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PERSPECTIVES ON OPEN AND DISTANCE LEARNING

Innovative Models and Practices in Teacher Development: Case Studies from the Commonwealth

Betty Ogange, Mairette Newman and Tony Mays
Editors

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

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Abbreviations

AAMUSTED	Akenten Appiah-Menka University of Skill Training and Entrepreneurial Development
AD	Advanced Diploma
ADDIE	Analyse, Design, Develop, Implement, Evaluate
ADEE	Advanced Diploma in Environmental Education
AFTRA	Africa Federation of Teaching Regulatory Authorities
AI	Artificial Intelligence
AMLM	Advanced Mobile Learning with Multimedia
CBC	Competency-Based Curriculum
CCT	Chartered College of Teaching
CILT	Centre for Innovation in Learning and Teaching
CLTE	Centre for Learning and Teaching Enhancement
COL	Commonwealth of Learning
CoP	Community of Practice
CPCE	Cyril Potter College of Education
CPD	Continuing Professional Development
DDOA	Designing and Developing Online Assessments
DFID	Department for International Development
EE	Environmental Education
EMIS	Education Management Information System
EPIC	Educational Podcasting for Innovative Classrooms
ESD	Education for Sustainable Development
EVD	Ebola Virus Disease
FCT	Federal Capital Territory
FNU	Fiji National University
FOSS	Free and Open Source Software
FQE	Free Quality Education
GenAI	Generative Artificial Intelligence
GoSL	Government of Sierra Leone
GTN	Green Teacher Nigeria
HITL	Human-in-the-Loop
ICT	Information and Communication Technologies
INSET	Integrated In-Service Teacher
ITTLA	Integration of Technology in Teaching, Learning and Assessment
IVR	Interactive Voice Response
KISE	Kenya Institute of Special Education
LMS	Learning Management System
MLM	Mobile Learning with Multimedia
MoBSE	Ministry of Basic and Secondary Education

MoE	Ministry of Education
MoHERST	Ministry of Higher Education, Research, Science and Technology
MOOC	Massive Open Online Course
NCE	Nigeria Certificate in Education
NCERD	National Centre for Educational Resource Development
NTC	National Teaching Council
NTI	National Teachers' Institute
ODFL	Open, Distance and Flexible Learning
ODL	Open and Distance Learning
OECD	Organization for Economic Co-operation and Development
OER	Open Educational Resources
OERF	Open Educational Resources Foundation
OUSL	Open University of Sri Lanka
PBL	Problem-Based Learning
PCT	Provincial Co-ordinating Teachers
PGDE	Postgraduate Diploma in Education
PIC	Pacific Island Countries
PLC	Professional Learning Communities
PODFLP	Partnership for Open, Distance and Flexible Learning in the Pacific
PTA	Parent Teacher Associations
SBTD	School-Based Teacher Development
SBTPD	School-Based Teacher Professional Development
SCT	School Co-ordinating Teachers
STEM	Science, Technology, Engineering and Mathematics
TDA	Teaching in a Digital Age
TEEP	Teacher Education and Enhancement Programme
TEL	Technology-Enabled Learning
TESSA	Teacher Education in Sub-Saharan Africa
TFP	Teacher Futures Programme
ToT	Training of Trainers
TPACK	Technological Pedagogical Content Knowledge
TPD	Teacher Professional Development
TSC	Teaching Service Commission
UNESCO	United Nations Scientific and Cultural Organization
VUSSC	Virtual University for Small States of the Commonwealth
WCPT	Wisdom Community of Pasifika Teachers

Foreword

The most significant lesson from the Covid-19 pandemic for the education sector is clear: stakeholders must be prepared for unforeseen disruptions, including those stemming from climate-related crises. The pandemic showed how unprepared the education sector was for any sudden disruption. Teachers were unprepared for distance teaching and did not have access to quality digital content, and a lack of information and communication technologies (ICT) infrastructure in educational institutions proved to be a major barrier to providing ongoing education and training.

It very quickly became clear that building the capacity of teachers — especially in digital skills — and addressing the learning loss that the pandemic caused were key priorities. Even before the pandemic, there was a learning crisis, with many children going to school but not achieving the defined learning outcomes. Half the ten-year-olds in low- and middle-income countries were unable to understand a simple written sentence. New issues such as gender-based violence and mental health challenges emerged.

This book, *Innovative Models and Practices in Teacher Development: Case Studies from the Commonwealth*, underscores the critical relevance of open, distance and technology-enabled learning for resilient and adaptable solutions to overcome these challenges and is an essential resource for anyone involved in education or training with its insights and strategies to navigate the ever-evolving landscape of the sector, especially in low-resource contexts of the Commonwealth. It represents a collective effort to document how new tools and platforms were harnessed to provide high-quality educational content and diverse learning experiences for teachers during the recent global health crisis. It also demonstrates how crisis generates creativity and emphasises the critical role teachers played in developing innovative solutions to reach the last person in the queue.

Through 11 case studies, *Innovative Models and Practices in Teacher Development* presents an array of concepts and models for teacher training and describes projects on, for example, digital leadership training in Sri Lanka, technology-supported school-based teacher development in The Gambia and Sierra Leone, contextualisation of open educational resources (OER) in the Pacific countries, blended and distance learning in Guyana and Nigeria, pedagogical innovation using massive open online courses (MOOCs) in Ghana, Kenya and Trinidad and Tobago, and designing online assessment for teachers across the Commonwealth. The diversity of the methods employed — from courses delivered on learning management systems (LMSs) and via MOOCs to webinars and podcasts — illustrates not only the innovative thinking but also the flexibility and adaptability of these solutions.

A key aspect of this book is its regional diversity. The geographical spread of the authors, cases and contexts is extensive, covering four of the five Commonwealth regions: Africa, Asia, the Caribbean and the Pacific. This global reach makes the book relevant and valuable to a wide range of readers. It is also a testimony to the ability of technologies to transcend traditional barriers to enable teachers and teacher communities to share knowledge and OER across borders.

When we look at our common future, we know that the teacher will remain central to it and that advanced technologies such as artificial intelligence (AI) can be only an instrument of support and not a replacement for human involvement. Technological literacy is essential if we are to understand machines and their uses. Teachers must be able to deploy software and hardware in order to maximise their powers to achieve and create. Technology also provides various channels for connecting and collaborating. Our communities of practice (CoPs) will both motivate and inspire.

This compilation is more than an academic work; it is a narrative of resilience, adaptability and commitment to quality education. It is an essential resource for educators, policymakers and other education stakeholders, offering inspiration and a roadmap for innovations to effectively promote teacher development in our rapidly evolving world.

Professor Asha S. Kanwar
Former President and Chief Executive Officer
Commonwealth of Learning

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Christian Addai-Poku is the Registrar and Chief Executive of the National Teaching Council of Ghana. His areas of responsibility include regulating the teaching profession through the registration and licensing of teachers, promoting teacher continuing professional development (CPD) and developing and enforcing national teacher standards. His areas of expertise and research include educational administration and leadership, teacher professionalism and innovative pedagogies. Dr Addai-Poku is also the current Secretary General of the Africa Federation of Teaching Regulatory Authorities (AFTRA).

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Melisa Allela is a lecturer in interactive media at the Technical University of Kenya and currently a research fellow at the Rhode Island School of Design. In her capacity as a consultant for the Commonwealth of Learning, Dr Allela has contributed to teacher professional development through massive open online courses (MOOCs), as well as multimedia content development for mobile learning and educational podcasting. Her research and professional practice examine the use of new and emerging technologies in educational contexts, including ways in which they can be implemented with cultural sensitivity.

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Alpha Bah is a Gambian education policy advisor with almost 30 years of experience. He is currently the Director of Standard Quality Assurance, EMIS and ICT at the Ministry of Basic and Secondary Education in The Gambia. He is a strong advocate for the use of data to improve education outcomes and has played a pivotal role in elevating and strengthening The Gambia's EMIS. Mr Bah is an experienced professional who is committed to making a difference in the lives of children and young people.

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Tony Mays is Director: Education at the Commonwealth of Learning (COL), also with responsibility for open schooling and the *Journal of Learning for Development*. As Director, Dr Mays co-ordinates the activities of COL's Education Sector. Also, in partnership with ministries and open schooling providers in Africa, the Caribbean and the Pacific, Dr Mays designs and manages projects that build capacity in open and distance learning (ODL). His areas of expertise and research include ODL, open educational resources (OER) and teacher education.

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Acknowledgements

This book is about innovation in teacher development. It is also about knowledge production. Knowledge production, particularly when it takes the form of an edited work, is a collective undertaking that requires the commitment and contributions of many people. Not surprisingly, therefore, many individuals across the Commonwealth have contributed to this book both directly and indirectly.

First, we want to thank all our colleagues at the Commonwealth of Learning (COL) whose scholarship and insights added clarity and depth to the case studies. We acknowledge our colleague Dr Sanjaya Mishra for his counsel and patience. Special thanks go to Professor Mpine Makoe for the time and effort she devoted to critically reviewing the chapters. We extend our gratitude to Lesley Cameron for her thoughtful copy editing of the manuscript.

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Many other people have contributed indirectly to this publication. Over the years we have benefited from conversations — scholarly, professional and personal — that encouraged us to think about the complexity and diversity of teacher development and the intersection of teacher development with open and distance learning (ODL). Many of the guides, sages and thinkers we have encountered and engaged with along the way have not only unknowingly inspired us, but also confronted us, caused us to pause, interrogate and deliberate. Above all, they reminded us to value the voices and experiences of practitioners, academics and academic-practitioners alike. They have come in many forms — scholars and students, teachers and trainers, academics and administrators, experts and educators — but all have served as wellsprings of knowledge, ideas and reflection, and for that, we are grateful.

We are fortunate to have worked alongside partner institutions and agencies that have been helpful in the development of this book. These institutions and agencies, spread across Africa, Asia, the Caribbean and the Pacific, all share COL's vision for a more inclusive, equitable and sustainable society and are the sites where the innovations and innovative thinking described in these chapters were nurtured. We appreciate that it is the people in these partner institutions — leaders, managers, faculty, staff and students — who support the work that COL does and are responsible for the projects and interventions described herein moving from idea to action.

Finally, we want to especially thank COL for providing the crucial space — intellectual and practical — to help us make this book a reality.

Introduction: Innovative Thinking for Teaching and Teacher Learning

Betty Ogange and Mairette Newman

Background

In 2020, the Covid-19 pandemic threw the world into chaos, triggering a range of reactions. Some countries in the West and Central Africa region, for example, acted on their previous experience with health emergencies such as the Ebola virus outbreak and moved swiftly to mitigate the spread of Covid-19 by closing down all schools (UNICEF, 2020). Their response was motivated in part by their recognition that national healthcare systems would struggle to deal with the fallout of the spread of the virus, especially given how little was known about it at the time (UNICEF, 2021).

With face-to-face contact severely limited, schools and other learning institutions were closed for months, leaving approximately 290 million learners worldwide out of school (UNESCO, 2020). The closures underscored the significance of open and distance learning (ODL) as a means to ensure uninterrupted access to education, with most schools eventually shifting towards online and hybrid teaching models (Kanwar & Daniel, 2020). They also highlighted the digital divide.

While the restrictions on movement and social gatherings, among other disease control measures, presented a huge challenge to the education sector overall, learners in low- and middle-income countries were particularly affected. The education sector in general may have switched to distance or remote learning, but limited access to technologies such as radio, television, computers and the Internet left many learners in some countries unable to make the most of those options (UNESCO, 2020). As a result, millions of schoolchildren and teachers in many Commonwealth countries remained at home with little or no teaching and learning activities taking place.

The situation exacerbated existing education-related challenges and inequities. Several Commonwealth countries were struggling with teacher shortages and low-quality teaching before the pandemic, and subsequent research shows that there is a significant need for more and better qualified teachers, particularly

in Sub-Saharan Africa, if the United Nations 2030 education targets are to be achieved (UNESCO, 2023). Rural and economically disadvantaged areas, in particular, lack both the quantity and quality of teachers necessary for effective education. These facts combined clearly indicate a need for newer approaches to teaching and learning to secure last-mile engagement, including the use of low-cost technology and text-based learning among vulnerable communities (Traxler & Ogange, 2024).

Fortunately, the post-Covid-19 era is emerging as a time of pedagogical innovation. Teachers and learners may have returned to in-person learning in most contexts, but there is still a demand for innovative strategies to sustain the quality and continuity of education by using ODL, including during periods of disruption. Nichols (2020), for example, emphasises that the accessibility, cost-effectiveness and scalability of ODL, which can be further enhanced through carefully chosen and applied digital practices, far outstrip those of traditional education systems.

Many educators have continued to use new digital tools and methodologies — for example, learning management systems (LMS), e-portfolios and mobile learning — to address current and ongoing learning gaps, and more teachers are also exploring the potential benefits and applications of artificial intelligence (AI) tools, whose adaptability and versatility point towards their being suitable for supporting differentiated instruction and personalised learning (Burns, 2024). However, not all teachers have been provided with adequate professional development opportunities to equip them with the skills they need to use these new tools or to meet the challenges of the digital age in education (Bates, 2022). This situation has created a learning gap among teachers, and there is a critical need for innovative teacher training approaches to help close it.

