; and ensuring the open licensing of educational materials that are developed.
- d. The commitment of the relevant institutions to making available selected educational materials as OER through a dedicated web portal for the greater good of the community will be ensured.
  - e. The development of supplementary educational material through the reuse and repurposing of available OER will be encouraged, incentivised and monitored nationally and institutionally.
  - f. Provision of physical, human, financial and other relevant resources necessary for the implementation of the OER guidelines will be introduced.
  - g. Guideline statements at the institutional level on copyright, aligned with their commitment to OER adaptation and implementation at the institutional level, will be confirmed.
  - h. The affiliated agencies of the relevant institution shall facilitate the implementation of the OER guidelines by working closely with individual institutions.
  - i. The ministry of the institutions shall be the absolute owner of the copyright of any supplementary educational materials/contents created by individuals with public funds and will make them available as OER in accordance with the national OER guidelines.

## 9. Creative Commons Licences

Licence Name	Acronym	Icon	Description
Attribution	BY		This licence lets others distribute, remix, tweak and build upon your work, even commercially, as long as they credit you for the original creation. This is the most accommodating of licences offered, in terms of what others can do with your work.
Attribution-ShareAlike	BY-SA		This licence lets others remix, tweak and build upon your work even for commercial reasons, as long as they credit you and license their new creations under the identical terms. This licence is often compared to open-source software licences. All new works based on yours will carry the same licence, so any derivatives will also allow commercial use.
Attribution-NonCommercial	BY-NC		This licence lets others remix, tweak and build upon your work non-commercially, and although their new works must also acknowledge you and be non-commercial, they don't have to license their derivative works on the same terms.
Attribution-NonCommercial-Share Alike	BY-NC-SA		This licence lets others remix, tweak and build upon your work non-commercially, as long as they credit you and license their new creations

			<p>under the identical terms. Others can download and redistribute your work, just as under the BY-NC-ND licence, but they can also translate, make remixes and produce new stories based on your work. All new work based on yours will carry the same licence, so any derivatives will also be non-commercial in nature.</p>
Attribution-NoDerivatives	BY-ND		<p>This licence allows for redistribution, commercial and non-commercial use, with credit to the author. The work may not be altered, transformed or built on.</p>
Attribution-NonCommercial-NoDerivatives	BY-NC-ND		<p>This licence is the most restrictive of the six main CC licences, allowing redistribution only. This licence is often called the “free advertising” licence because it allows others to download your works and share them with others as long as they mention you and link back to you, but they cannot change them in any way or use them commercially.</p>

