

Analysis on the Rise of MOOCs and its Potential Impact in Modernizing Education Beyond Higher Education Amongst Filipino College Graduates

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Abstract: *Massive Open Online Courses (MOOC) is an educational breakthrough, an instrumental in manpower development and a change agent which offers innovative transformation globally. It seemed evident that MOOCs would remove obstacles related to geography, socioeconomic status, affordability, educational attainment, and gender. In the Philippines, the first-ever MOOC - "Introduction to Mobile Application Development using the Android Platform"- was offered by the University of the Philippines Open University (UPOU) in cooperation with wireless leader Smart Communications, Inc. (Smart) in 2013. Through its official platform, MODEL (Massive Open Distance E-Learning). These MOOCs offered in the Philippines are usually made for college-level students. This study presents the current condition of MOOCs in the Philippines and the Filipinos' receptivity to this novel learning experience and opportunity. The study was responded by interested 250 Filipinos here and abroad who are College graduates aging 20 years and above. The results of this study revealed that although there is a low participation rate of Filipinos in MOOCs, they are willing to partake in MOOC opportunities, provided that they have time to do so, because they strive for professional development.*

Keywords: MOOC, Massive Open Online Courses, Post-Secondary Education, Online Education, Distance Learning, Philippines MOOC

1. Introduction

Once, physical existence of knowledge and knowledge storage medium were being gathered in the library. Now however, physical existence of knowledge is no longer necessary in its dissemination. Similarly, educational institutions are giving knowledge in virtual settings. There is no need to be present in a university - or a classroom - to learn. Students can learn, finish modules, and even acquire a degree sitting in the comforts of their homes.

Providing knowledge in virtual environments is among the emerging international trends in the context of Technology Enhanced Learning (TEL). Richter and Ehlers [29] have adopted the principles of the Open Education Movement which is built on the fact that knowledge is a common good that belongs to humanity as a whole.

Openness in education, or open education, whilst an evolving phenomenon is not new, but has its roots in the early twentieth century. The first MOOC was coined by Dave Cornier Manager of Web Communication and Innovations at the University of Prince Edward Island [30].

Kesima and Altinpulluk [11] described open online courses as "massive" (MOOCs) due to their high enrolment numbers. Class Central.com [16] reported that there are approximately more than 500 universities offering 4,200 courses to roughly 35-M students around the globe as of 2015. They offer a middle ground for teaching and learning between the highly organized and structured classroom environment and the chaotic open web of fragmented information. In a traditional classroom or online course, academic designers and educators structure the readings, learning resources, lectures and activities of learners. As a result, learning is directed toward clearly articulated goals and outcomes. The educator provides shape and direction to the learning experience by forming groups and providing

assessments, assignment focuses or guidelines.

Muzafarova and Kaya [14] believes the main objective of creating this new face of distance learning varies from financial considerations to personification of education and the difficulty to access higher education in developing cross nation such as the Philippines which triggers to rising student attrition rate in standard classes. Though MOOC is regard as a significant tool to address this, Garrido et. al. [10] asserts that lack of enthusiasm of the traditional educational institutions to embrace the technology contributes to the problem.

Though despite its looming optimistic effects perceived by others Majar [13] in his article "The Trouble With Online College" in New York Times stresses that many MOOCs only replicates lecture based 'sage to stage' instruction. Majar also address his concerns on the importance of face to face interaction during the conduct of learning for it to be successful.

But despite these criticisms, Brown [3] argued massive open online courses (MOOCs) must be given chance, he noted that MOOCs are a relatively new phenomenon to explore as equitable access to education is a human right. Chen et. al [7] reveals that MOOCs may represent a "budding revolution" and may continue to challenge the traditional educational model and they offer enormous opportunities to willing students worldwide. In developing countries such as the Philippines, however, there remains to be very little data on MOOC research.

2. Materials and Methods

2.1 Methods

This online cross-sectional research study was conducted through a qualitative research design to analyze the rise and

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impact of MOOC in the Philippines after it was first introduced locally on 2013 by the University of The Philippines. This utilizes the Modernization theory to explain the process of modernization within societies. In relation to the modernization theory, we can also apply the Walt Whitman Rostow's Model of Development.