As the only intergovernmental organisation focused solely on open, distance and technology-enabled learning, the Commonwealth of Learning (COL) played a key role in helping its partners address the challenges of disrupted learning during Covid-19, especially through open, distance and technology-enabled learning and the use of open educational resources (OER). COL advocates for using a range of technologies in teaching, learning and teacher development, including radio, television, stand-alone computer-based learning and fully online courses accessible via mobile and fixed devices (Mishra & Panda, 2020).

In its Strategic Plan 2021–2027, COL clearly acknowledges the significance of teacher education in realising "learning for sustainable development" (Commonwealth of Learning [COL], 2021). At the Tenth Pan-Commonwealth Forum for Open Learning (PCF10), hosted by COL in partnership with Athabasca University in Calgary, Canada, in September 2022, a pre-conference workshop titled Scaling Innovations in Teacher Education brought together 19 in-person and remote participants from 9 countries, representing 12 institutions across the Commonwealth. Each participant shared insights and strategies for scaling innovations for high-quality and resilient teacher education, drawing from experiences during the Covid-19 lockdowns. The discussions, exchanges and reflections led to the sharing of ideas about innovative thinking and design thinking as key concepts in education technology, especially at a time of such large-scale learning disruption (COL, n.d.).

About This Book

This book presents 11 case studies derived from an integrated cross-initiative approach to teacher development first adopted by COL in 2020 and documents the various methodologies employed by COL partners and networks of experts in their efforts to achieve continuity, quality and scale in teacher training and professional development in the post-Covid period. The case studies describe projects led by the teacher-facing initiatives at COL — specifically, Teacher Education, Technology-Enabled Learning, Open Schooling and Virtual University for Small States of the Commonwealth (VUSSC) — to demonstrate the teacher capacity development models and practices that not only steered institutions through the transition back to class but also significantly drove innovative thinking and practices in teaching and teacher learning in the post-Covid-19 era. The intended readership of this book includes ministries of education, COL partner institutions and other agencies involved in teacher development. It is specifically designed to assist teacher educators and ministry officials responsible for teacher training and continuing professional development (CPD).

The book is structured around several key themes relating to innovative teacher development:

- Chapters 1, 2 and 11 focus on the use of OER in low-resource contexts, particularly during the Covid-19 pandemic and emergency remote teaching scenarios in some parts of Africa, the Caribbean and the Pacific region.
- Chapters 3 and 4 cover school-based teacher development, highlighting the role of e-learning and micro-learning in enhancing pedagogical practices in The Gambia and Ghana.
- Chapters 5 and 8 discuss teacher professional learning communities (PLCs), emphasising partnerships for collaborative learning and professional growth among educators in Kenya and the Pacific region.
- Chapter 6 addresses environmental and climate change education in Nigeria, linking these critical global issues to technology-enabled teacher development.
- Chapter 7 is dedicated to digital education leadership training in Sri Lanka, underlining the innovations and structures for developing leaders who can effectively integrate ICT into education and training.
- Chapters 9 and 10 explore quality blended learning and online assessment, particularly within the context of organisational change in a Pan-Commonwealth context, and with a specific focus on Guyana.

The section below looks at some of the key themes in more detail.

Key Themes

Innovating with open, distance and technology-enabled learning

Teacher development is foundational for enhancing the quality of education, particularly in countries where challenges such as limited access to resources and expertise are prevalent. Asraf et al. (2023) identified critical thinking skills as vital for nurturing creative and innovative thinking, which they believe is

crucial for societal development, among teachers and students. When teachers and learners have strong critical thinking skills, they are better able to navigate the complexities of the modern world and contribute to their communities' advancement. In addition, innovative thinking and design thinking have been identified as crucial for transformative teaching and teacher development in a dynamic environment (Myrzatayeva et al., 2023; Phillips, 2023) and are seen as key approaches to improving teacher training (Kwangmuang et al., 2021; Noh & Karim, 2021; Wannapiron & Pimdee, 2022).

Innovative thinking involves thinking outside traditional boundaries and generally leads to new inventions, radical changes or novel problem-solving approaches across various sectors. This kind of thinking encourages educators to explore unconventional methods and solutions to enhance their teaching practices (Asraf et al., 2023; Dzaly & Abdullah, 2024; Kwangmuang et al., 2021; Rossi et al., 2021; Wannapiron & Pimdee, 2022).

Design thinking is a structured, methodological approach that entails solving complex problems in a user-centric manner. Because it focuses on understanding user needs and creating solutions based on feedback, it is particularly effective in contexts in which human-centred problem-solving is crucial. It encourages educators to abandon their preconceptions, promote improvisation, challenge assumptions and reframe issues (Noh & Karim, 2021) and is viewed as a framework for embracing failure and uncertainty in education (Faregh & Amrikhizi, 2023; Razzouk & Shute, 2012), a crucial skill and ability for anyone who faces unexpected disruptions to learning.

Both approaches provide educators with the tools and mindsets necessary to develop effective teaching strategies, foster creativity and address new and complex educational challenges. By integrating innovative and design thinking into professional development, educators can continuously improve their teaching practices and adapt to evolving educational needs, ultimately benefiting learners and society as a whole.

A policy brief published by COL (Traxler & Ogange, 2021) suggests that teacher development in low-income and disadvantaged regions requires more flexible, rich and diverse pedagogies and technologies. Educators and leaders in various countries and institutions should be empowered to make informed decisions not only about access to learning resources and open, distance and technology-enabled learning options but also about policies for quality teacher training at scale. The digital era has seen teachers become facilitators of learning, rather than instructors who adhere to long-established teaching practices and approaches, and they need new competencies and ongoing professional development to support them in that role.

Blended, hybrid and online learning necessitate a higher standard of training for teachers because in addition to mastering the technology, they must also understand how students learn, how knowledge can be represented through different media and the role different senses play in the learning process. Technology-based teaching requires teachers to explore different learning models, such as knowledge construction versus transmission, and aligning technology

use with specific knowledge domains or subject areas (Le & Pham, 2021; Mishra & Panda, 2020).

COL has been instrumental in supporting ministry- and institution-level interventions aimed at identifying ways to leverage ODL and technology-enabled learning (TEL) for effective teaching, learning and assessment. These efforts, implemented through policy development, capacity building and resource development, play a crucial role in addressing the challenging contexts faced by teachers, especially in regions with limited resources. Through partnerships with ministries of education, COL has initiated projects that adapt various technologies to support teacher professional development, enabling in-service teachers to engage with their peers both locally and internationally through communities of practice (CoPs). This collaborative approach is designed not only to improve traditional face-to-face instructional practices but also to enhance teachers' digital skills to help them navigate the rapidly evolving educational landscape (Mishra, 2022; OECD, 2020).

Leveraging open educational resources

In many developing Commonwealth countries, teachers and learners in rural areas face significant barriers to learning, including limited access to home computers and the Internet. Despite widespread recognition of the potential of OER and other technologies to support distance learning, there is a notable gap in the availability of curriculum-relevant OER for teacher training in most contexts (Ogange & Carr, 2021). It is, therefore, critical to develop accessible OER that meet the needs of diverse learners, including those with special needs. Educational podcasts and audio lessons available as OER, for example, exemplify how low-tech solutions can enhance teacher collaboration and learner engagement in remote and low-resource settings (Mishra, 2022; OECD, 2020; UNESCO, 2022).

A number of the COL projects discussed in this book focused on developing capacity in the creation, adaptation and use of OER while simultaneously innovatively building networks and platforms that are resilient and adaptable and can provide support for teachers and learners when learning is disrupted.

Implementing blended learning and online assessment

Blended learning and online assessment present substantial opportunities for innovative thinking in teacher development. The adoption of blended learning approaches in teacher training programmes has been shown to reduce costs, improve the distribution of quality education and address distance-related challenges (Kim et al., 2015; Le & Pham, 2021). Research has demonstrated that blended learning can mitigate some of the limitations of online learning — for example, the lack of communication and feedback — by creating a stronger sense of community among learners (Kumar et al., 2021). This approach is particularly relevant in teacher education, where the quality of instruction and the support provided by educators are critical to the success of the learning experience.

In regions such as West and Central Africa, where access to quality education remains a significant challenge, COL's regional capacity-building projects have supported ministry-level interventions to enhance the quality of instruction and learning activities and ensure that teachers are equipped with the digital skills

they need to provide quality education to learners. COL has championed capacity building in online assessment using MOOCs and other partner-led activities led by the TEL and VUSSC initiatives.

Advancing digital education leadership

Advancing digital education leadership through targeted training programmes is another key opportunity for innovation. COL's Commonwealth Digital Education Leadership Training in Action (C-DELTA) project was designed to promote digital education competencies among teachers, students and educational leaders across Commonwealth countries. This project, implemented by COL's TEL initiative, supports the development of digital literacy, responsible online behaviour and the effective integration of ICT into teaching and learning.

By promoting digital education leadership, COL enables educators to influence their peers and communities, driving the adoption of digital technologies and creating a culture of continuous learning and innovation. This approach not only prepares teachers to navigate the complexities of digital education but also contributes to the broader goal of sustainable development through the creation of skilled, digitally literate citizens (Mishra & Panda, 2020).

Promoting school-based teacher development

COL developed and piloted a School-Based Teacher Development (SBTD) model (also known as the Teacher Futures programme [TFP]) shortly before the Covid-19 pandemic began. During the school closures, the model provided an opportunity for innovative thinking in teacher development irrespective of the teacher's location, as it leveraged e-learning, micro-learning and new media technologies to support continuous professional development for teachers without displacing them from their teaching roles (Moon, 2019).

By enabling teachers to collaborate and share knowledge through national and cross-national CoPs, the programme enhanced pedagogical practices to improve learning outcomes. This approach would be particularly beneficial in regions where traditional campus-based teacher training programmes cannot meet the growing demand for quality education (COL, n.d.). One component of the programme focused on environmental education and sustainability, which further aligns with global goals to equip teachers to educate learners about critical issues such as climate change and environmental stewardship (Latchem, 2017).

Promoting teacher professional learning

Teacher PLCs provide vital opportunities for innovative thinking and continuous professional growth. By encouraging collaboration among teachers, both online and in person, PLCs contribute to a culture of shared learning and mutual support. These communities allow teachers to engage in problem-solving, share best practices and develop innovative instructional strategies that are responsive to the needs of their students; this in turn presents an opportunity for innovative

and design thinking. COL's initiatives in this area focus on building virtual mobility and interaction among teachers in countries such as Ghana and Kenya, thereby enhancing their capacity for lifelong learning and contributing to improved educational outcomes (Mishra & Panda, 2020; OECD, 2020).

Conclusion

In the contexts in which COL works, innovation is not merely about adopting new technologies in education; it is about reimagining how education can be delivered and experienced. The concepts of innovative thinking and design thinking play a central role in how COL and its partners approach the changing digital education environment. They guide the exploration of creative, user-centred solutions to the complex problems faced by educators worldwide, particularly in areas where resources are limited. The case studies in this book illustrate how the incremental adaptation of blended and online learning, supported by innovative thinking, can foster a dynamic and resilient teaching workforce capable of responding effectively to both natural and human-made disruptions.

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CHAPTER

1

Teacher Development Among Marginalised Communities in the Commonwealth: Novel Approaches Using Open Educational Resources

Melisa Allela, Tony Mays and Betty Ogange

Abstract

In 2020, at the onset of the Covid-19 pandemic, approximately 363 million learners lost access to in-person learning when mandatory school closures were introduced. This unprecedented development highlighted the need for alternative methods of keeping education accessible, particularly for teachers in marginalised communities who already faced challenges in pursuing professional development opportunities and found those challenges exacerbated by the pandemic. Numerous interventions that focused on technology-mediated learning approaches for remote teacher professional development (TPD) were introduced and implemented, with varying degrees of success. This chapter presents two case studies, both based on Commonwealth of Learning (COL) interventions during the pandemic period that illustrate novel approaches to technology-mediated TPD using open educational resources (OER) in marginalised communities. The first case study, Developing OER Repositories and Providing Training, explores some of the ways in which COL used OER at the start of the pandemic. It expounds on how this experience became formalised into a short course for teachers and then subsequently informed teacher development and support in several countries in Africa, the Caribbean and the Pacific. The second case study, the Educational Podcasting for Innovative Classrooms (EPIC) project, was established to meet the growing demand for effective teaching practices and TPD in partner countries. The first component of the EPIC project comprised a centralised platform that sought to facilitate online podcast streaming, collaboration spaces for in-country teacher communities of practice (CoPs) and other resources to support last-mile teaching. The second component, teacher capacity building, comprised a two-part massive open online course (MOOC) series that aimed to prepare educators from the Global South to create and distribute podcasts, developed as OER. The courses emphasised technical skills needed for creating and adapting multimedia OER, and resulted in several audio-based learning materials being created by the participants and uploaded to the podcast portal. Post-pandemic, it is expected

that technology-based learning and teaching will be firmly established as a regular part of TPD. We hope that the valuable lessons learned from these two case studies will inform future remote capacity-building efforts, serving as a strategy for using OER to enhance the resilience of teaching and teacher training.