Source: <https://creativecommons.org/licenses/>

## Appendix 2: Some Important Open Access Repositories in Malaysia

No.	Repository	Institution	URL	Listed in	Status
<b>Research Institution or Department</b>					
1	Digital Repository at UNITEN Library	Universiti Tenaga Nasional	<a href="http://dspace.uniten.edu.my/">http://dspace.uniten.edu.my/</a>	ROAR	Active
2	e-Imtiyaz Intellectual Repository	Universiti Sains Islam Malaysia	<a href="http://ddms.usim.edu.my/">http://ddms.usim.edu.my/</a>	ROAR	Active
3	IIUM Institutional Repository (IREP)	International Islamic University Malaysia	<a href="http://irep.iium.edu.my/">http://irep.iium.edu.my/</a>	ROAR	Active
4	InHouse Digital Collection (IDC)	Universiti Sultan Zainal Abidin	<a href="https://perpustakaan.unisz.a.edu.my/index.php?option=com_abook&amp;view=categories&amp;id=0&amp;Itemid=409&amp;lang=en">https://perpustakaan.unisz.a.edu.my/index.php?option=com_abook&amp;view=categories&amp;id=0&amp;Itemid=409&amp;lang=en</a>	ROAR	Active
5	iRepository at Perpustakaan UniMAP	Universiti Malaysia Perlis	<a href="http://dspace.unimap.edu.my/dspace/">http://dspace.unimap.edu.my/dspace/</a>	ROAR & DOAR	Active
6	Open University Malaysia Knowledge Repository	Open University Malaysia	<a href="http://library.oum.edu.my/repository/">http://library.oum.edu.my/repository/</a>	ROAR	Active
7	Perpustakaan Tuanku Bainun UPSI Digital Collections	Universiti Pendidikan Sultan Idris	<a href="http://pustaka2.upsi.edu.my/eprints/">http://pustaka2.upsi.edu.my/eprints/</a>	ROAR	Active
8	SHDL@MMU Digital Repository	Malaysia Multimedia University	<a href="http://vlib.mmu.edu.my/library/">http://vlib.mmu.edu.my/library/</a>	ROAR & DOAR	Active
9	Sunway Institutional Repository	Sunway University & Sunway College	<a href="http://eprints.sunway.edu.my/">http://eprints.sunway.edu.my/</a>	ROAR	Active
10	UKM Institutional Repository	Universiti Kebangsaan Malaysia	<a href="https://smk.ukm.my/erep/">https://smk.ukm.my/erep/</a>	ROAR	Active
11	UM Research Repository	University of Malaya, Malaysia	<a href="http://eprints.um.edu.my/">http://eprints.um.edu.my/</a>	ROAR & DOAR	Active
12	UMS Institutional Repository	Universiti Malaysia Sabah	<a href="http://eprints.ums.edu.my/">http://eprints.ums.edu.my/</a>	ROAR & DOAR	Active
13	UnikL Institutional Repository	Universiti Kuala Lumpur	<a href="http://ir.unikl.edu.my/jspui/">http://ir.unikl.edu.my/jspui/</a>	ROAR & DOAR	Active
14	UNIMAS Institutional Repository	Universiti Malaysia Sarawak	<a href="http://ir.unimas.my/">http://ir.unimas.my/</a>	ROAR	Active
15	UPM Institutional Repository (UPMIR)	Universiti Putra Malaysia	<a href="http://psasir.upm.edu.my/">http://psasir.upm.edu.my/</a>	ROAR & DOAR	Active
15	Universiti Teknologi Malaysia (UTM) Institutional Repository	Universiti Teknologi Malaysia	<a href="http://eprints.utm.my/">http://eprints.utm.my/</a>	ROAR & DOAR	Active

17	Universiti Tun Hussein Onn Malaysia (UTHM) Institutional Repository	Universiti Tun Hussein Onn Malaysia	<a href="http://eprints.uthm.edu.my/">http://eprints.uthm.edu.my/</a>	ROAR & DOAR	Active
18	Universiti Utara Malaysia (UUM) Institutional Repository	Universiti Utara Malaysia	<a href="http://repo.uum.edu.my/">http://repo.uum.edu.my/</a>	ROAR & DOAR	Active
19	UTPedia Electronic and Digital Intellectual Asset	Universiti Teknologi PETRONAS	<a href="http://utpedia.utp.edu.my/">http://utpedia.utp.edu.my/</a>	ROAR	Active
20	USM Research and Publication	Universiti Sains Malaysia	<a href="http://eprints.usm.my/">http://eprints.usm.my/</a>	ROAR & DOAR	Active
21	UMK Repository	Universiti Malaysia Kelantan	<a href="http://umkeprints.umk.edu.my/">http://umkeprints.umk.edu.my/</a>	ROAR & DOAR	Active
22	WorldFish Center Publications	World Fish Centre	<a href="http://www.worldfishcenter.org/publications-resources/publications">http://www.worldfishcenter.org/publications-resources/publications</a>	ROAR	Active
23	Wawasan OER Repository	Wawasan Open University	<a href="http://weko.wou.edu.my/">http://weko.wou.edu.my/</a>		Active
<b>Research Multi-institution Repository</b>					
24	Universiti Teknologi MARA Institutional Repository	Universiti Teknologi MARA	<a href="http://ir.uitm.edu.my/">http://ir.uitm.edu.my/</a>	ROAR & DOAR	Active
<b>Research Cross-institutional Repositories</b>					
<i>e-Theses</i>					
25	UM Students' Repository	University of Malaya	<a href="http://studentsrepo.um.edu.my/">http://studentsrepo.um.edu.my/</a>	ROAR & DOAR	Active
26	Electronic Theses and Dissertation	Universiti Utara Malaysia	<a href="http://etd.uum.edu.my/">http://etd.uum.edu.my/</a>	ROAR	Active
27	<a href="http://theses@umalaya">Theses@Umalaya</a>	University of Malaya	<a href="http://dspace.fsktm.um.edu.my/">http://dspace.fsktm.um.edu.my/</a>	DOAR	Active

