

Lifelong learning and the C-DELTA programme : A case study of experiences of ICT teachers in Mauritian Primary Schools

Kaviraj Goodoory

Department of Computer Education, Mauritius Institute of Education

kgoodoory@mie.ac.mu

Abstract

Commonwealth Digital Education Leadership Training in Action (C-DELTA) is a long-term programme of the Commonwealth of Learning (COL) to promote digital education environments in Commonwealth nations. While the C-DELTA programme has been implemented in secondary and tertiary Institution, the Mauritius Institute of Education implemented this programme at the primary level.

Since 2015, Mauritius has embarked on a transformative restructuring of the primary and secondary education sector, locally known as the Nine Years of Continuous Basic Education reform. Introduction of ICT as a subject from Grade 1 was one of the major changes that this reform brought about. ICT support officers who were recruited to provide technical support in schools were called upon to teach ICT. This was a very challenging experience for them as only 33% had any prior training in teaching. The implementation of the C-DELTA programme in Mauritius provided them an opportunity to update their knowledge in ICT education.

This case study presents the experiences of ICT teachers working in primary schools in Mauritius. It outlines the challenges they faced and their learning experiences. The teachers perceived C-DELTA to promote life-long learning and the strategies they used to self-regulate their learning. They also discuss the impact of the programme in their professional practice.

Keywords: lifelong learning

Introduction

Quality education is hampered by lack of trained teacher (Ferguson, Iliško, Roofe, & Hill, 2019). Training of teachers is therefore key for quality education. There are a number of ways that teachers can use online resources to foster their learning. To become experts, however, they need ongoing professional learning opportunities to refine their knowledge and skills (Brownell, 2021). The Commonwealth Digital Education Leadership Training in Action (C-DELTA) project is a programme of the Commonwealth of Learning (COL) that intends to promote digital education in the Commonwealth nations. C-DELTA will engage with governments, educational institutions, teachers and civil society organisations to develop learning materials around digital education, assess digital education competencies and provide training opportunities for students, educators and policy maker (Brown et al., 2016). Through the C-DELTA programme, teachers can develop their digital skills (Karunanayaka, Weerakoon, Nawaratne, Karunanayake, & Careemdeen, 2018) as well as foster lifelong learning through completion of activities and reflection (Pearse & Dunwoody, 2013)

Implementation of C-DELTA at the Mauritius Institute of Education

The Mauritius Institute of Education (MIE) is a degree-awarding teacher education institution of higher learning, with the mandate for Educational Research, Curriculum Development and Teacher Education, operating under the aegis of the Ministry of Education and Human Resources, Tertiary Education and Scientific Research, responsible for pre-primary, primary, secondary and tertiary education in the Republic of Mauritius. When presented with the opportunity to partner with the Commonwealth of Learning, the MIE did set forth a project team to guide the project to success. While the C-DELTA has been implemented in secondary schools, tertiary institutions and with teachers (Kabugo, n.d.; Karunanayaka et al., 2018; Khan, 2019; LIm & Brown, 2019)

Training of ICT Support Officers

ICT support officers (ICTSOs) provide technological support in primary schools. With the reforms brought about by the Ministry of Education (Ministry of Education and Human Resources Tertiary and Scientific Research, 2016) the ICTSOs were called to teach ICT from grade 1 to grade 6. These teachers are responsible for teaching of ICT as a subject and provide support for the integration of ICT in primary schools. Many of the ICTSOs did not have any prior training in teacher education. The CDELTA programme provided them with an opportunity to provide an initial training to many of them.