Keywords: marginalised communities, open educational resources (OER), podcasts, remote teacher professional development (TPD)

Introduction

To keep the doors of learning open during the Covid-19 pandemic period, governments and education and training providers generally placed much emphasis on the use of educational technologies as a stopgap measure. The pandemic-mandated school closures, limited travel and adherence to physical distancing guidelines meant that education providers that offered face-to-face tuition had to find alternative approaches to ensure that learning continued without teachers and learners having to be in the same space, at the same time. The move to adopt educational technologies was a critical turning point not only for in-person classroom teaching but also for teacher professional development (TPD).

It also further exposed and exacerbated the existing huge gaps between high-resource and low-resource regions. Those gaps made the transition to alternative teaching modes even more difficult for schools and training institutions in low-resource regions. In many rural settings, teachers and learners lacked access to home computers or Internet connectivity, which further widened the disparities. To address this challenge, various initiatives were launched at global, regional, national and local levels. As experiences varied with context, it was necessary to develop solutions that considered the unique needs of teachers and learners in low-resource regions.

Global Responses to the Covid-19 Pandemic in the Education Sector

At a global level, in 2020 the United Nations Scientific and Cultural Organization (UNESCO, 2020) was quick to provide statistics on school closures and links to advice, guidelines and sources of support. It also established a Global Education Coalition to mobilise resources and co-ordinate responses to reflect and respond to local needs, offer global solutions and provide insight into how best to leverage distance education methods and technology. That same year, the Global Business Coalition for Education (GBC-Education) (2020) announced that many of its business partners had provided access to platforms and resources for free or at a reduced cost, although it was not clear whether the cost of access would remain free or reduced when classrooms returned to normal (or a new normal).

The Commonwealth of Learning (COL) responded quickly to the Covid-19 crisis by helping Member States keep the doors of learning open by using open and distance learning (ODL). COL prepared a statement about Covid-19 and created a dedicated web page with a curated resource list of open educational resources (OER), both of which were shared widely with stakeholders. COL and the Open Educational Resources Foundation (OERF), New Zealand, also joined forces to establish an Open Educational Resources for Covid (OER4COVID) community

in order to help education institutions around the world, but especially in the Commonwealth, to transition to online learning. COL also joined partners from around the globe to support countries in scaling up their best distance learning practices and reaching children and youth who were most affected by Covid-19 via the Global Education Coalition.

Subsequently, COL launched the International Partnership of Distance and Online Learning for Covid-19 to encourage institutions and organisations to work collaboratively and support each other by sharing their OER and experiences (COL, 2020a).

Towards Wider Adoption of Open Educational Resources

COL's initiative to curate a set of potentially useful OER revealed that while much useful content was freely available, it was widely distributed and it would take time to map the OER to the various approved country curricula. However, if institutions or countries offered a shared curriculum, it should be possible for teachers to share the workload, making the curation and mapping of resources more efficient.

The Caribbean Examinations Council (CXC) has worked with countries in the region for several years to develop a number of common curriculum outlines. This means that resources created for use in one country context could potentially be adapted only slightly for reuse in another country context. However, this requires a shared platform. For example, some Member countries have shared resources on a platform called NotesMaster and others have explored platforms such as UNICEF's Learning Passport.

Meanwhile, in Africa, the Association of African Universities and OER Africa focused on professional capacity building by collaborating on a series of four webinars for university teachers in April and May 2020:

- Webinar 1: Teaching Effectively during Campus Closure – Tips and Tricks
- Webinar 2: What to Teach during Campus Closure
- Webinar 3: How to Know If Learning Is Happening during Campus Closure
- Webinar 4: Communicate Effectively during Campus Closure (OER Africa, 2020)

National Responses to the Covid-19 Pandemic in the Education Sector

At a national level, experiences and responses were varied, both between countries and across different education sub-systems within countries, although there were also many similarities. For example, at the university level, Canada deferred student loan payments for six months and Australia pledged funding for technology — for example, to improve Internet access — but in the United Kingdom, students demanded that their fees be refunded because they were no longer receiving the campus-based classes they had paid for (Brown & Salmi, 2020). Also in the United Kingdom, the Chartered College of Teaching (CCT) provided its members with access to several supportive vlogs related to coping during the pandemic, compact guides to giving assessments and feedback in an

online context and to leading a school during lockdown, and a distance learning discussion area in which they could discuss adapted ways of teaching (CCT, 2020). In India, 1,900 capacity-building courses were made freely available on the national Swayam online portal; in Ghana, institutions invested significantly in training staff in online education provision; and in South Africa, students protested about the move to online learning, largely because of unequal access to connectivity and power, limited access to appropriate platforms and appropriate content and the limited capacity of some teachers to respond to the new environment (Kanwar, 2020). In Guyana, it was reported that teachers were advised to engage with learners via electronic media and parents and guardians were advised to visit the Ministry of Education website to access learning resources, but unequal access to the Internet proved a major barrier (News Room Guyana, 2020). Similar responses and challenges were reported in Mauritius and Namibia (Naidu, 2020; Nakale, 2020). In Singapore, meanwhile, it was reported that about 12,500 laptops or tablets and 1,200 Internet-enabling devices, for those without Internet at home, were "loaned out" to students to enable them to learn online (Sun, 2020). Many countries postponed national examinations. Managing all these varied responses placed a huge stress on teachers, many of whom noted that their initial teacher training had not prepared them for using online technology, OER or content development for self-study.

Literature Review

In recent years, a growing body of evidence-based research has focused on interventions designed to improve student learning outcomes through targeted, yet flexible, professional development opportunities for in-service teachers. Interventions such as the Integrated In-service Teacher Training (INSET) programme implemented in Sierra Leone (Junaid et al., 2019) are particularly important for educators in remote or rural areas who face unique challenges, such as having limited access to TPD opportunities, or being in a remote geophysical location or conflict-prone region. Additionally, there is a growing demand for OER that are tailored to meet local needs and target marginalised communities where traditional interventions have been ineffective. This is a key focus of an initiative called the Partnership for Open, Distance and Flexible Learning in the Pacific (PODFLP), which is reported on later in this chapter, and also in Chapter 8, Innovations in Teacher Development for the Pacific, which explores how to support teachers in working with OER in context.

When designing interventions that meet the needs of marginalised communities, it is essential to consider extreme use cases — ranging from those with neither Internet access nor devices to those with both — and to create a heuristic model that aims to develop solutions that cater to the majority in the middle. Catering for such a continuum of needs emphasises the importance of creating professional development opportunities that are flexible, adaptable, contextually relevant and accessible.

The Covid-19 pandemic highlighted the need for flexible provision of learning opportunities. By building on approaches developed in response to the pandemic, education systems can better meet the needs of educators who are seeking sustained professional development and learners who have historically been unable to access learning opportunities effectively. These learners include those

who have dropped out of school, who are not learning effectively or who need a second opportunity to improve their learning outcomes to access employment or further education and training opportunities.

Responding effectively to the short-term crisis created by the pandemic can therefore help education systems develop more flexible and resilient approaches for the long term (COL, 2020b; Kanwar & Daniel, 2020), although any such long-term strategy requires a critical rethink of how learning opportunities are provided and the implications thereof for the role of teachers. New approaches to learning could include using strategies such as blended learning (Cleveland-Innes & Wilton, 2018), flipped classrooms (Papadakis et al., 2019), appropriate use of appropriate technology tailored towards inclusion (Hattori, 2020; International Labour Organization [ILO], 2020) and, pertinent to this chapter, repurposing OER to provide learning materials that are both relevant to and respectful of the specific local context (COL, 2022).

Mays et al. (2021) note that we have known for many years that we need to train and retrain more teachers using distance education methods (see, for example, Moon, 2010). Massive open online courses (MOOCs) are one way to reach large numbers of teachers quickly and effectively (Kanwar & Balaji, 2014; Traxler & Ogange, 2021). Since learners have unrestricted access to the course material as well as flexibility over when, where and how to access it, MOOCs have the potential to provide TPD at scale to supplement, or replace, in-person training. Further, when MOOCs are used for TPD, teachers can engage in peer learning through a community of practice (CoP) composed of other course participants. Crane and Comley (2020) observe that completion rates in MOOCs are much higher among social learners (course participants who use the available communication channels such as forums and messaging boards to communicate with other course participants) than non-social learners. As such, social learning facilitated by the CoPs within a MOOC can result in lower attrition rates (Gütl et al., 2014) — in MOOCs, retention and completion rates can be as low as 10%.

However, we need to understand that most teachers in our ageing professional communities have been conditioned by experience to associate effective teaching with physical spaces (Mays, 2021) and therefore we need a lot of support and examples of how to approach teaching using distance education methods instead. Such training and support must create spaces in which teachers determine their own learning and support needs and can access timely and appropriate responses to those needs (Sayed & Bulgrin, 2020). If we are to ensure continuity of learning when campuses close because of pandemics, climatic events or other natural disasters or large-scale emergencies, we need practical, just-in-time approaches rather than lengthy theoretical discourses. For example, a recent policy paper (Foreign, Commonwealth and Development Office [FCDO], 2022) indicates that climate-related events already disrupt the schooling of 40 million learners a year, and the disruptions are getting worse — especially for girls and marginalised communities — so the challenge to find more flexible forms of provision will only grow more urgent.

Moreover, approaches geared towards changing teaching practices remotely need to be aligned with the characteristics of effective TPD that integrate technology. Hennessy et al. (2022) have classified those characteristics using the categories of programme content and relevance to teachers' needs, mode of delivery and

support mechanisms, and institutional and external support for participation (see Table 1.1).

Table 1.1. Characteristics of effective TPD

Characteristic
Programme content and relevance to teachers' needs
Informed by research evidence concerning effective pedagogy
Builds on teachers' existing knowledge, expertise and practices
Integrates subject knowledge and pedagogy
Participatory and addresses teachers' needs, constraints, interests and agenda[s]
Engages with differences and ensures linguistic, sociocultural and other context-specificity
Recognises that students have diverse learning needs
Mode of delivery and support mechanisms
Focuses on imminent practical application, supporting iterative cycles of trial and refinement of new approaches through reflective inquiry and rehearsal within a safe environment
Programme design models the pedagogic approaches being promoted, taking a learner-centred approach
Emphasises peer dialogue and collaboration within a community of practice (including coaching)
Opportunities for discussion and critique of alternative approaches
School-based and teacher-led
Institutional and external support for participation
Alignment with national policy, curriculum standards and assessment frameworks
Alignment with institutional strategic goals and support from school leaders, striving for school-wide participation and impact
A conducive culture for professional learning, reflection and feedback based on trust and support
Dedicated time for professional development and collaborative inquiry
Programmes are sustained over time through regular sessions and ongoing scaffolding

Source: Adapted from Hennessy et al., 2022, p. 2.

Case Studies

Case study 1: Developing OER repositories and providing training

Muthu and Mays (2022) observe that, since its formation in 1987, COL has advocated for the use of ODL to enable learning opportunities for youths and adults who are unable to access traditional campus-based education. They note that since the outbreak of the Covid-19 pandemic, there has been greater acceptance that structured access to OER is one of the keys to the success of remote/distance learning programmes and can improve the learning outcomes of ODL participants (Colvard et al., 2018; Hilton, 2020). Therefore, COL, in partnership with PACFOLD Learn at the University of the South Pacific and with support from the Ministry of Foreign Affairs and Trade in New Zealand, developed a regional OER repository for the Pacific region which was subsequently replicated for all nine Pacific Island Countries (PICs) that are members of the Commonwealth. The PICs could customise the repository to meet the requirements of their own curriculum structure. This is important, because a recent study suggests that teachers are more likely to use and reuse OER if

they are contextualised to reflect local needs (COL, 2022). The repository was also replicated outside of the Pacific for use in Nigeria. The first version of the repository for the Pacific region is available at https://staging.oer4pacific.org/. It can be compared with the Nigerian version available at https://oer4nosp.col.org. The new resources added to the Nigerian repository were developed as part of an outreach initiative between COL and a team of researchers at the University of Nigeria. The resources were created and shared in response to interactions with several communities in rural areas. Solar-powered narrowcasting was used to alert communities first to consultative meetings to discuss their needs and then to follow-up meetings to provide training related to these needs. The micro-resources — that is, localised content — created were therefore identified in consultation *with* communities rather than *for* them.

Helping ministries customise their national OER collections is a multi-step process. First, the ministry needs to identify staff with the appropriate technical skills and curriculum knowledge. Then these staff need to be oriented online to the concept of OER, how the platform has initially been structured and how existing OER have been allocated. The staff then need some time to identify a curriculum structure that suits their context. Once this information has been communicated and COL has made the necessary structural changes in the metadata so that it aligns with the national curriculum, a follow-up online workshop is needed to guide the ministry staff on how to use the existing OER within the new structure (e.g., allocating a resource originally designed for a Grade 5 curriculum to be used in a Grade 6 curriculum elsewhere). This step will usually require a follow-up online session on adding new resources. Once the existing resources have been reallocated (or removed, if necessary), the ministry staff then need further online training in how to upload and provide the necessary metadata for new OER — either existing OER they have found themselves elsewhere or OER that have been created locally, and possibly in a local language. In the time between these key online training sessions, ministry staff need to be able to email questions about things that did not go as expected and how to correct what has gone wrong. Probably about ten hours of engagement is needed for these online sessions, over and above ministry staff's normal duties.

