Promoting Lifelong Learning through Capacity Development in Open Educational Resources

Abstract

Job pattern and strategies keep changing along with changes in technology. The same changes are observed in employability skills whereby the skills obtained in the formal school can only serve as basic skills. Therefore, to meet with daily skill demand calls for capacity building in lifelong learning using open educational resources. This need became more obvious in the era of COVID-19 where some people lost their jobs or could not earn money because of the lack of the new skill demand. Three research questions were raised to find out the level of knowledge gained in the use of OER, willingness to integrate OER, and techniques of impacting knowledge using OER. To answer the research questions, MOOC on Open Educational Resources for Online Learning was organised for four weeks. 2,647 participants were drawn from different continents. Three surveys were conducted – pre-survey before the course start date, mid-survey, and post-survey. The survey data were analysed using descriptive statistics and from the findings, there is a high level of willingness to learn and integrate OER in online learning; mixed mode of delivery – asynchronous and synchronous was solicited for by participants; and lifelong skills are best learned through self-paced, self-directed, and through short courses.

Keywords: Employability skills, online learning, technology

Background of the Study

Learnings that are required for sustainable living could be described as lifelong learning. Lifelong learnings are self-initiated learning by individuals to meet their daily needs. After the learnings have been initiated, individuals need existing designed learnings where they can meet their urge for the initiated learning. There are different ways individuals could encounter these learnings. Some lifelong learning skills are integrated into formal school curriculum such as listening and communication skills, but most often, learning activities that leads to lifelong learning are learned in the semi-formal way. This could be through seminars, workshops, internet stuffing, reading, and the use of Open Educational Resources (OERs). Most often people use of OERs is incidental and not purposeful. This means that most people use OERs without knowing that they are using it and are less cautious of its availability and use. OERs ranges from reading materials, videos, illustrations, and short courses like Massive Open Online Course (MOOC). MOOC is a free course that enables individuals’ free access to learning and gaining new knowledge.

In this study, emphasis shall be on how individuals can build its capacity using MOOC. MOOC is a semi formal way of learning. The learning is structured to meet set objectives with free access to all participants. It does not discriminate. You can come in with any qualification. All that is required is the individual interest. The need for capacity building became obvious during the era of COVID-
19 where some people lost their jobs or could not earn money because of lack of new skill demand. People look for purposeful and well designed or structured programmes where they can build their capacity. MOOC comes handing in this regard to fill the gap. Also, in the pandemic the need to popularize the use of OERs became very prominent especially among academics. Simply going online to stuff the internet may not give the right skill or knowledge required. Therefore, the use of MOOC and OERs need to be given attention.

**Statement of the Problem**

Job pattern and strategies keep changing along with changes in technology. The same changes are observed in employability skills whereby the skills obtained in the formal school can only serve as basic skills. Therefore, to meet with daily skill demand calls for capacity building in lifelong learning using open educational resources and massive open online courses. It is observed that people will be able to achieve desirable skills through structured programmes such as MOOCs and OERs without passing through formal education process. This is where this study comes in to determine the level of achievement that could be reached using semi-formal structure in capacity building.

**Objectives of the Research**

The main aim of this study is to help individuals develop their capacity to meet the daily skill demand. The specific objectives are to:

- Determine the level of knowledge gained in the use of OER.
- Find out participants willingness to integrate OERs into teaching.
- Determine the most preferred techniques for imparting knowledge in MOOC.
- Determine the effectiveness of the use of MOOC in capacity building

**Research Questions**

The following research questions were raised to guide the study:

1. What is the level of knowledge gained in the use of OER?
2. Are the participants willing to integrate OERs into teaching?
3. What are the techniques of imparting knowledge using MOOC?
4. How effective is the use of MOOC in capacity building?
Literature Review

The acceptance of the use of online learning was low until the pandemic of COVID-19 experience that made its importance prominent in all sectors. This redefined the mode of learning and skill required to meet the daily employability needs. Schools redefined their learning needs and infrastructure while employers redefined skills needed. It was quite difficult adjusting to the current needs at that time because of the technological gap. There was no purposeful integration of online learning. This made learning to be less personalized (Ewing and Cooper, 2021). It was difficult for parents to balance their job schedule with providing support for their kids, also the lack of knowledge on the content and pedagogy made it more difficult for parents to provide the required support (Garbe, Ogurlu1, Logan, and Cook, 2020). It was observed that those that could continue with their jobs or gained new jobs were those who had skills that met with the demand. Such skills as remote working, knowledge and use of the computer, and other virtual skills. The skills required at this time were not necessarily those learned within the four walls of a school. Three things became prominent – the need to continuously develop and improve on employability skills, technology, and online learning.

