E-learning and Digital literacy: Experiences, lessons and prospects in the Philippines

**Juvy Lizette M. Gervacio**

University of the Philippines Open University, Philippines

Email: [juvylizette.gervacio@upou.edu.ph](mailto:juvylizette.gervacio@upou.edu.ph)

**ABSTRACT:** *Governments have recognized the use of information and communication technology in education, making it more accessible and inclusive. Besides, it also a means to achieve one of the 17 sustainable development goals of the United Nations which is the provision of quality education and promotion of lifelong learning. However, the COVID-19 pandemic has led to some realizations. The sudden shift to online learning affected the lives of educators, academic staff and students alike. The digital divide has also become more apparent as many students did not only have access to desktop computers and laptops but mobile data charges could also be expensive. Moreover, the digital skills of teachers and learners to enable them to teach and learn online were not readily available. The use of e-learning enables students to develop digital competencies. In e-learning, they build their online skills as well as expand their technological capacities. Hence, this paper aims to discuss e-learning and digital literacy in the Philippines, including: Discuss the rise of e-learning and digital literacy in the Philippines in the context of the University of the Philippines Open University; Present the challenges of e-learning and digital literacy in the country; Discuss the strategies adopted by the government related to digital literacy and e-learning; and Present prospects and perspectives on the future of e-learning and digital literacy in the Philippines.*

**KEYWORDS: E-learning; digital literacy; information and communications technology; Philippines.**

Received 15/9/2020 Revised manuscript received 15/11/2020 Published 25/12/2020.

1. **Introduction**

Governments have recognized the use of information and communications technology (ICT) in education, making it more accessible and inclusive. Moreover, it is also a means to achieve one of the 17 sustainable development goals of the United Nations which is the provision of quality education and promotion of lifelong learning (Gervacio in Brown, 2020).

However, the COVID-19 pandemic has led to some realizations. The sudden shift to online learning affected the lives of educators, academic staff, and students alike. The digital divide has also become more apparent as many students did not only have access to desktop computers and laptops, but mobile data charges could also be expensive. Moreover, information regarding digital skills of teachers and learners to enable them to teach and learn online was not readily available.

One of the important factors in transferring

digital skills is the use of e-learning. The use of e-learning enables students to develop digital competencies and expand their technological capacities. Hence, this paper discusses e-learning and digital literacy in the Philippines including experiences and prospects.

Specifically, the paper discusses the: 1) rise of e-learning and digital literacy in the Philippines in the context of the University of the Philippines Open University; 2) challenges of e-learning and digital literacy in the country; 3) strategies adopted by the government related to digital literacy and e-learning; and 4) conclusions and recommendations on the future of e-learning and digital literacy in the Philippines.

1. **E-learning and digital literacy in the Philippines**

The education system in the Philippines is composed of three main components, namely: 1) early childhood and basic education; 2) technical

vocational education and training; and 3) higher education. (Gervacio, 2012).

Although the use of ICT in education has been introduced in the different levels of education in the Philippines, it was done at a limited scale. Moreover, it is also more apparent at the higher education level. E-learning or the use of ICT in education is very important in the transfer of digital literacy. In the Philippines, the University of the Philippines Open University plays an important role in implementing e-learning programs since it is mandated by the government to promote the use of ICT in education.

* 1. **E-learning and digital skills**

E-learning, also referred to as online learning or electronic learning, is the acquisition of knowledge which takes place through electronic technologies and media. In simple language, e-learning is defined as “learning that is enabled electronically” (Tamm, 2019).

In her research paper entitled “Distance Education and E-Learning: Not the Same Thing, Sara Guri-Rosenbily defined e-learning as electronic media used for various learning purposes ranging from conventional classroom add-on functions to online substitution for face- to-face meetings with online encounters (Guri- Rosenbily in Tamm, 2019).

The Economic Times provided two descriptions of eLearning: (a) A learning system based on formalized teaching but with the help of electronic resources is known as E-learning and

(b) E-learning can also be termed as a network enabled transfer of skills and knowledge, and the delivery of education is made to a large number of recipients at the same or different times.

Despite its many definitions, eLearning is recognized to contribute greatly to the promotion and transfer of digital skills. “We firmly believe that eLearning is one of the tools in our arsenal to beat the challenge of digital skills shortages, owing to its scalability and the flexibility it allows for learners” (Gutierrez, 2016).