As noted, it is not enough to simply have access to OER. Teachers need to be supported in how best to use and reuse them. Two guides were developed to support engagement with OER: *Integrating OER in Teaching: A Guide for Teachers in the Pacific* (COL, 2021a) and *Reversioning OER: A Guide for Teachers in the Pacific* (COL, 2021b). A first draft of each guide was added to the resource collection near the start of the pandemic-related intervention. They were subsequently replaced with updated versions that contained examples developed by teachers in the Pacific region themselves.

With access to a curated set of OER, teachers can use a heuristic rubric like the following to help them plan their teaching and identify the further support and resources they need:

- What parts of the curriculum do my learners typically master easily? For which parts do I typically need to provide extra support?
- What resources can be used or adapted slightly for the parts of the curriculum that most learners grasp easily?

- What resources have I used in the past to address key curriculum challenges based on my experience?
- How have I successfully mediated problem areas in the past? How might I do this without being in the same place at the same time as my learners?
- Which other teachers can I talk to about how best to address challenges? How can we share the workload by focusing on different curriculum topics?
- Which learning outcomes require learners to engage with one another in, for example, project-based learning? Which social media platforms could be used to encourage this interaction? What guidelines are needed to protect learners against the wrongful use of such media? What guidelines are provided by the ministry for learners, teachers and parents/caregivers?
- What new technology skills will I need to learn and how can I learn them? What will I need to teach my learners to enable them to learn remotely using technology?
- How should I manage my time? I need time to learn and experiment, time to plan and prepare learning resources and time for both synchronous and asynchronous interaction with my learners, and I will still need time to provide feedback on assessment tasks. What guidelines have been provided by the ministry on what to focus on and how to gather and report assessment evidence?

Each of the above questions can be the subject of a social media group discussion or webinar session that guides participants towards useful reports, self-paced courses and other professional development opportunities available online. This happened in some, but not all, countries when ministry officials set up face-to-face meetings or WhatsApp discussion groups in response to the various related continuing professional development (CPD) courses that were offered.

At the time of writing, only three of the nine PICs had worked with COL to customise their national repository to match their own curriculum, and while the OER provided have been downloaded a significant number of times, relatively few new, and especially local, resources have been uploaded. This issue will be addressed in a webinar that was planned while this chapter was being finalised.

A more structured engagement process would likely have a greater impact on teachers, and so COL has developed several micro-courses and short courses that address various aspects of using and customising OER effectively. One of the earliest offerings reached more than 11,500 teachers in approximately one year (Mays et al., 2021), and variations of the original course continue to be offered from time to time by both COL and the National Open University of Nigeria. COL has also assisted teachers in Belize, Botswana, Eswatini, Malawi, Mozambique, Namibia, Trinidad and Tobago, Vanuatu and Zambia with curriculum-based OER content development. That content helped to support continuity of mainstream schooling during the pandemic lockdown.

Case study 2: Online platforms for participatory teacher professional development

As part of its Covid-19 response, COL worked with partners to build networks and platforms to address the immediate learning crisis brought on by the pandemic and foster resilient education ecosystems that enable learners, teachers and

other educators to overcome everyday challenges in learning. The Educational Podcasting for Innovative Classrooms (EPIC) project was a response to the increased need for practices, processes and systems for effective last-mile teaching and TPD in partner countries. EPIC was anchored on a model aimed at using an innovative participatory approach to develop broadcast-ready podcasts and audio lessons that would be available as OER for teaching, teacher training and professional development. The resources that were developed would ensure equitable access to learning and TPD through distance and technology-enabled means.

The EPIC project had two key components: an online platform optimised for low- or no-bandwidth access, and a two-part MOOC series for capacity building in creating multimedia learning resources.

The EPIC platform facilitated collaborative development of audio-based OER. It was designed to support the co-creation of podcasts, discussions, knowledge-sharing and learning in a CoP. Furthermore, it was premised on a graded model that supported resource development, access under varied connectivity levels and adaptability of teacher-generated resources to make them accessible for teachers with disabilities to enhance remote TPD.

The two-part MOOC series was aimed primarily at primary and secondary school teachers. It also attracted teacher educators, education providers, Ministry of Education/government officials from various partner countries and individuals associated with community organisations or with no specific institutional affiliations. As a key resource for remote TPD, the MOOC series served to build capacity in creating multimedia learning resources, and thus ensured continual support for teachers during situations in which they could not access in-person training. The first MOOC in the series, Mobile Learning with Multimedia (MLM), aimed to familiarise participants with readily accessible technology tools for creating audio-based learning resources in the form of educational podcasts. The second MOOC, Advanced Mobile Learning with Multimedia (AMLM), built on the technical skills acquired in the first MOOC and aimed to provide advanced training in authoring multimedia-based OER — for example, educational infographics, synchronous and asynchronous video-based resources and accessible multimedia — and identifying opportunities presented by new technologies such as augmented and virtual reality (AR/VR) in education.

The combination of MOOCs and a podcasting platform had a significant impact on teachers from marginalised communities who were facing learning gaps that had been intensified by the pandemic or pre-existing challenges. The dual approach enabled teacher development that complements global digital formats, such as the MOOC, with specific technologies that are readily acceptable and available to the teacher (Ogange & Carr, 2021; Traxler & Ogange, 2021). For example, in the past, Kaduna State in Nigeria has faced continual security challenges that forced schools to remain closed. The Centre for Girls Education (CGE), a COL partner institution in this region, assigned ten of its staff — all of whom had teaching experience, information and communication technologies (ICT) skills and capacity in five core subjects — to act as course mentors who would support an additional 200 female teachers enrolled in the MLM MOOC.

These mentors provided technical support and guidance to teachers enrolled in the MOOC, helping them develop podcasts for radio lessons which were then

aired by Alheri Radio, a local radio station. The teachers who enrolled in the MOOC were drawn from 40 schools in the Sabon Gari and Zaria local government areas, which are both relatively remote locations, and taught subjects such as mathematics, English language, basic science, social studies or computer studies. In addition, two of the course mentors were also communication and media experts, and they provided production support for the teachers in terms of script writing, voicing, presentation and editing. Because multimedia production is a relatively new skill for many of the participants from such regions, the mentors' direct support is integral to the production of lessons that are engaging, learner-centred and suitable for the teachers' specific audience and environment.

Furthermore, the production of the radio lessons sought to ensure inclusiveness and continuity in learning by using the widely accessible medium of radio. In the end, the teachers produced 70 high-quality audio lessons, 54 of which were broadcast to over 1.3 million Alheri Radio listeners. This approach was thus particularly significant as it not only helped to enhance the capacity of teachers in creating multimedia-based learning materials but also increased the involvement of teachers from low-resource areas in the development and use of OER for teaching and learning.

While the first two offerings of the MLM course were open to participants from several COL partner countries, subsequent offerings were restricted to specific partner institutions in Nigeria (the National Training Institute and the Centre for Girls Education) and Sierra Leone (Freetown Teachers College). All offerings of the MLM course were delivered on the mooc4d platform (see https://www.mooc4dev.org/MLM_1), an open course platform. Archived versions of the course can be used for self-paced learning or downloaded and installed in other COL partner institutions' learning management systems (LMSs) because the content was created under a Creative Commons licence. For example, a partner institution in Kiribati in the Pacific was able to access an offline version of the course for reuse locally.

The key points that arose during and after the implementation of the EPIC project include the following:

1. Teachers in disadvantaged settings are generally responsive to training in developing audio-based OER, particularly where mobile phone ownership is already widespread. Several participants were able to script, record and upload at least one ten-minute episode in their subject area during the four-week course. The in-country CoP provided peer-review opportunities for the participating teachers.
2. The option to adapt audio resources from the podcast portal to other broadcast-quality multimedia formats — video, animation, voice-over PowerPoint, infographics and even AR/VR resources — can be explored for use in these contexts and where teachers and learners have better connectivity. Radio broadcasting is a robust way to extend the reach of the podcasts in the post-course period in disadvantaged regions.
3. Participants in the MOOCs were able to contribute to country-specific microsites in the EPIC portal, which hosted teacher-generated podcast episodes and lesson transcripts clustered by subject. These resources are available for free to access and download for classroom use. While they are aimed at supporting teaching activities, they can also be shared with

learners for individual, self-paced or collaborative learning across varying bandwidth conditions. A separate microsite hosted the podcast episodes created by participants in the MLM MOOC who are not affiliated with specific COL institutional or country partners.

4. A toll-free low-cost dial-in facility, implemented as a pilot demonstration of an interactive voice response (IVR) service for the week 4 lesson of the MLM MOOC enabled participants to access the audio recordings from any type of mobile phone without the need for Internet access and without incurring any costs. It employed the open-source Verboice tool for an intuitive navigation sequence to enable users to sample audio recordings made by teachers. This initiative was only partially implemented. Scaling it would require a low-cost model that was implemented in collaboration with local telecommunications companies and used a toll-free number.
5. TPD aimed at building technical competencies in using MOOCs requires regular interaction between the participants and course facilitators or subject matter experts. For marginalised communities, including local course mentors who have intermediate ICT literacy and are already acquainted with the specific context and needs of the course participants plays a huge role in skill acquisition and improved learning outcomes.
6. A partly moderated virtual CoP on social media platforms such as Telegram was found to help augment conversations on the course discussion forums and contributed to peer learning in the MOOCs. There was a strong correlation between participants who actively participated in the forums and completion rates, which emphasises the importance of course facilitation to spur active participant engagement.
7. Participants noted several technical challenges — for example, poor Internet connectivity, inadequate computer literacy skills, malfunctioning or technical limitations of their computer devices, and scheduling conflicts that barred them from attending the weekly webinars. Some participants also noted personal problems such as lack of time to tackle course requirements and limited experience with technology. Institutional support is critical in helping participants overcome all such challenges.
8. Recommendations from participants and partner institutions included allowing more time to complete the courses, more in-depth tutorials for specific technical competencies and additional live sessions. Weekly webinars with guest speakers were introduced in the second offering of MLM and the first offering of AMLM.

Conclusions

The two cases described in this chapter offer compelling validation of the effectiveness of innovative approaches to remote TPD using OER, especially in disadvantaged contexts. The success of these cases suggests that such approaches could offer sustainable solutions for the flexible provision of learning opportunities, extending beyond their original purpose of addressing the disruptions caused by the Covid-19 pandemic. The importance of structured access to OER as a contributing factor in improved learning outcomes and successful roll-out of remote/distance learning TPD programmes cannot be overstated. Furthermore, the use and reuse of OER by teachers is more likely to occur when the resources are tailored to their specific context, as evidenced

in the first case study. The second case study underscores the importance of empowering teachers from marginalised communities to take the lead in creating audio- or multimedia-based OER after they have been trained through MOOCs that are part of a remote TPD intervention. Empowering the teachers in this way allows them not only to enhance their technical skills but also to contribute to the development and dissemination of OER in a participatory model. However, for this approach to be effective, especially among teachers from communities with very limited resources, a tiered capacity-building strategy that considers their unique constraints and contexts is essential. A tiered strategy would include providing structured and guided online capacity-building courses, assistance from course mentors, technical skill-building that aligns with the tools and technologies available to teachers, participation in moderated online CoPs, access to a platform that facilitates sharing of country-specific resources, and opportunities for low-cost, offline access to resources. By implementing these measures, we can foster sustainable and equitable OER creation and dissemination among marginalised communities of teachers.

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CHAPTER

2

Teacher Development for the New Normal: Empowerment and Professional Learning Using OER and a National Virtual Platform in Ghana

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Abstract

The Covid-19 pandemic has created global challenges, especially in the education sector, where the "new normal" is shaping teacher development. To develop teachers' competencies in this period of the new normal, the Commonwealth of Learning (COL) collaborated with the National Teaching Council (NTC) of Ghana to implement the Teacher Education and Enhancement Programme (TEEP), the first-ever national online professional development programme for teachers. This chapter reports on the success of the programme. In the first part of the chapter, we explain how teacher capacity-building needs in Ghana were determined through a study that used a descriptive research design and drew on the experiences of 466 education professionals and experts. The study revealed a need for content and resources for teacher capacity building in digital learning. In the second part of the chapter, we report on the effectiveness of an online training course called Teaching in a Digital Age (TDA), which was part of TEEP, in which 1,201 participants were trained via a Moodle platform provided by COL. A purposive sampling technique was adopted to collect data from 456 participants, and it was found that the training helped to develop the participants' digital competencies and skills. The third part of the chapter reports on a teacher training and empowerment model that used WhatsApp to mobilise and train teachers in remote areas using the COL Moodle platform. The model comprised eight open educational resources (OER) courses; of the 12,067 participants who enrolled, 4,856 completed the courses. The resources used were later reused by the Ministry of Education to train more than 40,000 teachers in digital literacy.