COVID-19 experience brought out the need to continuously give attention to lifelong learning using Open Educational Resources (OERs) and learning using Massive Open Online Course (MOOC). OERs have great impact on learning and self-development. Course grades are improved through the use of OERs and it addresses affordability, completion, attainment gap concerns, and learning (Colvard, Watson, Park, 2018). Ignacio, Muggli. and Westermann (2019) in their study on the effectiveness of OER in first year higher students’ mathematical course observed that teachers and students had very positive opinions on the use of both the Khan Academy Collection and open textbook resources. Also, Hilton (2020) expressed that the majority of faculty and students who have used OER had a positive experience and would do so again. Students need online learning tutorials followed with open textbooks and open access to journals (Georgiadou, 2022).

The use of OERs is gaining more attention and understanding with a call to higher education to use existing OERs as well as to create. Understanding of what OER entails provide the required integration techniques. OERs are educational practices and research materials on any medium, digital, or otherwise that reside in the public domain or have been released without cost by other license that allows access (Mahendraprabu, Kumar, Mani & Kumar, 2021). The understanding provides a leeway to its integration.

MOOC just like the OER can be used to foster lifelong learning due to its acceptance in teaching and learning. There is a strong relationship among motivation, previous knowledge, and perceived satisfaction factors for MOOC completers (Juan, Valdivia, Ramirez-Montoya, and Valenzuuela, 2022). This relationship boosts learning culture among individuals. From the findings of research carried out by Johnson, Aarhus, & Shah (2022), knowledge seeking MOOCs are driven by the quality of course design and materials, while skill seeking MOOCs are driven by the instructor and their ability to present lectures and integrate course
materials and assignments. This demonstrates the effectiveness of leveraging online learners’ reviews and practical applications make it work better. There is a need to balance the generic principles being offered with a focus on localised practice (Kennedy and Laurillard, 2019). MOOC should be purposeful and well designed. The work of Senevirathne, Priyankara, Haigh, Weerasinghe, Nawaratne, (2021) recognised that a MOOC system in curricular allows better opportunities for research, awareness, and capacity development initiatives. The use of MOOC gives opportunity to participants to learn from one another and increase in knowledge and skills. MOOCs represent and untapped potentials for teacher professional development that can be cost and resource effective means to deliver quality education to teachers and teacher educators (Wambugu, 2018).

MOOC has been found to be useful for knowledge upgradation and very effective. It also has impact on field professions and has helped in supporting increment of salary (Bhaskar 2020). Khumalo, Mapitsa, Wooldridge, and Engel (2019) suggested the use of MOOC to be part of evaluation capacity development strategy. That MOOC support blended learning, expand access to certain core practical skills and link evaluation practitioners to other real outlets of learning and exchange. MOOC have been perceived as an engaging way to expand expertise and could be better designed if predicted to upend students’ experience to meet teachers’ needs (Carapezza, 2015).

**Conceptual Model**

There is the belief that if individual capacity is developed on the use of open educational resources, it will help to develop lifelong learning that will enhance the community. The concepts of concern in this study are lifelong learning, capacity development and open educational resources. Open educational resources are learning materials that could be in form of readings such as textbooks and journals; videos; and illustrations. Capacity deals with the ability to perform. In this regard we could say, ability to perform specific skills as required. The required skills may change and could differ depending on the context. Finally, is the lifelong learning which requires empowerment to become relevant with change in technology and strategy.

MOOC that can empower lifelong learning must be such that is purposeful and well designed. This is required because lifelong learning skills are purposeful and deliberate. On this note, the following model was structured by the researcher as used in this study.
How does this model work?

- SAO represents structure, action, and output.
- The structure is the planning stage. First is to identify the purpose for the course, the audience, the design, create the content from the design, and identify the required infrastructure and learning support required.
- The action stage is the implementation stage with two concept – OERs and MOOC. OERs and MOOC can be used as standalone or combine.
- The output is the evidence of improvement or new knowledge gained as lifelong learning skill or ability that will help the individuals in life. The evidence is substantiated with feedbacks from the participants.
- SAO cannot work independently without due consideration to societal values, politics, and policies which could be governmental or institutional. So, at each stage of the plan, these must be considered.
- The position of the arrows show that the model is not linear. From structure to action and output. From output you go back to evaluate the action and structure to determine if the expected was achieved.
Research Methodology

In 2021 a free MOOC course was organized on Open Educational Resources for Online Learning: An Introduction. The participants were drawn from 70 countries with participants registration of 2,647, out of which 947 were active participants. The number that enrolled into the course was 1,686 with 1,168 males and 518 females. The age group of participants ranges from less than 16 to greater than 50. There was only one participant that was less than 16 years and 297 that was greater than 50 years. Majority of the participants fell within the ages of 26 to greater than 50. The highest number of participants were drawn from undergraduate and postgraduate with 21% and 67% respectively.