Digital skills are defined as a range of abilities to use digital devices, communication applications, and networks to access and manage

information. They enable people to create and share digital content, communicate and collaborate, and solve problems for effective and creative self-fulfilment in life, learning, work, and social activities at large (UNESCO, 2019).

Digital literacy then, is the ability to find, evaluate, utilize, share, and create content using information technologies and the internet (Cornell University in Heick, 2014). More simply, Hiller Spires, a professor of literacy and technology at North Carolina State University, views digital literacy as having three buckets:

1) finding and consuming digital content; 2) creating digital content; and 3) communicating or sharing it (Loewus, 2016).

According to Parkes et. al. (2013) there are several e-learning competencies based on literature and these are all related to digital skills. They include computing and internet skills such as the ability of students to use browsers and search engines; understand URL configurations; locate websites; navigate through hyperlinks; evaluate web content; download and install plug- ins to view multimedia files; use tools that enable asynchronous and synchronous communication; and engage in collaborative and distributed learning activities. E-learning also enables students to reflect and build a bridge between what they already know and what they have learned, thereby engaging and making sense of the content. Another competency is the ability of students to interact and communicate with other learners, instructors and technology. Finally, identity and social presence is also developed by utilizing e-learning. This refers to the degree or feeling of feeling, perception and reaction to others in an online environment (Parkes et. al., 2013).

* 1. **The University of the Philippines Open University** As a pioneer in Open and Distance eLearning (ODeL), the University of the Philippines Open University (UPOU) was created in 1995 and has played a significant role in the promotion

and transfer of digital literacy skills. Being the leading instution for ODeL, UPOU had to conquer different challenges when it comes to

their delivery and instruction. From a once-a- month face-to-face meeting, to the establishment of Learning Centers and now to the adaption of ODeL, UPOU has come a long way in fulfilling its mandate.

As early as 2001, UPOU declared that it will go online with the use of electronic mail in sending learning resources as well as in communicating with the students. UPOU saw the rising potential of the internet as a means of delivery, therefore, adding an ‘e’ to Open and Distance Learning making it Open and Distance e-Learning (ODeL).

UPOU initially used the Integrated Virtual Learning Environment (IVLE) to facilitate online connectivity of learners and teachers. UPOU wanted to shift 100% online to also cater to students abroad. From IVLE, UPOU started to develop courses using the open source Modular, Object-Oriented, Dynamic Learning Environment or MOODLE. All the interactions between and among teachers and students take place in virtual classroom (MyPortal). It has features that simulate those in a physical classroom (UPOU Visitor’s Kit, n.d). Nowadays, UPOU continue to provide quality online programs to various formal and non-formal courses. It also offers massive open online courses and at the same time continue to develop and share learning materials available through networks.upou.edu.ph.

Recognizing the importance of Open and Distance Learning in the country, Republic Act 10650 otherwise known as the Open Distance Learning Act was signed into law last December 9, 2014. It aims to “expand and further democratize access to quality tertiary education through the promotion and application of open learning as a philosophy of access to educational services, and the use of distance education as an appropriate, efficient and effective system of delivering quality higher and technical educational services in the country.”

Three agencies have been tasked to implement the law: Commission on Higher Education (CHED), the Technical Education and Skills Development Authority (TESDA) and the

University of the Philippines Open University (UPOU).

The UPOU is tasked to support CHED and TESDA in the responsibilities stated above by:

* + 1. Providing leadership in the development of ODL in the country and in the appropriate use of information and communications technologies in support of quality tertiary education,
    2. Promoting best practices in ODL in the Philippines,
    3. Sharing knowledge through informed and innovative research and other development activities related to ODL through its exemplar policies, programs, materials, learning management systems, guidelines and offerings,
    4. Providing technical assistance to the CHED and the TESDA in matters relating to ODL, particularly in the development of basic curricular design and formulation of national policies, standards and guidelines for ODL programs and institutions in the country,
    5. Designing model curricular programs which shall serve as prototype programs upon which similar programs to be offered by other HEIs and post-secondary schools in the country shall be patterned after,
    6. Developing and promoting appropriate information and communications technology to facilitate quality ODL programs in the country,
    7. Designing quality learning materials and objects, both in print and multimedia formats, for higher education and post-secondary instruction in the country,
    8. Making instructional materials for ODL programs accessible to the public through collaborative arrangements and other appropriate mechanisms,
    9. Assisting other interested educational institutions in developing their ODL programs, courses, and materials for specific learner groups or the public at large,
    10. Designing and implementing a continuing program to develop high level expertise in the fields of ODL in the Philippines through quality higher education degree programs and technical- vocational programs through either or both ODL and face-to-face modes of instruction and

training; and

* + 1. Helping capacitate ODL teachers and practitioners through capacity building and professionalization programs (Official Gazette of the Philippines, 2014).