The training of ICT Support Officer was conducted in July 2019... A half day workshop was conducted with each group over the two days with 182 ICTSOs attending from all Primary schools in Mauritius. While the deadline of course completion was end of October 2019, many had already completed the CDELTA programme well before. The ICTSOs needed various support and sought so through email

Review of Literature

Lifelong learning creates the challenge to understand, explore, and support new essential dimensions of learning such as self-directed learning, learning on demand, collaborative learning, and organizational learning (Fischer, 2000). Promoting lifelong learning has received increased attention recently from the educational and business communities. Scholars and trend forecasters, looking toward the needs of the 21st century, have reached nearly unanimous agreement about the importance of a constantly improving and technologically competent workforce that can compete in global markets.(McCombs, 1991)

The qualities of lifelong learners are perceived as tenacious, reflective, metacognitive, divergent thinkers, self-efficacious, collaborative as well as seeing learning as valuable(Pearse & Dunwoody, 2013).Tenacious learners are determined even when something appears too hard. They use motivation to take on the challenge and stay on the course, even more. Lifelong learners appreciate the benefits reflection offers. Being reflective, they learn from their successes and failures, discover what they should try to repeat, and determine what they should change. By mentally visiting past situations, lifelong learners think with greater understanding. Lifelong learners acquire a keen awareness of their minds at work. They can identify and describe understanding and are able to cultivate the process of metacognition to direct their own cognitive and social learning. Divergent thinkers are lifelong learners. They are able to do something new, think something that has never been thought before. They will try new things in new ways. Divergent thinkers can look at what appears to be a lost cause and see possibilities. Research has shown that self-efficacy influences motivation, learning, and achievement in relationships, academics, and the workplace. Self-efficacy instills growth mindset. The growth mindset is what prepares students to become lifelong learners. Lifelong learners have a thirst for learning. They are fascinated with discovering something new; they are curious, excited by the prospects of knowing. They persevere learning, approaching education with intent and passion. They see the potential of growth in every situation and have a greater appreciation for improvement, never passing a chance to learn more. Lifelong learner also understand that working toward shared goals is beneficial to us as individuals and to all members of the collaborative group. Working collaboratively provides ways to develop respect for ourselves and others. Lifelong learners build interpersonal skills that make them good citizens with increased confidence in the future, resulting in better opportunities for success.

Lifelong learning fosters students' ability and readiness to set their own learning goals and to plan, monitor and evaluate their own progress(Bryderup, Larson, & Quisgaard Trentel, 2009). However Lifelong learning creates the challenge to understand, explore, and support new essential dimensions of learning such as self-directed learning, learning on demand, collaborative learning, and organizational learning. These approaches need new media and innovative technologies to be adequately supported (Fischer, 2000). Additional challenges that can occur during implementation of lifelong learning. These can be Government regulations, struggles to recognize qualifications, and misinformation(English & Mayo, 2019). Furthermore different countries may have different professional and statutory framework give rise to issues when implementing lifelong learning (Johnson, 2008).

Implementing lifelong learning may require facing barriers and obstacles (Ojala, 1997). At the same time, implementation of lifelong learning can be slow(Bengtsson, 2013). He examines three main reasons for this, namely the lack of workable implementation strategies, the lack of a funding system and stakeholders' resistance to change. Report of implementation in Papua New Guinea have stated additional challenge of defining pathways as a challenge as well as the shift from formal to informal learning (Kidu, n.d.). At the same time , lifelong learning is still more frequently associated with raising people's professional competences and increasing employability than with the

holistic development of people as shown by a comparative study comparing implementation in Thailand and Latvia(Luka & Sungsi, 2015)

Methodology

A case study research strategy was used as the focus of this study was to understand the dynamics present within this present setting(Eisenhardt, 1989). Case study can be seen to satisfy the three tenets of the qualitative method describing, understanding, and explaining.(Tellis, 1997). The aim of this study was to describe how the CDELTA project was implemented with ICTSOs and their experience with the project. The study also explains how the CDELTA promote lifelong learning. With this aim in mind, the case study approach was deemed as appropriate.