Keywords: new normal, teacher capacity building, teacher development, technology integration

Introduction

The world was taken aback on 11 March 2020 when human-to-human transmission of the novel coronavirus was confirmed as a global threat (World Health Organization, 2020). When the disease was later declared to be a pandemic, countries responded and reacted in a variety of ways. Some countries, for example, immediately implemented precautionary measures such as social isolation, wearing masks, working from home, closing high-risk venues and locations, isolating infected neighbourhoods and, in extreme cases, locking down entire cities (Hendren et al., 2020).

The impact of the pandemic was felt in every aspect of human activity including education, as schools were shut down for months, denying learners access to their schools and teachers. The situation set the clock back on all the gains made towards the achievement of the Sustainable Development Goals, particularly SDG4 (Ramsetty & Adams, 2020).

Ghana recorded its first case of Covid-19 in March 2020. By 22 March, a partial lockdown had been declared in Greater Accra and Greater Kumasi (Kenu et al., 2020). Schools across the country were shut down for 10 months (The World Bank, 2020), and schools and parents struggled to find new ways of providing educational content to learners to mitigate the looming learning loss. The varied methodologies adopted by schools and parents to sustain teaching and learning brought to the fore the overwhelming digital divide, as the lower- and middle-income groups — including many teachers — could barely afford the costs of alternative teaching and learning modes (Ramsetty & Adams, 2020). The pandemic exposed how unprepared the education sector had been to deal with emergencies: education leaders, school managers and teachers were not fully informed about how to handle education at the peak of a pandemic.

The New Normal and Innovative Teacher Capacity Building

As the pandemic persisted, the world came to terms with the need to adapt to a new way of living with the disease. This new way of living, generally known as the new normal, has been adopted globally by leveraging the digital space to address the disruptions created by the pandemic. It has become increasingly clear that the world is not going back to where it used to be.

To enhance education delivery and mitigate learning loss among learners in Ghana, the National Teaching Council (NTC), with support from the Commonwealth of Learning (COL), introduced the Teacher Education and Enhancement Programme (TEEP) in early 2021 as an innovative response to teacher capacity-building challenges arising from the pandemic. NTC adapted COL's Integration of Technology in Teaching, Learning and Assessment (ITTLA) model to implement the TEEP. The ITTLA is a model that involves stakeholders working with government agencies to improve national effectiveness in leveraging open, distance and technology-enabled learning. It focuses on strengthening teachers' and other educators' knowledge and skills in digital teaching, learning and assessment. The ITTLA was the first-ever nationwide technology-embedded professional development strategy for teachers to be used by Ghana's Ministry of Education.

A distinctive feature of the ITTLA model is its ability to serve as a teacher-learning accountability tool. Over the years, learning accountability has become a concern in the educational ecosystem. Leadership accountability systems in Africa often focus on school leaders and administrators; however, the National Teachers' Standards for Ghana recognise teachers as leaders who need to be accountable not only for their actions but also for what they learn (professional practice) and how they are influenced by what they learn (professional values and attitudes).

NTC adopted a teacher accountability system using five key components from the ITTLA model in teacher capacity building: self-learning assessment, peer learning assessment, post-course survey, time-on-task assessment and overall learning performance evaluation.

Empowerment and Professional Learning Using Open Educational Resources

Open learning is founded on the idea that openness in various forms is essential if we are to reach as many people as possible and remove some of the barriers that more traditional forms of education present (Gaskell, 2017). While such learning is theoretically open to all, some groups may face many barriers to accessing or taking advantage of such opportunities (Czaplinski & Huijser, 2023; Southworth, 2022). The situation for in-service teachers is particularly critical in terms of access to continuing professional development (CPD), which has historically mainly taken the form of conventional in-person training. In May 2021, therefore, NTC launched the Teaching in a Digital Age (TDA) course, which initially trained 50 master trainers and 1,000 teachers. Before then, there was no comparable programme on a national scale. This was Phase 1 of the initiative.

Some of the challenges associated with using technology-based teacher training approaches included a lack of access to the Internet, particularly among teachers in remote areas, lack of phone ownership among teachers, lack of access to technology among learners and teachers' general inability to navigate and use digital resources.

If learners are to engage successfully with digital educational resources, they need the support of professional teachers and educational workers (Sarpong et al., 2022). Thus, if digital resources and digital environments are to complement physical resources and environments, teachers must first learn and understand how to navigate and use such resources.

NTC therefore leveraged the essential aspects of digital learning and open educational resources (OER) — for example, accessibility, adaptability and flexibility — to design and host instructional content and to design systems capable of aiding teacher capacity building in offline, online or blended mode. With the introduction of a point-based CPD programme, a learning management system (LMS) for teachers and accreditation of service providers in teacher education, the scope for non-face-to-face two-way interaction and collaboration between groups of teachers has expanded significantly. NTC ensured that its post-Covid teacher capacity-building strategy using digital OER conforms to global standards of availability, accessibility, acceptability and adaptability (Sarpong et al., 2022).

In summary, TEEP began with a study of teacher capacity needs. Together with the ITTLA framework, the results of this study informed the design and development of Phases 1 and 2 of the project implementation as described in the next section. The final part of the project was a study to assess the effectiveness of the implementation.

Implementation of the TEEP Intervention

Phase 1

The need for teacher capacity building in using a blended mode for teaching, as well as in using it for their training, led to the installation of an LMS with support from COL. To implement Phase 1 of this two-phase project, which began in April 2021, COL engaged a consultant to customise the LMS in accordance with the needs of teachers in Ghana; these needs were identified through a needs assessment to determine the current status of digital learning and assessment in schools and identify the teachers' capacity-building needs.

The next step was contextualisation and customisation, whereby NTC, with support from technical staff provided by COL, reviewed the content of the module, titled Teaching in a Digital Age — frequently referred to by its initials, TDA — and developed by COL, to align it with the training needs of teachers in Ghana. The national trainers nominated by NTC were then taken through the functionalities of the LMS. This was done in real time through Zoom meetings and complemented by recorded information stored on the LMS for on-demand access and learning.

The national trainers, in turn, trained a total of 50 master trainers across the country through in-person and online learning modes. Each master trainer was assigned 20 teachers, who were selected from ten districts across the northern, central and southern zones of Ghana. In all, 1,000 teachers were trained during Phase 1 of the initiative. The national trainers and COL's consultant for the project provided technical support to help the master trainers implement the training deliverables effectively and efficiently. At the school level, teachers met face-to-face to perform tasks that were assigned to them by their master trainers or assigned tasks from the forums on the LMS. The master trainers also met small groups of participants in person at the end of every week. These in-person meetings promoted co-operative and collaborative learning skills among teachers.

Throughout the course, teachers accessed content on the LMS for knowledge acquisition, especially to enhance their ICT skills. The course was broken down into a series of themes, and after each learning theme was complete, participants were encouraged to meet via WhatsApp to discuss and submit group assignments. At the end of the four-week learning period, the master trainers scored participants' performance in all the assessments given in Phase 1 and submitted the scores to the national trainers. Participants received a Certificate of Completion or Certificate of Participation, depending on their scores. NTC also used the scores to award the teachers with CPD points towards the renewal of their professional teacher's licence.

Phase 2

In Phase 2, the training was done via self-directed learning. Participants relied on peer support from the electronic Professional Learning Community (ePLC), using WhatsApp to work on a minimum of two modules from the following eight modules:

1. Inclusive Teaching and Learning (ITL)
2. Creating an Inclusive School (CIS)
3. Mobile Learning with Multimedia (MLM)
4. Advanced Mobile Learning with Multimedia (AMLM)
5. Cybersecurity Training for Teachers (CTT)
6. Advanced Cybersecurity Training for Teachers (ACTT)
7. Teaching in a Digital Age (TDA)
8. ICT in Leadership and Management (ILM)

All the modules were OER developed by COL or COL partners, except for the ICT in Leadership and Management course, which was developed by NTC. In total, 12,067 teachers enrolled in Phase 2 of the training, and 4,856 completed the courses. The participants included school managers and administrators as well as subject and class teachers.

Assessment of the Initiative

To assess the success, or otherwise, of the TEEP project implementation and the effectiveness of the TDA course, a survey was conducted to elicit the participants' views. The methodology, results and discussions are provided below. The first study determined teachers' capacity-building needs for digital learning in Ghana, and the second study sought to assess the effectiveness of the TDA course.

Methods

We adopted a descriptive research design for the needs assessment because of the large population size that was involved. A quantitative research method, using questionnaires, was adopted to collect data for the study. Educational professionals and experts such as head teachers, principals, supervisors, deans/HoDs, heads of NGOs in education, teachers and staff from the Ministry of Education in Ghana participated. The study was divided into two parts, with a different group of participants involved in each part.

The first part of the study looked at teachers' capacity-building needs in Ghana. We used a convenience sampling technique to recruit suitable participants. A questionnaire was designed and sent out to the study participants in an online form. The questionnaire consisted of two main parts: demographic information about the respondents, and information about the respondents' digital learning and assessment needs, which were measured using a 4-point Likert scale where (1) = not at all needed and (4) = to a large extent needed. Reliability of the items was ensured after pre-testing of the questions yielded a Cronbach's alpha of 0.87, which met the recommended Cronbach's alpha threshold of 0.7 (Straub et al.,

2004). The questions were presented in an online form and verified. The link to the online form was generated and shared with participants via their email addresses and the existing teacher messaging app for them to complete and submit. The participants were given two weeks to respond to the questionnaire, after which the online form was closed. A total of 466 teachers completed and submitted the questionnaires. The data obtained were subjected to descriptive analysis to generate graphs and tables.

The second study assessed the effectiveness of the online training provided by the TDA course in terms of the teacher capacity-building needs identified in the first part of the study. A purposive sampling technique was used for selecting participants for this study. A questionnaire was used to collect data about (a) the participants' demographic characteristics, (b) participants' competencies after the training, (c) skills the participants acquired and (d) other outcomes at the end of the training. A 4-point Likert scale was used to assess the competencies of the participants, where (1) = to a large extent and (4) = not at all, and a 5-point Likert scale was used to assess the skills the participants acquired, where (1) = excellent and (5) = poor. The reliability of the items was ensured after pre-testing of the questionnaire yielded a Cronbach's alpha of 0.88. The questionnaire was created online and verified, and the link was shared with the participants in the same way as the link to the first survey was shared. Of the 1,021 people who participated in the training, 599 completed and submitted the questionnaires. Descriptive statistics were used to analyse the results using frequencies, percentages, mean and standard deviation.

Results and Discussion

Respondents' demographic information

In total, 466 questionnaires about digital learning needs and 456 about online training were completed and submitted online by educational professionals and experts. The majority of the respondents:

- were male (67% for digital learning needs and 63.2% for online training assessment)
- were aged between 31 and 50 (73% for digital learning needs and 73.7% for online training assessment)
- held a bachelor's and/or master's degree (81.9% for digital learning needs and 89.6% for online training assessment)

Responses to questions about the digital learning content needed

To determine what digital learning content would be appropriate for building the capacity of teachers in Ghana for digital learning, the respondents were asked to rate some predetermined responses and were also provided with space to list any additional content they deemed necessary. The response options were (1) not at all needed, (2) not needed, (3) somewhat needed and (4) to a large extent needed. As can be seen from Table 2.1, the respondents rated most of the contents as to a large extent needed for teacher capacity building in digital learning.

Table 2.1. Digital learning content needed (n = 466)

The digital learning content needed	Not at all needed	Not needed	Somewhat needed	To a large extent needed
Learning material development	0 (0%)	0 (0%)	40 (9%)	426 (91%)
Digital skills	0 (0%)	0 (0%)	45 (10%)	421 (90%)
Methods of teaching	0 (0%)	0 (0%)	61 (13%)	405 (87%)
Effective content delivery	0 (0%)	0 (0%)	52 (11%)	414 (89%)
Generating interest among students	0 (0%)	0 (0%)	54 (12%)	412 (88%)
Providing learner support	0 (0%)	4 (1%)	64 (14%)	398 (85%)
Choosing appropriate media	0 (0%)	6 (1%)	72 (15%)	388 (8%)
Choosing appropriate assessment strategies	0 (0%)	0 (0%)	65 (14%)	401 (86%)
Quality teaching in a digital age	0 (0%)	0 (0%)	45 (10%)	421 (90%)
Improving the motivation level of students	0 (0%)	0 (0%)	64 (14%)	402 (86%)
Effective use of technology/ multimedia	0 (0%)	0 (0%)	47 (10%)	419 (90%)

The results indicate that the content needed for providing capacity building for teachers for digital learning in Ghana covers learning material development, digital skills, methods of teaching, effective content delivery, generating interest among students, providing learner support (only 1% said this was not needed), choosing appropriate media (only 1% said this was not needed), choosing appropriate assessment strategies, quality teaching in a digital age, improving the motivation level of students, and effective use of technology and multimedia. These responses reflect the observations of Bates (2015), who noted that this type of content is important in building the capacity of teachers in the digital age. Mason (2016) explained that selecting the right content for programmes designed to build the capacity of teachers helps to improve teachers' classroom practice. This implies that the identification of the content needed for providing capacity building for teachers for digital learning is as important as the expected outcomes of teacher training.