1. **Experiences and challenges of e-learning and transfer of digital skills**

E-learning and transfer of digital skills face a lot of challenges particularly in terms of internet infrastructure and the need to develop the capacity of educators in digital skills.

* 1. **ICT Infrastructure**

The internet connection in the Philippines can be described in three words - slow, expensive and unstable. The report “Digital Quality of Life Index 2020” by VPN provider Surfshark confirmed this sad state of the Philippine internet. The report focused on five pillars that determine the digital quality of life namely:

1. Internet affordability
2. Internet quality
3. Electronic infrastructure
4. Electronic government
5. Electronic security

The Philippines is still in the bottom end when it comes to internet quality, ranking 77 out of the 85 countries. It has an average mobile speed of 16.14 mbps compared to 33.53 mbps global average. The broadband speed of the Philippines is an average of 6.05 mbps compared to the global average of 15.94 mbps. When it comes to mobile internet stability, Philippines was given a score of 0.8 while the global average is 0.94. And as for broadband internet stability, 0.77 compared to the 0.91 global average.

As for the electronic infrastructure, the Philippines got the rank of 67 out of 85. The gauge for this metric is the number of individuals using the internet (per 100 inhabitants) and ICT adoption.

The country got a higher rank for the metrics of electronic security and electronic government. Philippines ranked 46 for electronic security and 36th electronic government.

* 1. **Digital capacities of educators**

Faculty indifference and resistance to technology is another challenge to e-learning and the promotion and transfer of digital skills.

The study of Dr. Patricia Arinto entitled “Issues and Challenges on Open and Distance e-Learning: Perspectives from the Philippines,” discusses the issues and challenges that ODeL poses for the Philippines’ Open University from the point of view of the institution’s leading ODeL practitioners (Arinto, 2016). The results show that faculty indifference and resistance to technology is also experienced even with the country’s leading ODeL institution. Two of the participants of the study said that ODeL requires not only the acquisition of technology-related skills but also a pedagogical re-orientation, which many academics would find challenging (Arinto, 2016).

One of the respondents pointed out that faculty members are selected to teach courses on the basis of their expertise in the subject matter, and they do not necessarily have knowledge of appropriate and effective pedagogy especially for online learning contexts (Arinto, 2016).

The pedagogy in DE is very different from that in face-to-face teaching. E-learning means using the computer to send and receive emails to address the concerns of the students which is simply to augment face-to-face setting. The result of the study also shows that despite years of being in the forefront of ODeL, UPOU is still confronted with these concerns which makes it understandable why majority of the educators in the country are apprehensive and struggling on how to go about this unprecedented shift.

During the period of COVID-19, a quick survey was conducted by the researchers about the online readiness of 110 Public Administration and Governance faculty members all over the Philippines. The figures showed that most of the respondents agreed that they have access to a stable, reasonably fast and reliable internet connection with 86%. The rest did not agree.

When it comes to being knowledgeable about computer and internet related operations, the results are summarized in the table below (see Table 1).

**Table 1: Familiarity with Various Online Tools of ASPAP Faculty Members, April 2020**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Familiarity with online tools** | **Strongly Agree** | **Agree** | **Disagree** | **Strongly Disagree** |
| MS Word, PPT, PDF | 78.4% | 19.8% |  | 1.8% |
| Sending and receiving emails with attachment | 85.6% | 12.6% |  | 1.8% |
| Posting and interacting in social media | 73% | 24.3% |  | 1.8% |
| Surfing the Internet (articles, government sites, news, YouTube, etc.) | 78.4% | 19.8% |  | 1.8% |
| Use of synchronous communication tolls (SMS, Viber, FB messenger, Zoom, Skype, Google hangouts, etc.) | 58.6% | 38.7% | 0.9% | 1.8% |

When it comes to psychological and emotional preparedness, only 28.8% strongly believed they are ready for e-learning, while 55.9% agreed. There are only 14.4% of the respondents disagreed while 0.9% strongly disagreed.