Case studies can employ a number of methods for data collection (Hopwood, 2004).The use of various methods allow the perspectives of participants to be captured. Data was collected from the analytics of the C-DELTA platform, email interactions with participants as well as a self-administered questionnaire seeking participants perception(Fauley, 1972).The questionnaire had the following sections: participant detail, experience with the CDELTA course and CDELTA and lifelong and independent learning. Emails were used as a means to interact with students. The mail trail provided data about the progress and concerns as well as support required by the participants.(Bohnsack, Pfaff, & Weller, 2010). The participant information about the course and their interaction as well as performance was in the log of the CDELTA course Moodle platform. The data was retrieved from the platform and was analysed (Park & Jo, 2017)

The participant details was captured at the start of the course during the registration stage. 180 ICTSOs were registered on the CDELTA Moodle platform. The participants provided additional information on registration form. During the completion of the course participants emailed concerns as well as queries. The mail from the participants was retrieved. A content analysis was conducted on the retrieved email. After the completion of the course a questionnaire was sent to all participants registered for the course. 28 participants responded to the questionnaire.

Exploratory data analysis method was used (Cohen, 1984). Content analysis was use to analyse the data from the email as well as the open ended items in the questionnaire. The log of the Moodle platform was downloaded and quantitative analysis was performed using spreadsheet software. Quantitative data analysis was performed on the questionnaire

Findings and reflection

Participants

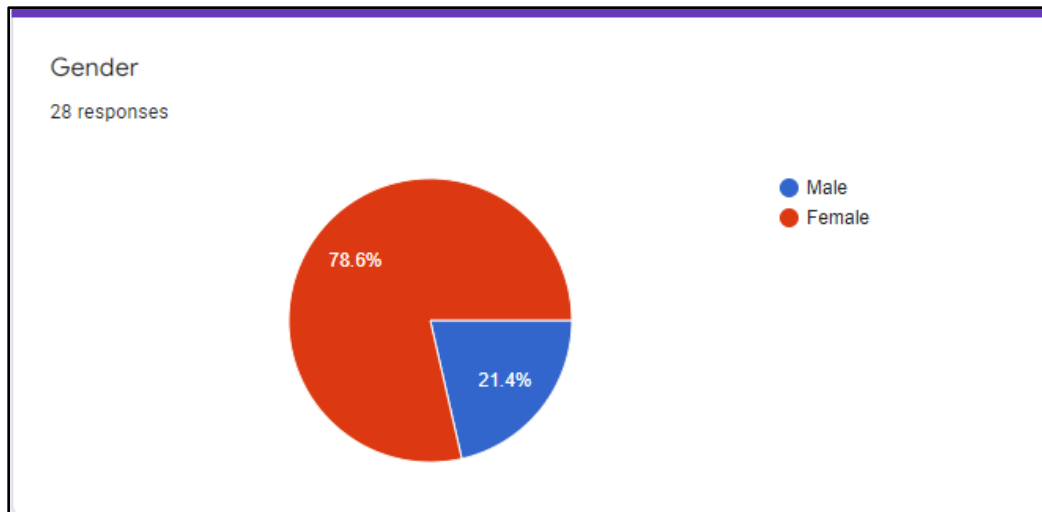
The data from the log of the Moodle platform provided the following information.

Male	30	17%
Female	150	83%

Participants	Completed	% Completed	Score 100/100
180	132	73%	2

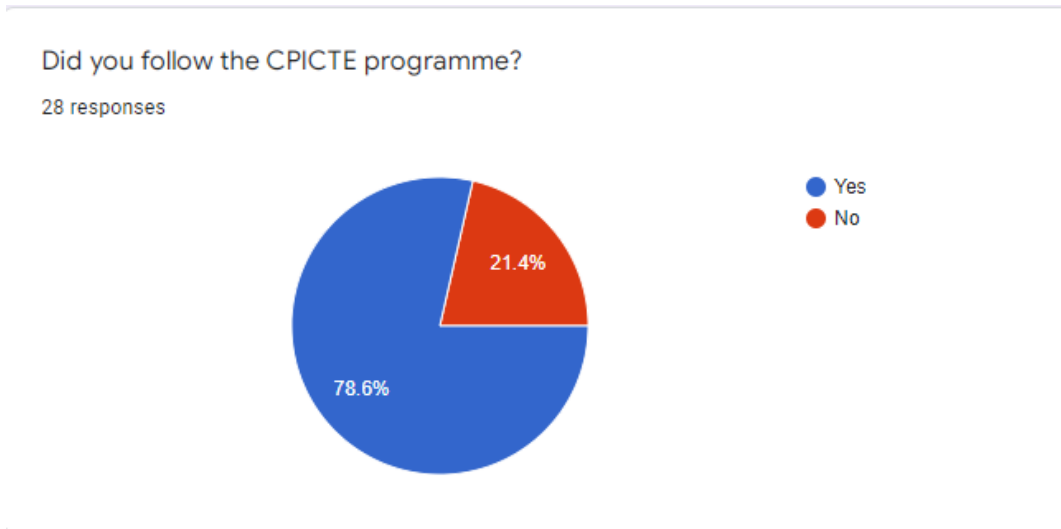
Though most of the ICT teachers are completing the course, some were not interested as they are not happy with their career path and are not interested in doing anything other than their work. The analysis of the email showed that they were eager to complete the course and earn a certificate. The gender difference is explained by the large number of females in the teaching profession in Mauritius... The completion rate of female is slightly higher than that of males.