Perspectives on the digital learning resources required

The study also sought to identify what digital learning resources would be appropriate for building the capacity of teachers in Ghana for digital learning. The respondents were asked to rate some predetermined responses and were also provided with space to list any digital resources they deemed necessary. The response options were (1) not needed, (2) somewhat needed and (3) needed. Figure 2.1 shows that an overwhelming majority of the respondents rated all the resources as somewhat or to a large extent needed for teachers' capacity building in digital learning.

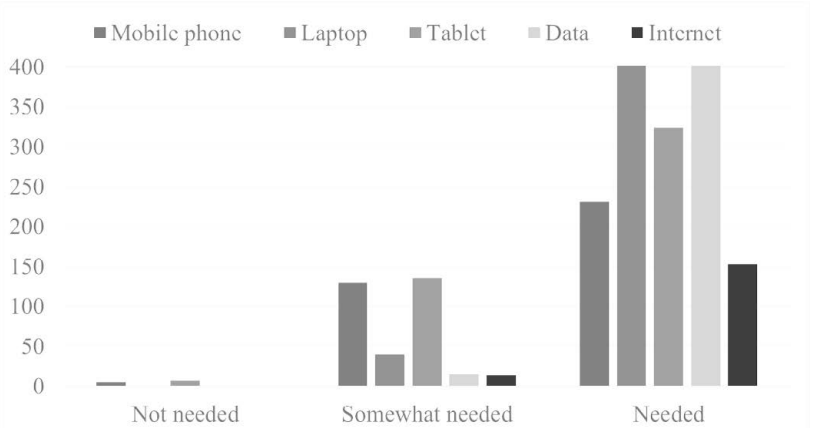

Figure 2.1. Digital learning resources required.

Android mobile phones, laptops/PCs, iPad/tablets, data and Internet access were also identified as resources that were needed to provide capacity building for teachers in digital learning. According to Corner (2020), digital learning is becoming an increasingly popular option in modern education, from fully digital courses to classes held remotely or only certain activities being moved from the classroom to online. Mitchell (2017) notes that "while there are many digital resources that can help educators prepare students for the challenges ahead, it is up to educators to help students acquire the mindset and skills necessary to succeed in our complex world" (para. 1). Therefore, building the capacity of teachers to select appropriate digital resources is an important step in preparing students for the world of work. According to Nehal and Khan (2014), determining teachers' needs is an important step in identifying and determining the type of capacity to be built in teachers. Childress (2014) explained that meeting instructional needs is key to successful teacher practice, as research has shown that teachers are the most important influencing factor in terms of students' achievement.

Responses to the development of competencies

To assess the competencies that the participants developed during the online training, the survey asked them about the extent to which they thought the training helped them develop competencies in key areas. The results are presented in Table 2.2. Most respondents rated highly learner support (89.5%) and quality teaching in a digital age (89.5%). The remaining areas of the training (skills needed in a digital age, online teaching and learning, implementing online learning, theories of learning, understanding learners, choosing media and assessment strategies) were rated between 78.9% and 68.4% to a large extent.

It can be seen that all the areas of the training received ratings of between to a large extent and somewhat. None were rated poor or not at all.

Table 2.2. Development of participants' competencies (n = 456)

Competencies	Not at all	Poor	Somewhat	To a large extent
Skills needed in the digital age	0 (0%)	0 (0%)	120 (26.3%)	336 (73.7%)
Online teaching and learning	0 (0%)	0 (0%)	120 (26.3%)	336 (73.7%)
Implementing online learning	0 (0%)	0 (0%)	168 (36.8%)	288 (63.2)
Theories of learning	0 (0%)	0 (0%)	120 (26.3%)	336 (73.7%)
Understanding learners	0 (0%)	0 (0%)	72 (15.8%)	384 (84.2%)
Learner support	0 (0%)	0 (0%)	48 (10.5%)	408 (89.5%)
Choosing media	0 (0%)	0 (0%)	144 (31.6%)	312 (68.4%)
Assessment strategies	0 (0%)	0 (0%)	96 (21.1%)	360 (78.9%)
Quality teaching in a digital age	0 (0%)	0 (0%)	48 (10.5%)	408 (89.5%)

These findings suggest that the participants in the online training felt they had developed competencies in all areas of the training. According to Addai-Poku et al. (2022) and Mbachu (2011), helping teachers develop new competencies and skills helps improve the overall quality of teaching once teachers start to integrate what they have learned into their teaching practice. The acquisition of competencies by in-service teachers also promotes lifelong learning development (Carlson, 2016).

Feedback on the skills acquired

The survey also aimed to assess the skills acquired by the participants and asked them to rate the digital education skills they acquired through the online training. The rating was based on a 5-point Likert scale where (1) = excellent, (2) = very good, (3) = good, (4) = satisfactory and (5) = poor. Table 2.3 presents the respondents' feedback. Learner support (mean = 2.1053), quality teaching in a digital age (mean = 2.1053) and assessment strategies (mean = 2.1579) were assessed by the respondents as very good, which meant the participants felt they had acquired these digital education skills. The remaining areas of the training (skills needed in a digital age, online teaching and learning, implementing online learning, theories of learning, understanding learners and choosing media) were rated by the participants as between very good and good (mean = 2.2105 and 2.5789). None of the areas of the training received a poor rating from the participants.

Table 2.3. Skills acquired from the training (n = 456)

Acquired skills	Minimum	Maximum	Mean	Std deviation
Skills needed in the digital age	1.00	3.00	2.3684	.58197
Online teaching and learning	1.00	3.00	2.2632	.63665
Implementing online learning	1.00	4.00	2.5789	.93663
Theories of learning	1.00	3.00	2.2105	.76717
Understanding learners	1.00	4.00	2.3684	.80943
Learner support	1.00	3.00	2.1053	.55261
Choosing media	1.00	4.00	2.2632	.90956
Assessment strategies	1.00	3.00	2.1579	.81285
Quality teaching in a digital age	1.00	3.00	2.1053	.71859

The participants generally agreed that they had acquired quality digital education skills from the online training. According to Danso and Osei Kwadwo (2021), skills acquisition can lead to the development of competencies, which in turn contributes to the lifelong learning development of teachers. According to Carlson (2016), lifelong learning is a continuously supportive process that stimulates and empowers individuals.

Conclusion

This chapter reports on a study that assessed the effectiveness of the blended capacity-building programme for the Teacher Education and Enhancement Programme (TEEP) implemented by NTC in Ghana and informed by COL's ITTLA project. The programme was implemented in two phases. Phase 1 focused on four weeks of blended training in teaching in a digital age. The study results indicated that teachers' competency in the selected areas of training such as learner support, quality teaching in a digital age, assessment strategies, skills needed in the digital age, online teaching and learning, implementing online learning, theories of learning, understanding learners and choosing media improved as a result of the training.

Phase 2 of the training informed the second part of the study and showcased the first-ever national online professional development platform, developed through NTC with support from COL, in collaboration with stakeholders in education. Subsequently, UNICEF Ghana and the Ghana Education Service, UNESCO Commission of Ghana, World Reader and the World Bank through GALOP used the NTC and COL virtual platform to train teachers in various areas of national interest. The project has developed teachers' confidence in NTC's professional development programmes. The results of the study suggest that leveraging digital learning platforms to strengthen teachers' lifelong learning abilities is an efficient and effective strategy to develop and enhance their competencies to adapt to the new normal. It is recommended that all teachers in Ghana and other developing countries undergo training to overcome the post-Covid challenges that are likely to adversely affect teaching and learning for some time. Additionally, an assessment of OER and other resources for online learning should be carried out to identify areas in need of improvement before launching a nationwide roll-out.

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CHAPTER

3

Implementing and Evaluating School-Based Teacher Development in Sierra Leone

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Abstract

For the five-year period between 2017 and 2021, Sierra Leone suffered a spate of pandemics, with both Ebola virus disease (EVD) and Covid-19 having devastating effects on the population, including the teaching workforce. Many senior and qualified teachers were lost during these pandemics. The emergent teacher deficits, coupled with a concurrent surge in school enrolment, resulted in the recruitment of many untrained and unqualified teachers. Furthermore, many of the trained and qualified teachers already in the school system were not adequately skilled in certain pedagogical competencies, which pointed to the need for them to acquire the qualifications and competencies required of effective teachers. As many serving teachers were reluctant to leave their places of work for further training, there was an urgent need to make use of the cost-effective opportunities offered by technology-enabled distance education models. Accordingly, under its Teacher Futures Programme (TFP), the Commonwealth of Learning (COL) helped the Freetown Polytechnic (formerly Freetown Teachers College) adopt a technology-enabled school-based teacher development programme that initially targeted teachers in 12 junior secondary schools. This effort aimed at improving teacher quality and instructional practices and helping teacher educators and teachers learn how to use technology and learner-centric methodologies in their instructional practices. This chapter describes the impact of this innovative approach to teacher professional development (TPD) on teachers' classroom practices in Sierra Leone.

Keywords: instructional practices, school-based teacher development (TPD), teacher quality, technology

Introduction

Teacher quality is an important determinant of learning outcomes. The quality of learning hinges primarily on the availability and adequacy of teachers and how they support learners. Following an increase in school enrolment, a major challenge in education has been the shortage of qualified teachers to teach and prepare learners at all levels of the education system in Sierra Leone. Not only are teachers in short supply, but many are isolated, poorly trained and not supported enough to teach effectively too (Education Commission, 2019).

The Government of Sierra Leone (GoSL) has placed a premium on quality education and human capital development to foster national development and maintenance. "If education is to help transform lives, communities, and the national economy, the most important factor in achieving this must be the quality of learning" (Ministry of Basic and Senior Secondary Education and Ministry of Technical and Higher Education, 2022, p. 1). Therefore, the government does not only focus on how many children enter the school system but also places importance on the quality of knowledge, skills and values the children acquire.

Prior to the Covid-19 pandemic, and during the Ebola virus disease (EVD) outbreak, many untrained and unqualified teachers were recruited because the country was experiencing a surge in school enrolment as a result of the government's Free Quality Education (FQE) flagship programme. The demand for teachers increased considerably, but trained and qualified teachers were in short supply. In addition, the country was facing increased teacher attrition. Most new teachers left their jobs within a couple of years of becoming qualified. Only 59% of the teachers were qualified to teach, and, in 2019, pupil-to-teacher ratios were 77:1 at the primary level, 53:1 at the junior secondary level and 68:1 at the senior secondary level of education (UNESCO, 2021).

Untrained and unqualified teachers lack the fundamental skills to teach effectively. Sierra Leone found itself in a situation in which most of its teachers were relatively young and inexperienced, and so it needed to support teacher professional development (TPD) to attract more qualified teachers and keep them in the profession (UNESCO, 2020). It is also important to note that many trained and certified teachers in Sierra Leone do not have adequate content or pedagogical competencies to teach the school curriculum effectively (The World Bank, 2021).

All children need teachers who are well-trained, motivated and all-inclusive in their teaching and can ensure that all children are learning (Junaid & Maka, 2015). The effectiveness of teachers depends heavily on the extent to which their knowledge, skills and competencies are upgraded regularly, especially because the education system is undergoing rapid changes as a result of technology disruption, the adoption of learner-centric methods and differentiated learning approaches. These are all examples of the changing realities and challenges of the classroom and the current knowledge explosion (Allela et al., 2020). Teachers play a pivotal role in the education system, making continuing professional development (CPD) inevitable. Well-planned and well-implemented CPD opportunities are imperative for equipping teachers with 21st-century competencies and qualities to carry out their teaching responsibilities effectively. The Commonwealth of Learning (COL) has been helping Freetown Polytechnic (formerly Freetown Teachers College)

explore new ways in which technology integration can be used to strengthen in-service training at the school level to meet the evolving needs of the education sector.

Working with globally renowned experts in teacher development, COL drew on primary and secondary school improvement programmes, particularly those that have produced open educational resources (OER) for teachers, to develop *A Blueprint and Toolkit for School-Based Teacher Development* (Moon, 2019). It is published as OER and can be used and adapted as the user sees fit, subject to the Creative Commons licensing process. The central purpose of the *Blueprint and Toolkit* is to suggest how school-based teacher development (SBTD) can be implemented effectively. The activities and methods proposed in it have been trialled extensively in different parts of the world.

Freetown Polytechnic adapted COL's *Blueprint and Toolkit* during the implementation of its SBTD programme. SBTD uses self-help models whereby teachers work together at school or outside of school in small groups to provide training to their fellow teachers. Teachers are placed in small groups in which they can share their experiences, discuss common problems and suggest solutions to issues without having to travel far from home (Junaid & Maka, 2015). The SBTD programme is built on the concept of active learning, which allows teachers to work within a community of practice (CoP) made up of their peers and experts from within or outside the schools (UNRWA, 2012). A CoP is a "group of people who share a concern, a set of problems, or a passion about a topic, and who deepen their knowledge and expertise in this area by interacting on an ongoing basis" (Wenger et al., 2002, p. 4).