The institutional affiliations of participants were academic, community organization, government, for profit organization, non-profit individual, and non-profit organization. Academic had the highest participation with 66%. The course was scheduled to run for four weeks with the preceding week as week 0. Each week has five study units. The course was structured using SAO model.

Mentorship and feedbacks were provided. The main activities the participants were involved in were enrolment, listening to the instructional videos or audios, reading the PowerPoint Slides and the video scripts, participate in forum discussions and hangouts, and taking the end of week quiz. To get feedback from the participants three surveys were run – pre-survey, mid-course survey, and final survey. The pre-survey was used to find out the prior knowledge of the participants, the mid-course survey was used to measure the participants progression in the course, while the final survey was used to evaluate the course performance.

Descriptive statistics were used to analyse the data collected from the participants from the three surveys. The findings from the pre-survey and mid-course survey were used to improve the course.

Presentation of Results

1. Pre-survey

A total of 146 participated in the pre-survey. The response to items 1 and 2 on their level of understanding in OER and online learning is presented in Table 1.

| OER     | Online Learning |
|---------|-----------------|

Table 1: Response on Level of understanding in OER and Online Learning
| Level (1-10) | No of Respondents | Rate (%) | Level (1-10) | No of Respondents | Rate (%) |
|-------------|------------------|----------|-------------|------------------|----------|
| 10          | 18               | 92 (63%) | 10          | 27               | 122 (84%)|
| 9           | 15               |          | 9           | 32               |          |
| 8           | 25               |          | 8           | 32               |          |
| 7           | 24               |          | 7           | 16               |          |
| 6           | 10               |          | 6           | 15               |          |
| 5           | 30               | 54 (37%) | 5           | 20               | 24 (16%) |
| 4           | 8                |          | 4           | 1                |          |
| 3           | 6                |          | 3           | 1                |          |
| 2           | 6                |          | 2           | 1                |          |
| 1           | 4                |          | 1           | 1                |          |
| **Total**   | **146**          |          | **Total**   | **146**          |          |

Note: To determine the rates, the levels are divided into two with 1 – 5 as low level and 6 – 10 as high level.

**What are your expectations in this course?**

To the participants, they expect to:

- Have more knowledge of Open Educational Resources (OER)
- Learn how to create OER
- Learn how to find OER
- Learn about OER licensing
- Learn how to integrate OER in online teaching and learning
- Learn how to use OER

2. Mid-Course Survey

To know where to provide further guidance to the participants, the mid-course survey was carried out. The following are the presentation of the results.
**Figure 1:** Participation on the mid-survey by gender

| Gender      | Responses |
|-------------|-----------|
| Male        | 143       |
| Female      | 59        |
| Total       | 202       |

**Figure 2:** Instructional Technique in MOOC

In your experience in this course – Open Educational Resources for Online Learning: An Introduction, about how often did you do each of the following? Click the box that best express your action.
Figure 3: OER Knowledge Integration in Online Learning
From the list below, select the strategy(s) that helped you understand the content the most in this course. It could be more than one.

202 responses

- Videos: 185 (91.6%)
- PowerPoint Slides: 159 (78.7%)
- Audios: 75 (37.1%)
- Video Scripts: 98 (48.5%)
- Forums: 91 (45%)
- Hangouts: 27 (13.4%)
- Announcements: 65 (32.2%)

Figure 4: Learning Strategies for online Learning
3. Final Survey

A third survey which is the final survey was carried out to evaluate the course. Below are the presentations of the survey results:

Figure 5: Effect of Background Music in Learning
Overall, how would you evaluate the quality of content you received in this course?
372 responses

- Excellent: 273 (73.4%)
- Good: 96 (25.8%)
- Fair: 3
- Poor: 0

Figure 6: Participation on the final survey by gender
Figure 7: Level of Integrating OER in an Online Learning

Figure 8: Willingness of Integrating the Knowledge Gained in the Course
Yes - 368
No - 2

What is your assessment of the facilitators?
370 responses

- Excellent: 251 (67.8%)
- Good: 118 (31.9%)
- Fair: 0
- Poor: 0

Figure 9: Quality of the Facilitators
Figure 10: Level of Interest in the Course
Figure 11: Relevance of the Course Contents
How will you assess the method of delivery?
369 responses

![Pie chart showing assessment of delivery method]

Figure 12: Assessment of Delivery Method

How will you assess the Learning Management System (LMS)?
369 responses

![Pie chart showing assessment of course LMS]

Figure 13: Assessment of the Course LMS
Findings

The findings are presented based on the research questions.