The following findings was compiled from the questionnaire filled and returned by 28 participants



The number of females are in the same proportion as in the data from. The proportion of ICTSOs who are female explains this proportion.

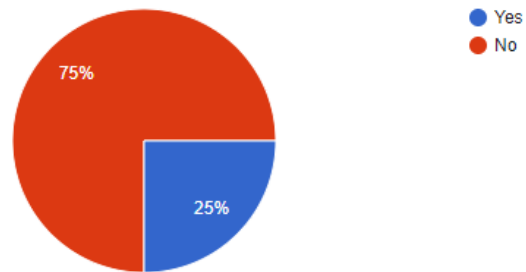
Prior Teacher Education Training course



Out of the 28 participants 79% had followed a certificate of proficiency course offered in 2003. However a large number of the ICTSOs have not followed any initial training programme and have started to work in schools without any prior training

Are you a supply teacher

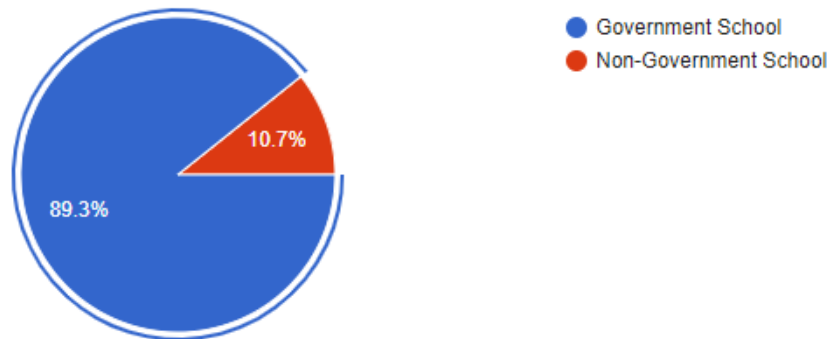
28 responses



Supply teachers are recruited on a temporary basis. The turnover rate for ICTSOs is high as many of them are not satisfied with the working conditions.

Type of School

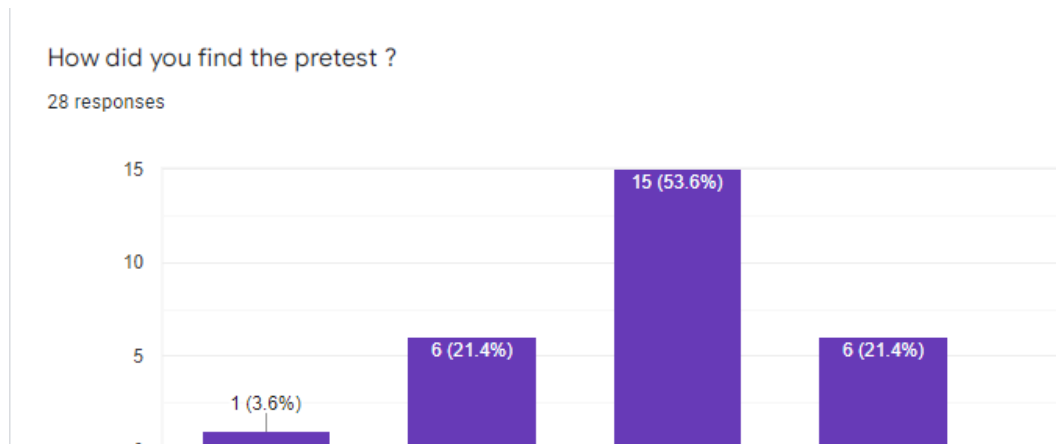
28 responses



The Government owns most of the schools in Mauritius as shown by the pie chart.