Rationale for School-Based Teacher Development

Effective teachers are interested in new approaches that will improve their pedagogical skills, strive to be knowledgeable about their subject matter areas and endeavour to acquire and develop skills in teaching methods. They think about and reflect continually on practices related to the SBTD process. An explicit commitment to professional development enhances personal growth efficiency (Moon, 2019). The use of SBTD in ongoing teacher professional development helps teachers to reflect on the needs of the actual school context and culture and to collaborate meaningfully with their colleagues who are working in the same context and facing the same opportunities and challenges (Angus-Cole, 2021). It helps them find options for best practices.

Mentoring plays a pivotal role in SBTD. The mentoring process is founded on the relationship between the mentor and mentee. There is openness and an atmosphere of care and concern between the mentor and mentee, with the mentor providing leadership and direction. The mentor is a role model, caregiver and nurturer for the mentee. They teach, sponsor, encourage, counsel and befriend the mentee. Mentors demonstrate lessons, observe and give feedback and support (Anderson, 1995, as cited in Galanouli, 2010). This mentorship model, which fosters an environment of continual learning and development, sets the stage for teachers to effectively integrate the skills and knowledge they gained from technology-enabled CoPs into their teaching methods.

The mentee, for their part, must actively engage in this process for best results, applying the feedback and insights they gain to evolve their teaching practices and embrace a more learner-centric approach. The teachers are expected to apply the knowledge and skills they acquired through the technology-enabled CoPs in the classroom. The expectation is that the CoPs will promote a major shift in pedagogy from a teacher-centric to a learner-centric approach through collaborative interactions and learning. In other words, the CoP should practise what it preaches by modelling those practices.

Implementation

The implementation of the programme involved several key steps. First, a baseline study and training needs assessment was conducted to determine the e-readiness of the targeted schools and teachers. This step generated relevant data on the current level of e-readiness of teachers, the requisite technology available to schools and teachers, institutional culture and school environment. The data served as a benchmark against which the impact of the programme was subsequently assessed.

Second, awareness-raising and sensitisation meetings were held for various stakeholders of the programme, including principals, school champions, teachers and teacher educators' mentors from Freetown Polytechnic, which was the implementing teacher training institution. These meetings provided a well-defined path and a better understanding of the rationale, goals, objectives, structure, processes, expected outcomes and implementation model used. The primary goal was to mobilise support for and ownership of the programme among the relevant stakeholders of the programme.

Third, support structures were established to co-ordinate the overall implementation of the SBTD programme across all schools. First, an effective and flexible organisational and management structure was established. It comprised a project office headed by a national project co-ordinator, the rector of the polytechnic, the deputy director of the distance education programme, school principals, mentors and school champions, all of whom had a designated role and responsibility in the implementation process. Second, each project school had a CoP, headed by the school champion, to which the participating teachers belonged. Each CoP was virtually connected via WhatsApp to assigned teacher-educator mentors at the Freetown Polytechnic for mentoring and guidance throughout the training. The CoP was supported by a school project implementation committee (PIC), which comprised the school principal, the school champions, heads of department and experienced senior teachers. The PIC managed the day-to-day activities of micro-learning within the school's CoP, monitored attendance and responded to queries from the learning community. School management's involvement in the implementation of the SBTD programme motivated the teachers to participate actively in it.

Fourth, training was vital to the successful implementation of the SBTD programme and to achieving the required support for and ownership of the programme. It was also crucial for enhancing the co-ordination and alignment of the key actors of the programme at the co-ordinating institution and the 12 project schools in the processes of implementing the SBTD programme. Hence, the capacities of teacher-educator mentors, school principals, school champions and teachers were

enhanced with a view to promoting a greater understanding of their roles and responsibilities in the implementation processes. The training focused on ways of managing a mentor-mentee relationship and the use of technology in teaching and learning processes.

Fifth, the main mode of delivery of the SBTD training was micro-learning, which involved breaking up content into lessons that lasted for only 15–30 minutes. These micro-lessons were delivered by the teacher-educator mentors to the teachers at their schools via smartphone devices at a fixed time. Teachers could access one lesson per day but could submit assignments for more than one lesson per day. The use of micro-learning was justified by the growing use of smartphones by the teachers, the availability of computers and Internet connectivity in the workplace and more flexibility to deliver personalised learning. Computers allowed teachers to perform essential tasks such as preparing and typing up lesson plans, assignments and evaluations. They also made it easier to collaborate on offline group activities.

Sixth, unlike the vertical approach of the existing distance education programme at the institution, the SBTD model's horizontal approach provided the teachers with a more effective and efficient framework for learning both together and from one another. This type of framework is the most useful for evolving CoPs. In the process of implementing this approach, two different kinds of horizontal learning networks were established, both of which contributed to the emergence of CoPs in the project schools:

1. Trainer networks across the 12 project schools involving the school champions, who were connected through messaging apps on smartphones for sharing and exchanging ideas, experiences and challenges in implementing the project in their various schools.
2. Teacher networks within each project school. The participating teachers in each project school were encouraged to form learning groups in which members were connected to one another through their mobile phones. They used their phones for receiving pedagogical content knowledge in the form of text messages from mentors and experts from Freetown Polytechnic, and for collaborations and discussions in their learning groups.

Heads of department created a group on a messaging app to share information across departments. Relevant educational documents and audio recordings were shared on this platform by both administrative professionals and heads of department for ease of access by administrators.

In addition to texting and using offline audiovisual materials — including printed guides, presentations and interactive activities designed to foster group discussions — to support collaborative learning among the participating teachers, community building also took place in structured in-person meetings at the school level. Teachers met regularly to review their progress, achievements and challenges and learn from each other's experiences. The focus in each meeting was on promoting collaborative cultures that build capacity for teacher-generated content, continuous improvement and lifelong learning (Bouchamma et al., 2018). The main aim was to expose teachers to small doses of pedagogical content knowledge and problem-solving skills on a continuous basis, using multiple courses from COL's Teacher Futures Programme (TFP), which has made an impact on teacher practice in other countries (Allela et al., 2020).

Methodology

Qualitative descriptive approaches using a purposive sampling technique were employed to select participants who had knowledge and experience of CoPs, messaging apps, mentorship and the impact of SBTD and technology-enabled learning (TEL) on teachers. Focused group discussions and interviews were held to gather data on lessons learned about collaborative learning in CoPs, the use of messaging apps, the effectiveness of the mentors' (teacher educators') practices in providing teacher professional support to the mentees (student teachers), the impact of the SBTD programme and TEL on teachers, and the challenges participants encountered. The participants comprised 20 teacher educators and 100 student teachers. The data were analysed using thematic analysis to provide a purely qualitative account of the data.

Lessons Learned

Collaboration

Collaborative learning within a CoP contributes to quality teacher professional development because new knowledge can be applied and integrated into the learner's world (Allela et al., 2020). Teacher educators (mentors) and teachers (mentees) used collaborative learning from their experience in the CoPs to implement the school curriculum as a strategy to enhance their teaching practice and improve learners' academic performance and learning outcomes. Here are some comments from participants about how the SBTD's collaborative learning approach affected their pedagogical practice:

> The exchange of ideas and views within the CoPs improves our teaching skills.
>
> CoP has improved my teaching methodology a lot now. I can now group my pupils to do group work, while I only facilitate them during the group work.
>
> CoP was very important for me because members gave me more knowledge on how to teach, how to work in teams, and how to help my pupils to work in groups for problem-solving.

Learning by collaborating with other teachers improved the participants' expertise and practice.

Use of messaging

WhatsApp was reported to have more than 2 billion active users globally every month at the time of writing and was ranked among the most popular mobile messaging applications in the world (Dean, 2022). WhatsApp messaging supports various media, such as video, images and audio files (Allela et al., 2020). It was perfect for establishing the CoPs, as the mentors and teachers recognised these groups as community learning platforms. A notable outcome of the various training programmes supported by COL is that Freetown Polytechnic lecturers are now voluntarily using WhatsApp to share information, knowledge and experiences, as well as using it in their instructional practices. One CoP member commented

that they “have a WhatsApp group where the mentor shares information about educational issues relating to our teaching practice.” College administrators are also using it to pass on information and educational documents to their staff members. These activities are an indication that both academic and administrative staff at the polytechnic are becoming interested in improving their use of technology.

Mentors would post “bite-size” tasks and content on WhatsApp, and the teachers would then discuss the topics until they reached a consensus. This proved effective and useful during the teaching and learning processes. Constructivist approaches and critical thinking were emphasised, and the teachers' performance in this respect was satisfactory. Teachers were encouraged to engage in problem-solving activities and to use a learner-centric approach to improve classroom participation and learners’ performance. Among other approaches, teachers allowed students to work individually, in pairs or in groups to solve particular problems. One teacher shared, “I allowed all pupils to participate in classroom work. I mix both fast and slow learners in groups to discuss the classwork together, thus: supporting one another.”

Mutual trust and respect between CoP members and their mentors were evident, and the views and contributions of individual members were respected. According to one member of a CoP, “Each time I give my views on any topic posed, even if it was not correct, I have never been humiliated or ignored.” This person also noted that some colleagues would tell him that while they had different views on a matter, they thought his opinion was “fine,” although they would also request more information or details about his opinion. This environment motivated him to stay in the group.

Most teachers appreciated the opportunity to engage in the training because it motivated them and fulfilled their professional needs. Certificates of Participation were awarded to workshop attendees, but some participants expressed a need for a Certificate of Completion at the conclusion of the programme that would meet the requirements of the Teaching Service Commission (TSC) for licensing teachers.

Feedback from mentors was motivating, and teachers reported that the mentors used motivational language such as “thank you,” “keep it up,” “a very good attempt,” “please review and modify your work” and “excellent idea.” Motivational language encourages learners to work hard and helps to improve their learning outcomes. Teachers then adopted the approach of giving motivational and constructive feedback to their learners, which improved the learners’ performance in assignments and examinations.

The SBTD programme, which used TEL, impacted teachers in various ways:

- Teachers benefited from the mentors’ wealth of professional knowledge, skills and teaching experiences.
- The teachers’ confidence increased.
- Mentors interacted with teachers, demonstrating professionalism and patience with those who needed guidance and support.
- Mentors provided positive feedback to help teachers identify and adopt best practices in teaching and learning.
- Mentors practised active listening and advanced mentoring skills.

Key Challenges

There were concerns about the sustainability of the SBTD programme because of infrastructural constraints in some of the participating schools. In 2017, for example, Internet connectivity in the country was available to only 13% of the population, and in 2019, 86% of the population had a mobile-cellular subscription (COL, 2021). To mitigate this, principals were encouraged to provide Internet facilities on their campuses. A principal in Kono, a remote district about 360 kilometres from the capital, bought a modem for use in his school and arranged for teachers to obtain soft loans to enable them to procure smartphones.

Another barrier was that some teachers assumed the SBTD was examinable and that failing it could impact their status in the schools where they taught. Proper and extensive sensitisation was done to help alleviate their fears. Helping the teachers understand that SBTD was not examinable encouraged their active participation.

Some mentors sent more than one question or topic for discussion at a given time, which contravenes the "bite-size" approach. Consequently, some participants opted out of the programme because they had little time for reflection and subsequently posting answers to the discussion forum.

Some teachers were hindered from actively participating in SBTD activities because of other demands on their time. Such teachers considered the SBTD programme an additional chore. The high cost of smartphones and data created a further barrier to the implementation of the programme. Awareness-raising activities played a pivotal role in attracting teachers to the programme and ensuring retention. With proper orientation and consultation, they became more aware of the relevance of SBTD and became willing to participate.

Impact of the SBTD Programme on Distance Learning

A cross-section of participants, including mentors and teachers, were interviewed to assess the influence of SBTD on the institution's distance teacher education programme. The findings revealed that SBTD is gradually transforming and improving the practices of teachers engaged in distance education programmes at the Freetown Polytechnic. The transformation appears to be slow, but teachers are motivated to enrol in further studies in distance teacher education programmes. The use of skills and competencies gained from the SBTD programme and online learning is ramping up in Sierra Leone colleges and universities, especially among Freetown Polytechnic lecturers and students.

Online learning has been transformed significantly by the application of the skills and competencies the participants gained from SBTD in Sierra Leone — and regular classroom-based pedagogy has also improved. Most teachers are encouraged by the significant role the Internet is playing in terms of access to content, resources, materials and collaboration. SBTD enabled mentors and teachers to absorb information at their own pace, which gave them more time to think and process information. The teachers claimed that SBTD has helped them pay attention to individual learners and their differences.

SBTD is flexible, so it allows learners to have control of their learning and ensures accountability among teachers. The SBTD programme improved teamwork among teachers who, in turn, subsequently allowed students to work on assignments or

projects in small groups using technology. Mentors and teachers are having better interactive experiences thanks to mobile phones, tablets and computers. Overall, the SBTD programme is showing promising signs for improving teaching and learning in distance teacher education in Sierra Leone.