The modernization theory can be used to explore the process of modernization within the education system - particularly the birth of Massive Open Online Courses. Using the modernization model, as explained in was in Encyclopedia of Sociology by Borgatta et. al [4] the researcher can use the progressive transition from a 'pre-modern' or 'traditional' learning platform to 'modern' open education. There will be a comparative exploration on the delivery of knowledge through traditional settings versus the delivery of knowledge through virtual settings.

In accordance to the Modernization theory, this study will also expound on all the factors which contributed to the

changes which demanded the creation of Massive Open Online Courses here and abroad. Aside from identifying the social variables which contributed to the adaptation and existence of MOOCs in the Philippines, this study will also explore how exactly the Philippine population is responding to this opportunity. This study will focus on the part of the population which is most inclined, suited, and probably most capable of utilizing the supposed benefits of MOOC learning - College Graduates. Through the modernization theory, the study will delve on the potential impact of the existence MOOCs to the learning experiences and opportunities of the Population.

To further establish the claim that learning experiences are undergoing Modernization, and to further explore the nature, development, and reception of Massive Open Online Courses in the Philippines, we will use Rostow's model of the five stages of development.

Table 1: Stages of Development and the Evolution of Learning Experiences in the Philippines

Stages of Development	Various Variables and Factors prompting the Evolution of Learning Experiences in the Philippines
STAGE 1: Traditional Learning Experience	Learning courses are only offered through formal higher education which requires either two or much longer. Students will have to attend classes within prescribed class schedules. Formal education in a classroom and delivered through the use of physical materials such as books, and supervised by a professor who is always present during class.
STAGE 2: Transitional Stage: Introduction of Non-formal Education	In the 1987 Constitution of the Republic of the Philippines, Article XIV provided in Philippine Gazette [24], it was noted that the state would make quality education accessible to all Filipinos by developing non-formal, informal, and indigenous learning systems, self-learning, independent, and out-of-school study programs. In most cases, communication between the education provider and the learner was through the postal system, very limited face-to-face sessions, and later on, email correspondence.
STAGE 3: Take Off: Promotion of Distance Education	In the recent years, Wikipilipinas website [17] confirms homeschooling and open universities have mushroomed in the Philippines due to the ease of long-distance communication over the Internet and the rising cost of education and other resources. In this type students can study at their own pace and they are given a more flexible schedule that enables the student to pursue work or other interests while studying. The choices available to the student are wider than usual but not totally open.
STAGE 4: Drive to Maturity: Emergence of Open Universities and Online Courses	Philippine Gazette [22] made mention the Republic Act No. 10650 also known as the Open Distance Learning Act states that it is the policy of the State 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". In open learning, the student is given a large degree of control of the learning process. Bonk [3] describes openness refers to entry criteria, time (including the pace) of learning, the place where learning takes place, the learning materials used and the learning process itself. Students study independently, with the guidance of a teacher or a tutor who grades and comments on their work online. Students also communicate with their teacher and other students in their "online" classroom.
STAGE 5: High Mass Consumption: Introduction of Massive Open Online Courses	The Internet in the Philippines [18] has improved considerably since it was first made available in 1994, although the country still had the poorest and slowest LTE broadband internet access and coverage in the world as of 2014. According to InternetLiveStats.com [27], more than 44,000,000 people use the internet in the country. This has paved the way to the introduction of MOOCs. Enzo, in his article in Inquirer Newspaper [9] his says anyone with Internet connectivity can sign up for these courses, which run from a month to 15 weeks. With MOOCs, learning is delivered on different topics aimed at large-scale interactive participation and open access via the web. Instead of books, course materials such as videos, ebooks, power point presentations, and downloadable reading and problem sets are being offered. At present however, there still remains to be very limited MOOCs offered to Filipinos by local universities, colleges, and learning institutions.



Figure 1: Conceptual Framework of the Study Using the Modernization Theory of Development Mode

The researcher utilized the random and snow ball sampling approach by sharing the online questionnaire via a Google Form link through Facebook and email correspondence to attract interested respondents. Interested respondents were given equal opportunity to participate voluntarily in the study. Those who have participated are free to share the link, thus sampling is done randomly with snowball effect. The survey was made online last year, June 2016. The questionnaire was created in Google Forms and the survey was administered through the distribution of the Google Form link via Facebook Shares to various Facebook groups and Facebook Messages through Messenger. Email correspondence was also conducted

The questionnaire consists of Six Sections:

Section 1: Personal characteristic of respondents consisting of age, name, gender, current location, highest educational attainment and employment status.