1. **Policies, strategies and support for e-learning and digital literacty**

The Philippines' government saw the importance of promoting the use of ICT in education as well as digital literacy skills among Filipinos. Thus, it has enacted various laws and introduced programs to address the challenges mentioned above.

Below are some of the key policies and initiatives of the Philippine Government with regard to the use of ICT in education:

* 1. **Republic Act No. 10844 (Department of Information and Communications Technology Act of 2015)**

Republic Act 10844 also known as the Department of Information and Communications Technology Act of 2015 was approved last May 23, 2016. The act established the Department of Information and Communications Technology (DICT), defined its powers and functions as well as appropriating funds therefor.

The creation of DICT is expected to address the gaps of ICT needs in the Philippines and to lessen the digital divide so the country will truly become competitive in the market.

DICT’s power and functions focuses on four aspects namely:

1. Policy and Planning
2. Improved Public Access
3. Resource-Sharing and Capacity-Building
4. Consumer Protection and Industry Development

The DICT conducts various projects that will help them achieve their goals. Some of their projects are specified below:

1. Pipol Konek: Free Wi-Fi Internet Access in

Public Places Project

1. National Broadband Plan
2. National Government Portal
3. Cybersecurity Management System Project
4. Integrated Government Philippines Program
5. Tech4Ed
   1. **Republic Act 10929 (Free Internet Access in Public Places Act)**

Republic Act 10929 also known as Pipol Konek: Free WiFi Internet Access in Public Places was signed into law by President Rodrigo Duterte last August 2, 2017.

The project is spearheaded by the Department of Information and Communications Technology (DICT). It aims to provide free broadband access to all municipalities and cities in the country. The goal is to make Internet access available for all Filipinos to speed up economic, social and educational opportunities.

The effort is in line with the Philippine Digital Strategy 2011-2016 which aims to provide internet for everyone and to close the digital divide.

The hotspots will be located in the following strategic locations:

1. Public plazas
2. Parks
3. Public libraries
4. Schools
5. Colleges and universities
6. Rural health units and government hospitals
7. Train stations
8. Airports and seaports
9. National and Local Government Offices

In a report released by the Department of Information and Communications Technology (DICT) last June 23, 2017, the project has 381 live project sites. As of June 19, 2017, more than 900,000 unique devices have accessed the free public WiFi.

The numbers significantly increased based on a news report released by ABSCBN last June 21, 2018. The report states that there are already 2,665,378 unique devices that are connected to the free public WiFi. The live project sites have also increased to 1,378 Pipol Konek sites nationwide.

The DICT aims to establish 200,000 Pipol Konek Sites in Public Places by the end of 2022. The law also specified the creation of the Free Public Internet Access Fund which is where the project will get its funding. Funds will come from Spectrum Users Fees which is collected by the National Telecommunication Commission. Other sources of funds will be identified by the Department of Budget and Management.

* 1. **Republic Act 10650 or the Open Distance Learning Act**

Recognizing the importance of Open and Distance Learning in the country, Republic Act 10650 otherwise known as the Open Distance Learning Act was signed into law last December 9, 2014. It aims to “expand and further democratize access to quality tertiary education through the promotion and application of open learning as a philosophy of access to educational services, and the use of distance education as an appropriate, efficient and effective system of delivering higher quality and technical educational services in the country.”

Three agencies have been tasked to implement the law: Commission on Higher Education

(CHED), the Technical Education and Skills Development Authority (TESDA) and the University of the Philippines Open University (UPOU).

ODL can be delivered through the following approaches:

1. Print *-* textbooks, study guides, workbooks, course syllabi, correspondence feedback and other print formats,
2. Audio-Visual - radio, audio cassettes, slides, film, videotapes, television, telephone, fax, audio-conferencing and videoconferencing,
3. Electronic/Computer Technology and Virtual Classrooms - internet, CD-ROM, electronic mail, e-bulletin boards, podcasts, m-learning, i-lectures, e-learning or online learning management systems; and
4. Face-to-Face Sessions - conducted in learning and study centers.
   1. **Bayanihan to Recover as One Act or Bayanihan Act 2**

Republic Act No 11494 also known as Bayanihan to Recover as One Act was Signed into Law last September 11, 2020. The law details the different approaches that will be undertaken by the government to combat COVID19.