[Experiencing the CDELTA course](#)

For many ICTSOs the CDELTA course was the first continuous professional development after a long. For some it was the first continuous professional development.



The pretest score came as a surprise for many. The low score obtained by many were a shock that made them realize the importance of attending CPDS. Participants reported as being surprised and shocked by the score they obtained

Challenges

Facing challenges and finding solution to challenges make learners tenacious. They are self-driven and overcome initial failures through struggles. The findings from the questionnaires as well as the analysis of the email interactions show how the participants faced various challenges ranging from online learning to having access and finding time from other commitments. The following excerpts from the participants shows how they overcame challenges the faced.

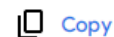
“The challenges I faced that I did not had first of all access to internet to complete the course at home. I managed with school network and mobile data to accomplish it. Furthermore as it was an online course and self-pace, at home being a mom it was a bit complicated to manage household and children. Despite of these critical situation I did my best to complete the course in time.”

“Heard many new terms and words for the first time. Had to go the modules twice or thrice”

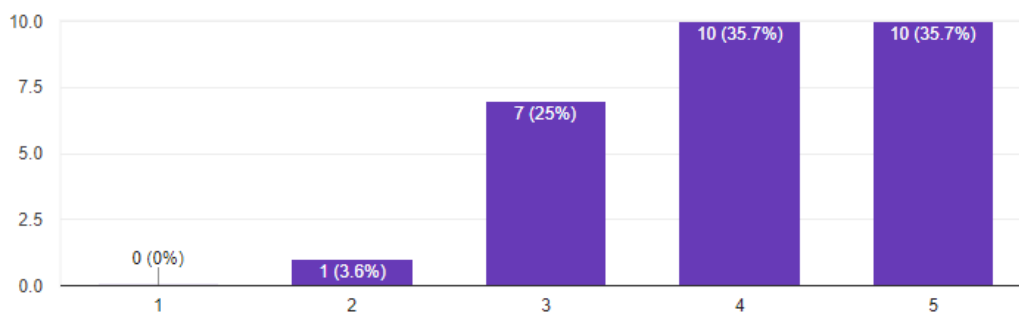
Lifelong learner are tenacious (Pearse & Dunwoody, 2013) and the ways in which the participants overcame the challenges shows how CDELTA fosters lifelong learning skills in ICTSOs.

CDELTA and Independent Learning

To what extent did C-DELTA promote independent learning?



28 responses



Participants perceive CDELTA to promote independent learning. They used various strategies to regulate their learning. Time management, getting reorganized doing research, self-motivation were stated as ways participants regulated their learning.

The following excerpt show how one participant regulated his/her learning:

“As a self-pace learning, I have gone through the modules and different units by taking a good chunk of notes and have done some cross-references during the process. I have also allocated adequate amount of time in order to complete it.”

CDELTA and Professional Growth

Participants perceived CDELTA to foster their professional growth in various ways, they reported CDELTA to help them get new and innovative ideas as well as enhancing digital education.

The following extract from participant’s response shows how the course helped them in their professional growth

“It helped me to be more professional in my workplace. I was able to be help my students frame new information or feedback in a positive rather than a negative manner. I also helped to be focus on the application of knowledge in broader contexts and integrate real-life examples with classroom information.”

The participant also expressed their view about the impact of CDELTA on their classroom practices. The following excerpts show how they changed the way they conducted their class:

“Better use of ICT in teaching.. Pupils are more motivated... The use of videos help weaker students to understand contents more easily.”