Section 2: Aims to assess knowledge and awareness of MOOC, participation, and rationale if respondent is a participant, and to determine MOOC university affiliation, and MOOC area of interest by the participant.

Section 3: Focuses on reason/s for MOOC participation. The section includes eight choices for respondents to tick in a Likert scale of 1 to 5 ranging from Strongly Agree to Strongly Disagree.

Section 4: Aims to assess the challenges and difficulties encountered by MOOC participants during the learning process. It poses eight statements for respondents to tick in a Likert scale of 1 to 5 ranging from Strongly Agree to Strongly Disagree. This section also determines whether the aforementioned MOOC sessions of the participants were completed.

Section 5: Deals with the deemed benefits of the survey respondents who participated in MOOCs. It includes eight statements for respondents to tick in a Likert scale of 1 to

5 ranging from Strongly Agree to Strongly Disagree.

Section 6: The last section reserved for those who have never participated in MOOCs before. This was included to identify rationales of non-participating respondents. This includes seven statements for respondents to rate in the given 5-point Likert scale as well.

This online questionnaire with six sections was designed to analyze the rise and impact of MOOC among Filipino College Graduates. It was designed with simplicity and directness to invite answers to research queries. The first two sections can be answered by a tick to indicate yes or no answer and your best choice among the options given, while Sections 3 to 6 must be answered utilizing the 5 point Likert Scale.

The 5 point Likert Scale was used to quantify the responses for Sections Three to Six.

Table 2: Likert Scale

Value	Limits	Verbal	Interpretation
5	4.21 - 5.00	Strongly Agree	SA
4	3.41 - 4.20	Agree	A
3	2.61 - 3.40	Neither Agree nor Disagree	N
2	1.81 - 2.60	Disagree	D
1	1.00 - 1.80	Strongly Disagree	SD

To further analyze and understand the study frequency, percentage and weighted mean were utilized.

Frequency (f): This is used to describe a portion of variable in comparison with its whole.

Percentage: It is a descriptive measure to determine how the relationship between two (2) magnitudes, particularly, the relationship of a part to the whole.

Ranking: This is used to show the relative position of the mean scores arranged according to size and magnitude.

Weighted mean (WM): Since some responses to the item in the survey questionnaire are qualitative, weighted points are assigned for quantitative analysis. It will also determine the responses which are typical to the respondents as a group.

$$WM = \frac{E \cdot f}{n} \quad (1)$$

Where: WM = weighted mean

E = summation

F = frequency

X = weighted mean

N = sample

After the retrieval of the accomplished online questionnaires, the responses were consolidated, tallied and analyzed according to the appropriate statistical formula mentioned earlier for the profile of the respondents.

This is the formula used to present and analyze data for Sections 1 and 2:

$$P = 100 \left(\frac{f}{n} \right) \quad (2)$$

Where, F = Frequency, N = Total Number of population, 100 = Percentage constant

As for Sections 3 to 6, the 5-point Likert Scale was used to quantify the responses. The following formula was used:

$$F1 (W1) + F2 (W2) + F3 (W3) + F4 (W4) + F5(W5) / F1 + F2 + F3 + F4 + F5 \quad (3)$$

Where:

- F1 = Frequency for Col1
- F2 = Frequency for Col2
- F3 = Frequency for Col3
- F4 = Frequency for Col4
- F5 = Frequency for Col5
- W1 = Weighting for Col1
- W2 = Weighting for Col2
- W3 = Weighting for Col3
- W4 = Weighting for Col4
- W5 = Weighting for Col5

2.1. Participants

The respondents were primarily College Graduates in the Philippines who were between ages 20-60. A total sample size of 250 Filipino respondents participated in the (MOOCs) online survey to assess the rise of Massive Open Online Courses (MOOCs) and its Potential Impact in Modernizing Higher Education Amongst College Graduates. There were 250 total respondents identified as respondents 1 to 250 for reasons of confidentiality and anonymity. Tabulated data below presents the profiles of the respondents study.

Table 3 presents the age distribution of the participants of the study. The garnered data showed that more than a half of the respondents belongs to the age range of 20- 29 years old with 55.2%; followed by the 20.8 % which consist of 52 respondents that falls under the age range of 30-39 years old; while 38 other respondents falls neither of the 3 with 15.2%. The lowest quantity of respondents' age range falls from 40 to 49 years old with 8.8% which concludes to a hundred percent.