The law allocated Php 3 billion pesos to the Commission on Higher Education (CHED) to assist state universities and colleges (SUCs) in the development of smart campuses through investments in ICT infrastructure, acquisition of learning management systems and other appropriate equipment to fully implement flexible learning modalities (Bayanihan Act 2, 2020).

In an interview with CHED Chairman Prospero “Popoy” de Vera he said that he does not foresee a return to traditional, face-to-face classroom learning and foresees that most schools will shift to flexible learning.

“Why? Because they already have some experience to do it, they have developed capacity to do it. Government and the universities have been investing money to shift delivery mode. So, from now on, universities will have mixed delivery systems, online, and offline (De Vera in Alpad, 2020).

With the allocation, De Vera plans to use Php 1 billion (USD27.8 M) to buy around 20,000 laptops for the teachers in state universities and colleges while the remaining Php 2 billion (USD 41.6M) will be used to fund projects for the connectivity of campuses, buying of learning management systems, among others.

* 1. **The Philippine Development Plan 2017-2022**

Last October 11, 2016, President Rodrigo Duterte signed Executive Order (EO) Number 5 which adopted the 25-year long-term vision called AmBisyon 2040. This serves as a guide for the development planning of the country in the years to come.

As stated in the Philippine Development Plan 2017-2022, “infrastructure undergirds a country’s socioeconomic development,” thus the government sees the need for a strategic infrastructure investment in key areas in the country to address the challenges brought about the Philippines’ archipelagic characteristic.

The government laid out different strategies to improve ICT infrastructure in the country. Below are the priority strategies identified by the government to improve ICT structures as stated in the Philippine Development Plan 2017-2022:

1. Expand the deployment of ICT infrastructure and address the gaps in digital connectivity. To create economic opportunities, the government will facilitate faster and strategic rollout of ICT infrastructure in order to meet the growing demand for structures and services, particularly in underserved areas. Specifically, it will:
2. Work with the LGUs to streamline and harmonize government requirements and processes on permits, clearances, and fees issuances. This will be done by establishing a one-stop shop offline and online facilities that will encourage infrastructure investments and facilitate faster roll-out.
3. Facilitate and encourage infrastructure sharing and co-use by leveraging existing government infrastructure assets and forging partnerships with utility operators, and hence, potentially reducing associated costs in infrastructure deployment.
4. Ensure the efficient utilization and management of the radio frequency spectrum to support the growth of various wireless ICT applications and services.
5. Leverage the use of emerging technologies capable of establishing connection to the countryside and isolated islands.
6. Explore the feasibility of creating a universal access fund (UAF), which may be used for the development of ICT infrastructure in the unserved/underserved areas.
7. Formulate necessary master plans, such as the DTTB migration plan, national broadband plan, national cybersecurity plan, and other successor ICT master plans to provide the overall policy direction and guide all infrastructure roll- out and development interventions.
8. Continue to enhance the country’s e-government system as a vital tool for good governance. The government will harmonize and coordinate all ICT initiatives to optimize all government ICT resources, encourage information and resource-sharing and database- building, and ensure the development and protection of an integrated government ICT infrastructure and networks.
9. Institute reforms in the policy and regulatory frameworks. With the rapid advancements and convergence of technologies, the government will pursue significant reforms in the existing policy and regulatory frameworks, including strengthening the roles of DICT and the National Telecommunications Commission (NTC) in upholding competition in the ICT market, and promoting the innovative use of ICT, such as in education and human capital development.
   1. **National Broadband Plan**

The creation of a National Broadband Plan was mandated by President Rodrigo Duterte in his State of the Nation Address last 2016.

The advancements in broadband technology has unlocked and will continue to unlock numerous socio-economic opportunities for the country. Through the National Broadband Plan, the Philippine government hopes to establish

the blueprint of building ICT infostructures for a digital nation.

Its main thrust is to provide faster internet connection and a universal coverage at an affordable cost, giving hope of improvement given the current state of Philippine internet.