“It helped me to define my class. What was my subject and according to grade what content I need to teach and how far did the children gain the concepts. Children had both positive and negative feedback but turning the negative into positive feedback was the achievement gained.”

“Previous it was only one way communication that is show students how the work is done and that's it. But after completing the course, my class has become more active in terms that I've become the guide who only guides or show the pathway and my students happily walk along discovering and learning more during each session.”

CDELTA and Lifelong Learning

Analysis of the emails and the open-ended responses shows that the participants showed the following characteristics of lifelong learners (Ojala, 1997; Pearse & Dunwoody, 2013; Watkins, 2008): tenacious, reflective, metacognitive, divergent thinkers, self-efficacious, see learning as valuable, and collaborative. Selected excerpts illustrating these are as follows:

I may have come through some difficulty for the general knowledge questions and I dealt with them by acquiring more more awareness for reading.

The challenges I faced that I did not had first of all access to internet to complete the course at home. I managed with school network and mobile data to accomplish it. Furthermore as it was an online course and self-pace, at home being a mom it was a bit complicated to manage household and children. Despite of these critical situation I did my best to complete the course in time.

I motivated myself that I had to complete the course. Each time I get to free myself, I was ready to continue with the course.

It was a general revision of my personal knowledge which at time help me in my classes since I use general terms explanation during explanation

This course provided me with latest ideas how to conduct my class in the best ways I can. I could better understand how to cater for different students with different study backgrounds.

=

Conclusion

C-DELTA is a MOOC and registering and completing a MOOC by itself allows lifelong learning. At the same time, planning one's course, learning by oneself, doing the online activities all contribute to lifelong learning. C-DELTA is free of cost, self-paced and modular. This allows participants to plan and their learning accordingly. The ICT Support Officers were very keen to participate in this project and expressed their intention to attend similar projects from the Commonwealth. This study showed how the C0DELTA project fosters lifelong learning and also helped ICTSOs reflect on their practice and change their classroom teaching accordingly. We would like to point out that Mauritius is the only country where the C-Delta project was extended to teachers working in primary schools.

References

- Bengtsson, J. (2013). National strategies for implementing lifelong learning (LLL) - the gap between policy and reality: An international perspective. *International Review of Education*, 59(3), 343–352. <https://doi.org/10.1007/s11159-013-9362-4>
- Bohnsack, R., Pfaff, N., & Weller, W. (2010). *Qualitative Analysis and Documentary Method : In International Educational Research*. Opladen: Verlag Barbara Budrich. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=3065010&site=ehost-live>
- Brown, C., Czerniewicz, L., Huang, C.-W., Mayisela, T., Beetham, H., Bhatt, I., ... Waqar, Y. (2016). *Curriculum for Digital Education Leadership: A Concept Paper*. Retrieved from <https://www.flickr.com/photos/dfataustralianaid/10701437386/>
- Brownell, M. T. (2021). Advocating for Lifelong Learning, Professional Development, and Support. *Teaching Exceptional Children*, 53(3), 180–182. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&db=trh&AN=147967543&site=ehost-live>
- Bryderup, I. M., Larson, A., & Quisgaard Trentel, M. (2009). ICT-use, educational policy and changes in pedagogical paradigms in compulsory education in Denmark: From a lifelong learning paradigm to a traditional paradigm? *Education and Information Technologies*, 14(4), 365–379. <https://doi.org/10.1007/s10639-009-9095-y>
- Cohen, A. (1984). Exploratory Data Analysis Methods. *Sociological Methods & Research*, 12(4), 433. Retrieved from <http://10.0.4.153/0049124184012004005>
- Eisenhardt, K. M. (1989). Building Theories from Case Study Research. *Academy of Management Review*, 14(4), 532–550. <https://doi.org/10.2307/258557>
- English, L. M., & Mayo, P. (2019). Lifelong learning challenges: Responding to migration and the Sustainable Development Goals. *International Review of Education / Internationale Zeitschrift Für Erziehungswissenschaft*, 65(2), 213–231. Retrieved from <http://10.0.3.239/s11159-018-9757-3>
- Fauley, F. E. (1972). DEVELOPING A BETTER SURVEY QUESTIONNAIRE. *Training & Development Journal*, 26(8), 18. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&db=ehh&AN=7454806&site=ehost-live>
- Ferguson, T., Iliško, D., Roofe, C., & Hill, S. (2019). *SDG4 - Quality Education : Inclusivity, Equity and Lifelong Learning For All* (Vol. First edition). Bingley, UK: Emerald Publishing Limited. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&db=e095mww&AN=1868320&site=ehost-live>