Table 3: Age Range of the Respondents

AGE	MOOC Students and Non-Students		
	F	%	R
20-29	138	55.2	1
30-39	52	20.8	2
40-49	22	8.8	4
Others	38	15.2	3
Total	250	100.00	

The gender information reveals that females are predominant in the population of the study, accounting to 67.2 percent or 168 female respondents heading over to the population of the males which has 32.8% or 82 male respondents.

Table 4: Gender Profile of the Respondents

Gender	MOOC Students and Non-Students		
	F	%	R
Male	82	32.8	2
Female	168	67.2	1
Total	250	100.00	

Majority of the respondents are situated in the Philippines accounting to 62.4% of the population or obtaining a hundred and fifty six respondents (156). While the remaining 37.6% of the respondents belongs to the working population

of the Filipinos abroad.

Table 5: Location Setting of the Respondents

Location	MOOC Students and Non-Students		
	F	%	R
Philippines	156	62.4	1
Abroad	94	37.6	2
Total	250	100.00	

It reflected that those with Bachelor's degree obtained the highest percentage with 87.2 %, followed by those with Master's degree with 9.6% and the least who participated were those who had Doctorate degrees with only 3.2%.

Table 6: Educational Attainment of the Respondents

Educational Attainment	MOOC Students and Non-Students		
	F	%	R
Bachelor's Degree	218	87.2	1
Master's Degree	24	9.6	2
Doctorate Degree	8	3.2	3
Total	250	100.00	

The prevalent population of respondents lands on the Health Science and Medical Care field of career quantifying to 74 respondents or 29.6 % of the entire population. This is followed by the Education and Training personnel with 20.8%; Arts, Audio, Video, Media, and Communications with 15.2%; Science, Technology, Engineering, Mathematics with 13.6%, Architecture and Construction with 4.8%; Business Management and Administration with 4%; Marketing, Sales, and Service with 3.2%; Agriculture, Food, and Natural Resources with 2.4%.

While Hospitality and Tourism, Human Services as well as Law, Public Safety and Security are statistically tied garnering 1.6% of the total entirety. Finance, Transportation, Distribution and Logistics were also tied with 0.8 percent, whereas the remaining fields in Manufacturing, Government and Public Administration both acquired zero respondents.

Table 7: Respondents' Field/ Career Orientation

Field/ Career	MOOC Students and Non-Students		
	F	%	R
Agriculture, Food, and Natural Resources	6	2.4	8
Architecture and Construction	12	4.8	5
Arts, Audio, Video, Media, and Communications	38	15.2	3
Business Management and Administration	10	4	6
Education and Training	52	20.8	2
Finance	2	0.8	10.1
Government and Public Administration	0	0	-----
Hospitality and Tourism	4	1.6	9.1
Manufacturing	0	0	-----
Human Services	4	1.6	9.2
Law, Public Safety, Security	4	1.6	9.3
Marketing, Sales, and Service	8	3.2	7
Science, Technology, Engineering, Mathematics	34	13.6	4
Transportation, Distribution and Logistics	2	0.8	10.2
Health Science and Medical Care	74	29.6	1
Total	250	100.00	

Respondents who are full time employed to their respective fields dominates the status of employment of the respondents of study which gained 60%, followed by the unemployed population with 20.8% and the least percentage (19.2%) falls under the part-time employees.

Table 8: Status of Employment

Status of Employment	MOOC Students and Non-Students		
	F	%	R
Full-time	150	60	1
Part-time	48	19.2	3
Unemployed	52	20.8	2
Total	250	100.00	

3. Results and Discussion

3.1 Level of awareness and participation in MOOC's amongst Filipino Graduates

Aside from the MOOC platforms Udacity, Coursera, Udegy and Edx various platforms and groups arose to provide quality distance education in just one click. Table 1 furnished a list of MOOC providers and its corresponding websites.