Specifically, it is envisioned to carry out the

following objectives:

1. Provide improved public access to telecommunication services especially in far- flung areas.
2. Become a platform and enabler of the state’s e-government plan for the government to have a digitized network for its online services and a common database.
3. Become an Enabler for the National Government Portal services included in the President’s SONA.
4. Become an important component of the

Plan is the governments Free WiFi Project.

In order to do this, the project will be guided by the following major broad strategies:

1. *Policy and Regulatory Reforms*: This will include efforts in the amendments or revisions of critical laws, policies and regulatory issuances.
2. *Investment on Broadband Infrastructure*: Government will develop an operating network that will establish connectivity in government- owned facilities and in the countryside
3. *Supporting the Stimulation of Broadband Demand*: Government will establish necessary measures to stimulate demand and increase broadband take-up rate

The NBP envisions that by 2022, all local government units will be connected to high- speed government broadband backbone.

* 1. **TECH4ED**

Tech4ED stands for Technology for Education, Employment, Entrepreneurs and Economic Development Project (Tech4ED). The program is under the Department of Science and Technology - Information and Communications Technology Office (DOST-ICTO). It aims to harness ICT to enable, empower and transform society creating an inclusive, integrated and equitable countryside, by providing opportunities

for employment and empowering entrepreneurs. Tech4Ed gives importance to unserved and underserved communities, thus, part of their target beneficiaries are the out-of-school youths and adults (OSYA), Overseas Filipino Workers (OFWs), Indigenous People (IPs) and Persons

With Disabilities (PWDs).

For the year 2017, there were 1,258 new TECH4ED centers established. The figures surpassed the year’s target by 180% and is higher by 61% compared to 2016.

In the newsletter released by TECH4ED in April 2018, they now have a total of 2,121 TECH4ED centers across the country.

The TECH4ED centers are created in partnership with different institutions as seen in the breakdown below:

1. 601 of which are in Local Government Units
2. 156 are in public libraries
3. 1,222 are located in schools
4. 106 in Non-Government Agencies
5. 32 are housed in private institutions
6. 4 in Non-Government Organizations.

The project was also able to surpass its target training for center managers by 188%. They targeted to train 1,400 center managers but was able to train 2,634 center managers in the 136 Centers Managers Training conducted last 2017. In its goal to be inclusive TECh4ED innovated its means to deliver their services to the public. Last October 18, 2017, they launched the first TECH4ED Lakbay Kariton. A Lakbay Kariton is equipped with three laptops, internet connection and learning materials. The mobile center aims to deliver its services to the target beneficiaries particularly the out-of-school youths and adults (OSYA). This initiative targets to conduct skills training and capability building to 960 participants from 30 barangays in Lingayen by 2018.

Another notable approach done by the Tech4ED is the establishment of its centers inside city jails. It’s 2000th center was launched inside the Zamboanga City Jail Female dormitory last December 12, 2017. As echoed by former acting secretary Eliseo M. Rio Jr., these milestones stay

true to DICT’s motto “Walang iwanan (No one

gets left behind).”

* 1. **CHED‘s Memorandum Order No. 4 Series of 2020 “Guidelines on the Implementation of flexible Learning.”**

Flexible Learning is defined in the documents as a pedagogical approach allowing flexibility of time, place, and audience including, but not solely focused on the use of technology (CHED, 2020).

It involves the use of digital and non-digital technology and covers both face-to-face or in-person learning, out-of-classroom learning modes of delivery, or a combination of modes of delivery. It ensures the continuity of inclusive and accessible education when the use of traditional modes of teaching is not feasible, as in the occurrence of national emergencies (CHED, 2020).

Under the memorandum, HEIs can choose from

any of the following modes of flexible learning:

1. Online - A flexible learning mode which is electronic-based and uses available online classrooms for the delivery of instruction. Learning materials are in digital format such as webcast, podcast, videos, audio, and other open educational resources or OERs. To aid online learning, CHED launched a web-based platform, PHL CHED Connect, that provides free learning materials for college students.
2. Offline - A flexible learning mode that does not use internet connectivity at all. Learning is done through printed modules or uses digital forms such as video and audio placed in storage devices.
3. Blended - A type of flexible learning which

is a combination of online and offline modes. Online technology will be used for delivering lessons, while other classroom activities will be done offline using printed modules, video tapes, storage devices, and learning packets (Magsambol, 2020).