What is the level of knowledge gained in the use of OER?

- From the pre-survey, the response to items 3 in the questionnaire showed that even though 63% of them have high knowledge of OER, they still want knowledge on OER and how it can be integrated into online learning.
- Participants showed high level of knowledge gained in integrating OER in online learning. See Figure 7

Are the participants willing to integrate OERs into teaching?

The participants showed high level of willingness to integrate the knowledge gained in the course in online teaching. 99.5% of them are willing to integrate OER as shown in Figure 8.

What are the techniques of imparting knowledge using MOOC?

From the analysis the following are found:
- There should be moderation in the use of background music in instructional videos as shown in Figure 5.
- The use of videos and PowerPoint slides are good strategies that enhanced learning as shown in Figure 4
- Figure 2 showed the need for blended mode of instructional technique. Though higher percentage watched the videos.

How effective is the use of MOOC in capacity building?

- The course was found interesting and relevant to the participants as shown in figures 10 and 11
- The mode of delivery was highly appreciated by the participants as shown in Figure 12
- Only 309 participants completed the course out of 1,168 that enrolled. This showed high attrition rate.
- The facilitators demonstrated high level of competency as shown in Figure 9
Discussion

There is a high level of willingness by professionals to improve on their skills. This is seen with the high number that subscribed to the MOOC. This supports the works of Colvard, Watson, Park, (2018); Ignacio, Muggli. and Westermann (2019); and Hilton (2020). Majority of these persons are workers who do not need a separate degree to improve on their jobs but short courses that could address their areas of need. The major challenge is how to sustain the participants to successfully complete the course. What motivation is available?

The course used in this study experienced a high rate of dropout despite the mentorship provided. This calls for more strategies to motivate participants. This collaborates the works of Juan, Valdivia, Ramirez-Montoya, and Valenzuela, (2022) where a relationship among motivation, previous knowledge, and perceived satisfaction factors for MOOC for completers was advocated.

The feedback from the participants showed that they found the course interesting with the structure and mode of delivery. This implies that participants are often willing to enroll in MOOC that are well structured. This supports Johnson, Aarhus, & Shah (2022) who said that knowledge seeking MOOCs are driven by the quality of course design. However, there is need to balance the mode of used in delivery MOOCs. There should be a combination of videos, content, and light music in some instance. This collaborate the works of Kennedy and Laurillard, 2019 who said there is a need to balance the generic principles being offered with a focus on localised practice. There should be a blend of video conferencing to bring in the practical presence and considering the different learning styles of individuals irrespective of the age factor.

The participants that took part in the course said they did to remain relevant in their profession especially with the aftermath of COVID-19. This supports the work of Bhaskar (2020) who said that MOOC impact on field professions has helped in supporting increment of salary. The new skill give opportunity to some of them to earn more salary or changed their jobs to more satisfying ones.

The use of OER and MOOCs are good techniques that should be encouraged to support lifelong learning. MOOC courses should not only be directed towards the professional, rather, consideration should also be given to those that are still in school. There are specific lifelong learning skills that are not covered in the school curriculum. Changings in technology also bring about changes in the required skills. Curricula are not changed yearly but required skills could change more often. Therefore, MOOC could be used to bridge this gap. Also, students need to be well informed about the use of OERs and teachers should be trained on how they can make their students use OERs.

Recommendations
Based on the findings, the following are recommended:

- There is high rate of attrition. At a start, there was high enrolment as compared to those that ended successfully. From the follow up we made; it was observed that many dropped out due to work overload. They have the interest but could not cope due to other official assignments.

- Duration of course should be reduced to two weeks in courses that involved very busy audience. The course could be presented in batches. Attendance is higher in the first two weeks than the last two weeks. The longer the duration the higher the dropouts.

- Most of the participants want practical experience. Integration of the use of video conferencing is suggested and for large classes, peer-review could be used during practical exercises while the facilitator gives wrap up;

- Synchronous facilitation with the use of video conferencing could also be introduced to reduce attrition.

- The use of OERs should not be limited to the teachers. The students need to be trained on how to use OERs

- Specific skills MOOCs should be structured to bridge the gaps in school curricular where students can continuously update their lifelong learning skills.

- More courses are required to meet the yearnings of people to develop their lifelong learning skills.

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