Table 9: MOOC Providers

MOOC Provider Address	Address
Alison	www.Alison.com
Apnacourse	www.apnacourse.com
Canvas Network	www.cancas.net
Carnegie Mellon University	www.cmu.edu
Class central	www.class-central.com
Coursera	www.coursera.org
Curricki	www.curriki.org
EdX courses	www.edx.org
FutureLearn	www.futurelearn.com
iTunesU	www.apple.com/education/ipad/itunes
u iversity	www.iversity.org
Janux	www.Janux .ou.edu
Miríada X	www. Miríada X.net
MIT Open CourseWare	www. ocw.mit.edu
Open Education Europa	www.Open Education Europa.eu
Open HPI	www.openhpi.de
Open Learning courses	www.Openlearning.com
Open Learn	www.openlearn.edu
P2P University	www.p2pu.org
Qualt	www.qualt.com
SyMynd courses	www.symynd.com
Stanford's Free Online Courses	www.stanford.edu
Udacity courses	www.udacity.com
University of the People	www. uopeople.edu
Unow	www.unow.fr
WikiEducator content	www.wikieducator.org
Wikiversity	www.en.wikiversity.org
Open Yale courses	www.oyc.yale.edu
UniversitatPolitécnica de València	www.upvx.es

In the study conducted, it is known that UPOU is the sole university that offers MOOC's in the Philippines. Philippines first ever MOOC –“Introduction to Mobile Application Development using the Android Platform”--were offered by UP Open Online University (UPOU) in cooperation with

wireless leader Smart Communications Inc in 2013. Tuser and Claudia [25] made mention few courses which UPOU offers, ‘Child Right Protection and Promotion; Business Process Management 101; Introduction to Inter-local Cooperation; Business Communication; Art in ASEAN Region; and Oral Communication & Conversational in English’. UP website [26] presented its official platform, MODEL (Massive Open Online Distance E-Learning). Due to limited MOOC providers in the country, there appears to be no local study status, existence, and potentialities of MOOC offered in the Philippines. However despite this, the survey conducted shows that majority of respondents are aware on the existence of MOOC accounting to 62% and only 32% of respondents were unaware of MOCC.

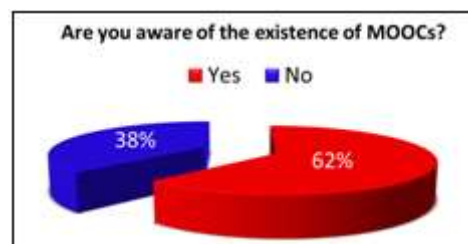


Figure 2: Level of Awareness of MOOCs in the Philippines

Notwithstanding the fact that there is a high awareness in the existence of MOOCs among the randomly picked respondents, the study reported that only a small portion participated in an MOOC courses. Figure 3 shows that 12.8% of the respondents who are aware participated in an MOOC course while the huge number accounting to 87.2% respondents did not partake to any MOOC courses.

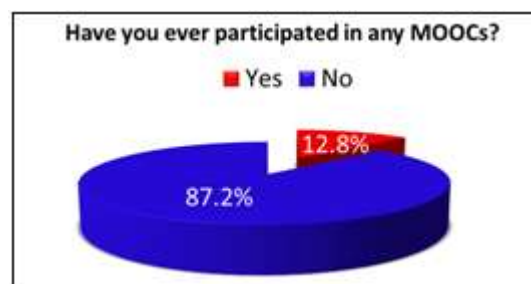


Figure 3: Frequency Participation in MOOCs in the Philippines

Figure 4 presents the completion rate of the respondents who partake in any MOOC course. The survey revealed that 75% of the participants finished their MOOC course whereas only a part of the quarter was not able to finish their MOOC courses.



Figure 4: Completion Rate

Figure 5 provided respondent's reason of participating in MOOC courses. The 5 point Likert Scale was utilized to quantify the responses with corresponding limits and verbal interpretation coupled with series of formulas used to get the Frequency, Ranking and Weighted Mean, the

survey reveals that improving ones skills to their chosen job –“I wanted to gain specific skills to do better in my job”- tops the answer of the respondents.



Figure 5: Reason of Participating in MOOC's

3.2 Factors that prevents Filipino graduates to engage in MOOC's

non-MOOC participants agrees that lack of time prevents them to partake in MOOC courses.