The memorandum also released this guide for HEIs to determine their level of technology and decide on what approach/es is best for them based on their resources.

* 1. **PHL CHED Connect**

CHED also launched the PHL CHED Connect, a web application that contains higher education course materials in text, media and other digital assets that are useful for teaching, learning and research purposes.

The educational materials range from categories like agriculture, forestry, fishery, architecture, business administration, education, engineering and technology, fine and applied arts, home economics, humanities, IT, criminal justice, and more. The site contains 1,332 modules (content), 1,352 PDFs, 353 videos and 18 HEI contributors. Materials from the academic contributors can easily be downloadable as they are in PDF format (Dillera, 2020).

HEIs will serve as contributors. They will share their content (PDF or Video) to CHED Regional Offices. The content will then be categorized. Then, an approver will review and analyze if the content is suitable. The approver may be an RQAT member or an ES II in charge of the Program. Once approved, students and teachers can easily access the content on the website.

**Table 2: Determining the best approach based on their resources**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Categories** | **Availability of Devices** | **Internet Connectivity** | **Level of Digital** | **Approaches** |
| High Level Technology | Laptops, mobile phones, tables, desktops | Fast | Proficient | Online learning or blended learning technology |
| Medium Level Technology | Mostly available phones | Slow | Advanced | Macro and micro learning approach (a mix of online and offline activities) |
| Low level technology | Some mobile phones or no technology | Poor or no internet connection | Beginner | Self-instructional modules / mostly offline activities |

**Literacy**

The website serves as a space for HEIs to co-create knowledge and collaborate with each other in these trying times.

* 1. **Training Programs**

In order to capacitate educators in the country, CHED and UPOU partnered to offer a Training Program for teachers Entitled “Flexible Teaching and Learning: The Seamless Shift from Face-to- Face to Distance Mode of Instruction.

The training program has been designed to enable participants to:

1. Affirm the appropriateness of the mode of instructional delivery that their respective institutions will adopt for the School Year 2020- 2021
2. Evaluate and finalize the course package appropriate for the mode of instructional delivery selected
3. Deliver the course in the selected mode of teaching and learning effectively (UPOU, 2020).
   1. **Project SPARTA**

The Philippines has come up with Project SPARTA which stands for Smarter Philippines through Data Analytics Research and Design, Training and Adoption. It was launched to put in place the necessary online education, research and development mechanisms and infrastructure to enable the industry of data science and analytics and to promote smart governance practices.

Specifically, it aims to:

1. Train and graduate 30,000 learners in data science, analytics and related fields through online learning; and
2. Foster a community of data science and analytics practitioners through engagement activities such as conferences, hackathons and online data challenges through the project’s Smart Governance portal (SPARTA, n.d.).

**References**

Alpad, C. (2020 Dec 6). ‘With brilliance, innovation and bayanihan’ Retrieved from https://www.manilatimes. net/2020/12/06/weekly/the-sunday-times/cover- story/with-brilliance-innovation-and bayanihan/8054 89/?fbclid=IwAR31I1TyUTsgOPHAov9cinUbDxk9 lm\_NcLPHm\_4rdznCPlASiWKsvxjvFLE.

Arinto, P. (2016 Feb). Issues and Challenges in Open

1. **Conclusions and recommendations**

The paper presents e-learning or the use of ICT in education as prime mover in developing as well as transferring digital skills. It discusses the history of e-learning in the context of the University of the Philippines Open University which started to go online during the start of the 21st century. The following are the conclusions and recommendations on e-learning and digital skills in the Philippines.

1. Integration of e-learning and digital skills. There should be a conscious effort to include the transfer of digital skills to students by using e-learning or online learning. There should be a recognition that the computer can do more beyond email, videos and the simple use of social media, hence it is important that students should learn how to communicate and collaborate online, use social media effectively and evaluate online resources efficiently.
2. Improvement in internet infrastructure. Despite various policies, plans and programs to enable the use of ICT in education, the internet infrastructure needs to be monitored to ensure that Filipinos will be provided fast, affordable and reliable internet connectivity.
3. Capacity development of educators. The COVID-19 has fast-tracked the development of skills of educators at all levels. There should be a continuous effort to upskill and reskill educators to propel the transfer of digital skills.
4. Conduct of research on e-learning and digital literacy. There should be a continuous research on e-learning as well as digital literacy in order to determine the e-readiness of educators, academic staff and students. The information will provide as framework on the kind of intervention that should be designed and implemented.

and Distance e-Learning: Perspectives from the Philippines. *International Review of Research in Open and Distributed Learning*, 17 (20), 162-180. https://doi.org/10.19173/irrodl.v17i2.1913.