### **Appendix 3: List of Participants in the National Consultation on OER in Malaysia**

No.	Title	Name	Institution
1	Dr.	Abdul Hadi Mat Dawi	Institut Pendidikan Guru Kampus Ipoh
2	Dr.	Adzhar Kamaludin	Universiti Malaysia Pahang
3	Mr.	Ahmad Farid Mohd Jamal	Universiti Sains Islam Malaysia
4	Dr.	Anealka Aziz Hussin	Universiti Teknologi Mara
5	Mr.	Chandra Mohgan A/L Lechman	Ministry of Higher Education Malaysia
6	Dr.	Dian Darina Indah Darius	Universiti Pertahanan Nasional Malaysia
7	Dr.	Dr. Aishah Abu Bakar	Ministry of Higher Education Malaysia
8	Ms.	Elmiza Roslan	Ministry of Education Malaysia (Community Colleges)
9	Dr.	Farrah Dina Yusop	University of Malaya
10	Ms.	Fatimah binti Ghazali	Universiti Sultan Zainal Abidin
11	Mr.	Firdaus Hassan	Ministry of Education Malaysia (Community Colleges)
12	Prof. Dr.	Fong Soon Fook	Universiti Malaysia Sabah
13	Dr.	Habibah Ab. Jalil	Universiti Putra Malaysia
14	Dr.	Mohammad Tazli Azizan	Universiti Teknologi Petronas
15	Dr.	Muhamad Shahbani Abu Bakar	Universiti Utara Malaysia
16	Mr.	Muhammad Qayyum Abdul Raof	Khalifah Model Secondary School
17	Prof. Dr.	Muhammad Sabri Sahrir	International Islamic University Malaysia
18	Dr.	Najwa Hayaati Mohd Alwi	Universiti Sains Islam Malaysia
19	Ms.	Nor Fadzleen binti Sa'don	SMK Bandar Baru Uda
20	Prof. Dr.	Nurairha Mat Daud	International Islamic University Malaysia
21	Dr.	Nurbiha A. Shukor	Universiti Teknologi Malaysia
22	Dr.	Nurkhamimi Zainuddin	Universiti Sains Islam Malaysia
23	Dr.	Qhamariah Samu	Ministry of Education (Educational Technology)
24	Dr.	Rosemaliza Mohd Kamalludeen	International Islamic University Malaysia
25	Dr.	Rossen Din	Universiti Kebangsaan Malaysia
26	Prof. Dr.	Rozhan Mohammed Idrus	Universiti Sains Islam Malaysia
27	Assoc. Prof. Dr.	Safiah Yusof	Open University Malaysia
28	Dr.	Sanjaya Mishra	Commonwealth of Learning
29	Prof. Dr.	Supyan Hussin	Universiti Kebangsaan Malaysia
30	Dr.	Syed Najmuddin Syed Hassan	Universiti Teknikal Malaysia Melaka
31	Ms.	Wan Lidiana Lidia Wan Abu Bakar	Asia e University
32	Ms.	Wan Marina Wan Mohd Nowalid	Ministry of Education Malaysia (Community Colleges)
33	Mr.	Wan Mohd Azam bin Wan Muhamad	Sekolah Kebangsaan Minden Height
34	Mr.	Zaid Ali Alsagoff	AQL Learning Innovation Consultancy

## NOTES







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