Amongst all the reasons provided in the survey, FIGURE 6: Reason of Not-Participating in MOOC's shows that most of

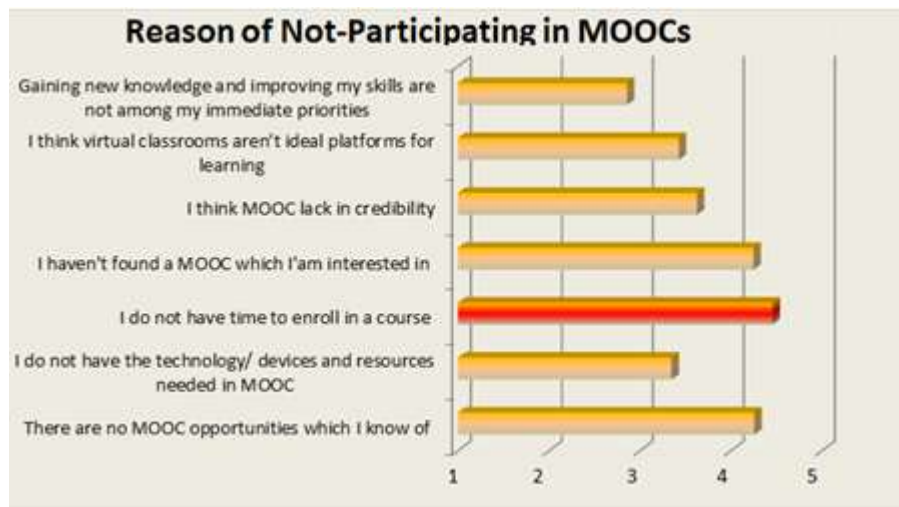


Figure 6: Reason of Not-Participating in MOOC's

3.3 Filipino graduates perceived benefits of engaging in MOOC's

of partaking in MOOC opportunities the survey showed that respondents affirms that MOOC will enhance their skills for their current job.

In FIGURE 7: Benefits of Participating in MOOC's the results showed that MOOC participants deemed benefits

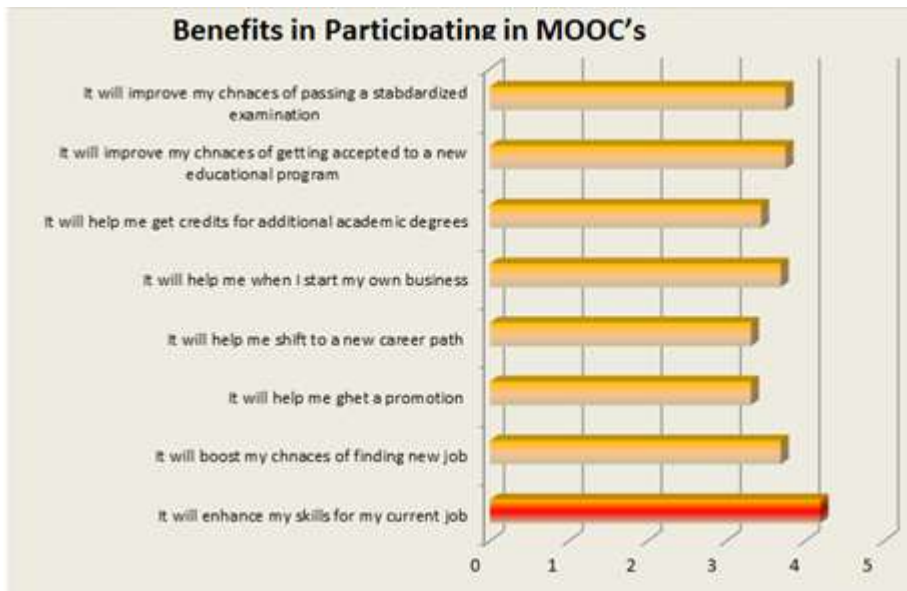


Figure 7: Benefits of Participating in MOOC's

3.4 Challenges and difficulties faced by Filipino graduates in engaging in MOOC's

Amongst all the difficulties and challenges noted in the survey, the respondents only expressed their affirmation on the statement which noted that MOOCs demanded computer and software literacy. This somehow reflects

that while there is an awareness of the existence of MOOCs, Filipino College Graduates who might be interested in MOOCs are repelled by the fact that MOOCs would necessitate an intermediate level of computer and software literacy - a quality which many Filipino College Graduates do not possess