- Fischer, G. (2000). Lifelong Learning—More Than Training. *Journal of Interactive Learning Research*, 11(3), 265–294. Retrieved from <https://www.learntechlib.org/p/8380>
- Hopwood, N. (2004). Research design and methods of data collection and analysis: researching students' conceptions in a multiple-method case study. *Journal of Geography in Higher Education*, 28(2), 347–353. Retrieved from <http://10.0.4.56/0309826042000242558>
- Johnson, I. M. (2008). The proposed European qualifications framework for lifelong learning: Challenges and opportunities. *Education for Information*, 26(1), 13–20. Retrieved from <http://10.0.12.161/EFI-2008-26103>
- Kabugo, D. (n.d.). Acquiring Digital Education Leadership Capabilities through Heutagogy: A Case of C-DELTA Implementation at Makerere University. Retrieved from <https://cdelta.col.org>
- Karunanayaka, S. P., Weerakoon, W. M. S., Nawaratne, N. M. R. K., Karunanayake, S., & Careemdeen, J. D. (2018). Adoption of C-DELTA Programme by Sri Lankan Teachers and Students, 1–13. Retrieved from <http://oasis.col.org/handle/11599/2442>
- Khan, S. (2019). C-DELTA: an innovative approach to preparing digital leaders in Bangladesh. In *Pan-Commonwealth Forum 9 (PCF9)*.
- Kidu, C. (n.d.). Informal Lifelong Learning for Development in Papua New Guinea: A Case Study from the Margins into the Mainstream. Retrieved from <http://www.endvawnow.org/en/articles/1407-emergency-safe-spaces.html>,
- LIm, J., & Brown, C. (2019). Implementing Commonwealth Digital Education Leadership Training in Action (C-DELTA) with Pre-service Teachers (PSTs) in New Zealand. In *Pan-Commonwealth Forum 9 (PCF9)*. Commonwealth of Learning (COL).
- Luka, I., & Sungsi, S. (2015). Lifelong learning strategies and practice in Latvia and Thailand. *Policy Futures in Education*, 13(4), 529–545. <https://doi.org/10.1177/1478210315571222>
- McCombs, B. L. (1991). Motivation and Lifelong Learning. *Educational Psychologist*, 26(2), 117–127. https://doi.org/10.1207/s15326985ep2602_4
- Ministry of Education and Human Resources Tertiary and Scientific Research. (2016). *Inspiring every child*. Retrieved from <http://ministry-education.govmu.org/English/educationsector/nys/Documents/NYCBE Booklet.pdf>
- Otala, L. (1997). Implementing Lifelong Learning in Partnership with the Educational Sector and the Work Place. *International Information & Library Review*, 29(3–4), 455–460. <https://doi.org/10.1080/10572317.1997.10762452>
- Park, Y., & Jo, I.-H. (2017). Using log variables in a learning management system to evaluate learning activity using the lens of activity theory. *Assessment & Evaluation in Higher Education*, 42(4), 531–547. Retrieved from <http://10.0.4.56/02602938.2016.1158236>
- Pearse, M., & Dunwoody, M. (2013). *Learning That Never Ends : Qualities of a Lifelong Learner*. Lanham: R&L Education. Retrieved from <https://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=645165&site=ehost-live>
- Tellis, W. (1997). Introduction to Case Study. *The Qualitative Report*, 269.
- Watkins, C. (2008). Active learning. *Higher Education*, 2, 21. <https://doi.org/10.1021/bk-2007-0970>