Bayanihan to Recover As One Act, Republic Act Number

11494 (2020).

Commission on Higher Education. (2020). *Guides on the Implementation of Flexible Learning: CHED Memorandum Order No. 04 Series of 2020*. Author.

Digital Quality of Life Index 2020 (2020). Retrieved from

https://surfshark.com/dql2020

Digital Quality of Life Index 2020 (2020). Retrieved from

https://surfshark.com/dql2020-slides.pdf

Dillera, A. (2020, Sept 4). *PHL CHED Connect promotes E-learning in the Philippines.* Retrieved from https:// opengovasia.com/phl-ched-connect-promotes-E- learning-in-the-philippines/

Gervacio, JL. (2012) in E-Asia-Europe Meeting White Paper, Vol. II. *E-learning for Lifelong Learning,* Korean national Open University Press., [http://priede.](http://priede/) bf.lu.lv/grozs/Didaktika/ASEM/2\_White\_paper\_ content.pdf

Gervacio, JL. In Brown, M., et. al. ed. (2020). Proceedings of the 2019 ICDE World Conference on Online Learning. *28th ICDE World Conference on Online Learning.* Volume 1. DOI: <http://doi.org/10.5281/> zenodo.3804014

Gutierrez, K. (2016, May 12). *Can E-learning Help You Win the Digital Skills Race?* Retrieved from https:// [www.shiftE-learning.com/blog/E-learning-digital-](http://www.shiftE-learning.com/blog/E-learning-digital-) skills-race

Heick, T. (2014, May 9). *The Definition of Digital Literacy.* Retrieved from [https://www.teachthought.com/](http://www.teachthought.com/) literacy/the-definition-of-digital-literacy/

Loewus, L. (2016, November 8). *What is Digital Literacy?* Retrieved from [https://www.edweek.org/teachin](http://www.edweek.org/teaching-)g- learning/what-is-digital-literacy/2016/11

Magsambol, B. (2020, Jul 22). *FAST FACTS: CHED’s*

*flexible learning.* Retrieved from https://www.rappler. com/newsbreak/iq/things-to-know-ched-flexiblE- learning

Newsbytes.PH. (2020, June 6). *To create ‘new digital normal’, Congress urged to pass Open Access bill.* Retrieved from https://newsbytes.ph/2020/06/06/to- create-new-digital-normal-congress-urged-to-pass- open-access-bill/

Official Gazette of the Philippines. (2014). Retrieved on December 12, 2018 from https://www.officialgazette. gov.ph/2014/12/09/republic-act-no-10650/

Parkes, M., Reading, C., & Stein, S. (2013). *The competencies required for effective performance in a university E-learning environment.* Australasian Journal of Educational Technology, *29*(6), 771-791.

Philippine Chamber of Commerce and Industry. (n.d.). *Open Access to Data Transmission Act needed to accelerate digitalization.* Retrieved from https:// [www.philippinechamber.com/data-transmission](http://www.philippinechamber.com/data-transmission)

SPARTA. (n.d.). *What is Project SPARTA?* Retrieved from https://sparta.dap.edu.ph/#about-sparta

Tamm, S. (2019, Dec 21). *What is E-learning?* Retrieved

from https://e-student.org/what-is-E-learning/ UNESCO. (2018 Mar 15). *Digital skills critical for*

*jobs and social inclusion.* Retrieved from https://

en.unesco.org/news/digital-skills-critical-jobs- and-social-inclusion#:~:text=Digital%20skills%20 are%20defined%20as,to%20access%20and%20 manage%20information

University of the Philippines Open University. (n.d.) *UPOU Visitors Kit.* Laguna, PH: UP Open University University of the Philippines Open University (2020). Training on flexible Teaching and Learning: *The Seamless Shift from Face-to-Face to Distance*

*Education Mode of Instruction* (Concept Paper).