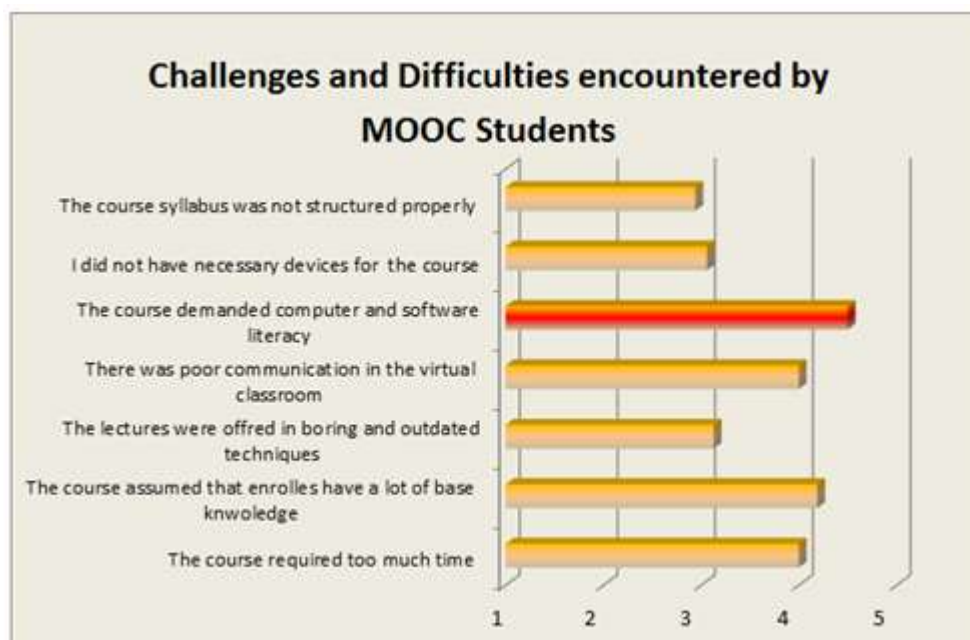


Figure 8: Challenges and Difficulties Encountered by MOOC Students

4. Conclusion

Based on the findings of the study, the researcher arrives at the following conclusions:

- 1) The low participation rate of Filipinos in MOOCs is largely attributed to the lack of awareness of its existence and lack of awareness in the present MOOC opportunities. At present, there still remains to be very limited MOOCs offered to Filipinos by local universities, colleges, and learning institutions.
- 2) The primary reason why MOOC participants took

- MOOCs is because they wanted to gain specific skills to do their jobs better. This is in line with the global view that MOOCs offer professional development. MOOC participants were not encouraged by their peers to take part of MOOCs, thus somehow implying that MOOCs are still not that popular in the Philippines.
- 3) Filipino College graduates are willing to partake in MOOC opportunities, provided that they have time to do so, because they strive for professional development. Also, these results show that Filipino College Graduates are equipped with the physical

devices required of MOOCs.

The results also confirm that there is a need for more MOOC opportunities in the Philippines, offered by Philippine universities, colleges and learning institutions. Local learning institutions can perhaps create MOOC opportunities which are designed and geared toward the interests and for the benefit of Filipino College Graduates.

Based on the findings of the study, the researcher arrives at the following recommendations:

MOOC as a Triple “A” Unique Education Scheme (affordable, accessible and appropriate) is a key factor towards a new era of educational awakening and advancement in recognition of the fact that equitable access to education is a basic right of every Filipino. MOOC can be the answer to the shortage of classrooms and teachers all over the country and can further improve literacy rate. This will also facilitate skills training and enhancement for job placement.

- a) MOOC subtitles should be presented in different dialects and languages in written text and while watching videos to help solve language gap.
- b) MOOC should be made available to every Filipino as a basic human right and as a supplement and/or an option if and when formal education that is popularly known and practiced is not available.
- c) National Comprehensive Campaign for information dissemination should be provided to raise level of awareness and reach interested population through the Department of Education, Department of Interior and Local Government (DILG) and Technical Education and Skills Development Authority (TESDA).
- d) MOOC Seminar and Training for qualified and interested educators should be provided nationwide for proper implementation and sustainability.
- e) Provision of appropriate funding, support mechanism and regulatory measures by the Commission on Higher Education and Department of Education are needed for the proper implementation and sustainability.
- f) Partnership of higher educational institutions (HEIs) with labor, manpower and commercial establishments towards specialized MOOCs focusing on career development, skills training and job placement will help solve the unemployment issues.
- g) MOOCs specific for adolescents, housewives, retirees and advanced MOOCs with career enhancement should be made available in partnership with DILG and TESDA to reach the grass root level all over the country.

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