Conclusion

It is generally agreed that teachers should acquire the qualifications and competencies required to carry out their responsibilities effectively. However, more often than not, qualifications are not synonymous with competencies. The 2019 Education Commission report notes that "in many countries [like Sierra Leone] teachers are in short supply, isolated, poorly trained, and not supported to provide effective teaching and learning" (Education Commission, 2019, p. 11). With support and technical assistance from COL, the Freetown Polytechnic succeeded in transforming the classroom practices and pedagogy of both its teacher educators and its teachers in 12 junior secondary schools through the SBTD project. The project provided mentors and teachers with alternative approaches to engage in technology-enabled school-based teacher professional training through virtually conducted learning communities in the 12 junior secondary schools.

Findings from the SBTD project revealed how both the mentors and their mentees were able to overcome some of their initial difficulties and the negative attitudes they held about using technology in their instructional practices. While the baseline study revealed some overt resistance and negative attitudes towards the use of technology among teachers, ultimately the opportunity provided by the innovative intervention and the encouragement and support offered by the institutional leadership and teacher educators had the greatest influence on teachers' classroom practice and pedagogy. The outcomes of the SBTD intervention align with the findings of studies that suggest that teachers' avoidance of technology in their pedagogical practices is perpetuated more by lack of opportunity and support than by mere attitude or ability (Ogange & Carr, 2021). Teachers need to be supported with well-designed mentoring and supervision programmes to improve their teaching quality and practices.

Finally, OER, such as *COL's Blueprint and Toolkit for School-Based Teacher Development*, can provide a detailed foundation that other teacher training institutions, schools and teachers in developing-country contexts can use to develop further programmes and activities while nurturing technology-supported CoPs for improved learning outcomes.

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CHAPTER

4

An Innovative School-Based Teacher Development Programme in The Gambia

Isatou Ndow, Awa Saho Jallow and Alpha Bah

Abstract

Teachers' continuing professional development (CPD) is crucial to successful teaching and learning. It helps teachers keep abreast of changes in the teaching-learning process, including technological advancements, curriculum developments and innovative instructional modes.

In The Gambia, some teachers require school-based or in-service training after their initial teacher training. However, due to the high cost of training, loss of contact hours for learners because of teacher absences during training and lack of prioritisation of in-service training, most teachers typically do not participate in such training. The absence of in-service training programmes for senior secondary teachers affects their pedagogical skills and content knowledge, which negatively affects not only students' learning but also teachers' motivation levels and job satisfaction.

This chapter describes a specific school-based teacher development (SBTD) programme implemented by the Gambia College in collaboration with the Ministry of Basic and Secondary Education (MoBSE), with support from the Commonwealth of Learning (COL). The programme, called Teacher Futures, focuses on leveraging technology and online resources to enhance teachers' capacities. Initiated shortly before the Covid-19 pandemic, it uses a cascading train-the-trainers model, with an emphasis on mentorship and the use of open educational resources (OER) for effective teacher training, with the latter being used to good effect during the school lockdowns in The Gambia. The positive outcomes of the programme — for example, increased awareness of online teaching and learning, the development of communities of practice (CoPs) and enhanced capacity for digital training — are highlighted. The chapter also outlines both challenges encountered and some success stories.

Keywords: continuing professional development (CPD), in-service, information and communication technologies (ICT), pedagogical skills, school-based teacher development (SBTD)

Introduction

Teachers' continuing professional development (CPD) is crucial in teaching and learning. It helps teachers keep abreast of changes in the teaching-learning process, including technological advancements, curriculum developments and innovative instructional modes.

According to the Organization for Economic Co-operation and Development (OECD), effective CPD of teachers aims to secure and maintain a high-quality teacher workforce (OECD, 2019). As professionals, teachers need CPD to enhance their expertise continuously; develop competencies to respond to changing times, social situations or school environments; and solve various and complex problems in education effectively.

The Ministry of Basic and Secondary Education (MoBSE) in The Gambia discusses teacher professional development in detail in all its national policies and guideline documents. These documents include the *Current Education Sector Policy 2016–30* (ESP) and the *Education Sector Strategic Plan 2016–2030* (ESSP). The theme of the policies is accessible, equitable and inclusive quality education for sustainable development**,** with teacher training as one of the cross-cutting themes, applied across MoBSE and the Ministry of Higher Education, Research, Science and Technology (MoHERST). The main objective of the ESP is "to expand education and training opportunities and improve the quality of education and training at all levels" (MoBSE & MoHERST, 2017, p. 88).

The ESP states that "the [education] sector will continue to provide the training of all teachers both at pre-service and in-service levels, including Madrassah teachers, ECD and non-formal facilitators" (MoBSE & MoHERST, 2016, p. 23).

Furthermore, the education sector — for example, MoBSE and MoHERST — will work towards harmonising teacher training programmes to provide continuity and prevent duplication of training. It acknowledges that because MoBSE and MoHERST share responsibility for training, MoBSE has a limited ability to review the quality of programme design and implementation and target specific training needs successfully, including for cluster monitors — that is, education professionals who are responsible for overseeing and monitoring a group or cluster of schools and who typically support school leaders and monitor the implementation of educational programmes and policies within their designated cluster of schools — and school leaders (MoBSE, 2016, p. 65).

The Gambia education sector requires teachers to undergo school-based or in-service training after their initial teacher training. This is because even the best pre-service education for teachers cannot prepare them for the numerous challenges they will face throughout their teaching life. The initial teacher education programmes can provide teachers with only some of the competencies that are required in the classroom. No matter how effective and efficient the pre-service training is, there will inevitably be areas that need to be improved. CPD for teachers fills those gaps by introducing them to, for example, new teaching strategies, the use of ICT in teaching and learning, evaluation techniques and

classroom management skills. Today's teachers are expected to embrace lifelong learning to help them adapt to new situations and respond to the changing demands of society in the classroom (Bautista & Ortega-Ruíz, 2015).

A structured CPD strategy in any country is a cornerstone of quality education. Quality education helps prepare a student for life — not just for testing or a job — and plays a role in developing their overall personality. In the case of children, the aim is to give them a full education, which includes teaching morals and ethics as part of the curriculum to help them live a healthy lifestyle.

Three main pillars are paramount in supporting the achievement of quality education: the availability of qualified teachers, the use of quality learning resources and professional development, and the creation of safe and supportive learning environments (Team Leverage Edu, 2020).

The growing diversity of the student population in schools in The Gambia reflects the dynamic social changes and needs in the region. This diversity also raises expectations about the quality and assessment of education — rapid changes in information and technology mean that parents and society have greater expectations of quality education.

Therefore, the quality of teachers can override all other aspects of quality education. In countries with few or no resources, being a qualified teacher means having a paper qualification from college or university, with no expectation of having to undertake further training at any time. In fact, according to information from previous teacher surveys, some trained and qualified teachers never have the opportunity to attend an in-service or professional development course. Research shows that a teacher's quality is based not only on their academic qualifications but also on their sustained personal engagement — this engagement is what prepares them to cope with current and future challenges. New approaches to improving the capacity of teachers to teach in diverse, unpredictable and challenging situations, such as that presented by the Covid-19 crisis, are essential. These approaches should also facilitate teachers' collaborative learning from their daily practice.

As in most developing countries, The Gambia's education sector is finding it challenging to implement a structured and well-respected teacher CPD programme. The challenges can be attributed to the high cost of training, loss of contact hours for learners because of teachers missing classes and less importance being attached to in-service training. As a result of these challenges, most teachers do not enjoy the privilege of participating in in-service training. The lack of teacher CPD programmes is likely to affect teachers' pedagogical skills and content knowledge, which in turn will negatively impact student learning and teachers' motivation levels and job satisfaction.

Teacher development for sustainable futures should be based on large-scale, high-impact training for effective learning recovery and quality learning experiences in the future.

The Programme

Although teacher CPD is for teachers at all levels (pre-school, lower basic, upper basic and senior secondary) in The Gambia, senior secondary school teachers have fewer professional development opportunities than other teachers. Primary school teachers are more involved in this type of training, although attendance is inconsistent among teachers at this level. The School of Education at The Gambia College, with technical assistance from the Commonwealth of Learning (COL) and active engagement with MoBSE and its In-Service Unit, embarked on a project to implement a school-based teacher professional development programme modelled on COL's Teacher Futures Programme (TFP).

The TFP was designed to help improve teacher quality and learning outcomes through school-based teacher development (SBTD). In this programme, teachers use technology-enabled learning (TEL), micro-learning and new media technologies to access and develop open educational resources (OER) to improve their capacity (Ogange, 2018). The teachers exchange knowledge about pedagogical practice within in-school, national and cross-national communities of practice (CoPs).

COL's *Blueprint and Toolkit for School-Based Teacher Development* (Moon, 2019), available as OER, provides guidance and resources on teacher training strategies. It also presents a detailed framework that can be adapted for online or face-to-face delivery, depending on the context of a particular country, region, district or school.

In The Gambia, the TFP aimed to build the capacity of mentor educators in online learning using a cascading train-the-trainers model. A select group of mentors and staff from MoBSE received training from COL through webinars. COL also provided step-down training using a Moodle-based learning management system (LMS). The mentors trained teachers nationwide using courses available from COL as OER.

The project supported mentors by offering them strategies and tools for supporting teachers through massive open online courses (MOOCs) and providing examples of practical mentorship approaches that led to more effective and successful teachers. The target beneficiaries were teacher mentors and teachers in 20 lower- and upper-secondary schools, also known as upper basic and senior secondary schools.

The project's overall goal was to develop quality education by creating an enabling environment for teacher CPD in Gambian lower- and upper-secondary schools in partnership with MoBSE and in alignment with the recommendations of the ESP. It would also serve as a first step towards harmonising the entire pre-service and in-service training structure in order to pave the way for the implementation of the Comprehensive Pre-Service and In-Service Strategic Framework and Implementation Plan (Mahon, 2019). The INSET Unit, which is responsible for co-ordinating and documenting all in-service-related activities under the Directorate of In-service Training and Lifelong Learning, worked with the Gambia College and the 20 project schools. The project schools identified school champions who would be responsible for scaling up the training to other teachers outside the project on a national scale. Using champions is a strategy that builds and motivates teamwork and improves individual practice and performance.

The programme objectives were to:

- improve teacher quality and student learning outcomes through innovative SBTD models for senior secondary school teachers in The Gambia
- complement and improve the effectiveness of teaching and learning by using e-learning and micro-learning synergies
- support the Gambia College in developing and implementing flexible and managed teacher professional development programmes, including programmes that addressed pedagogical content knowledge and instructional practice
- enhance teacher capacity in using technology for teaching and learning and improve learning outcomes in the participating schools

Stakeholder sensitisation and engagement

To engage and sensitise stakeholders from MoBSE, MoHERST and senior secondary schools, the Gambia College organised two sensitisation workshops. MoBSE was unarguably very keen on teacher professional development. However, it was essential that, during the early days of the project, the Gambia College meet with representatives from MoBSE and MoHERST to explain the project and its aims to them. Nine Principal Education officers and Senior Education officers from MoBSE, a Senior Higher Education officer from MoHERST and principals and vice principals from different schools participated in the first stakeholder sensitisation and mobilisation workshop. A series of workshops were organised for stakeholders, teachers, school administrative staff and Gambia College staff.

Thirty-eight head teachers, deputy head teachers and MoBSE and MoHERST officials participated in the first workshop. The theme of the two-day workshop was Leadership in Teacher Professional Development. Among other things, the aim of the workshop was to:

- review the teacher development and teacher professional development initiatives in The Gambia
- sensitise school managers and selected ministry staff on the implementation of the CPD programme
- share with stakeholders all the activities planned for the programme implementation
- get support and commitment from stakeholders, especially the head teachers of the selected schools, for the implementation of the activities

The fourth objective was the most crucial, as the support of school managers is critical to the success of any CPD programme for teachers (Moon, 2019).

A sensitisation workshop for teacher mentors and teachers followed the Leadership in Teacher Professional Development workshop. This second workshop brought together teacher mentors from the Gambia College and teacher champions from the schools and aimed to:

- sensitise teacher mentors and school champions from the selected schools on the SBTD programme

- take the teacher mentors and teacher champions through all the activities planned for the implementation of the SBTD programme

Versioning the School-Based Teacher Development toolkit

As part of the teacher development programme, there was a need to create resources for collaborative teacher development. A third workshop, held over two days, brought together 47 participants, including teacher educators, school champions and MoBSE and MoHERST staff, to version the SBTD toolkit for use in Gambian schools. The objectives of the workshop were to:

- localise the toolkit by, for example, replacing the names of places and people with local names, to ensure authenticity and relevance of context
- adapt some of the activities and texts to make them relevant to the Gambian curriculum and assessment context of the target audience
- incorporate new elements to localise the resources significantly

A one-day e-facilitation workshop was held for the teacher mentors from the Gambia College to enable them to use technology to support teacher CoPs. The workshop provided the teacher mentors with basic ICT skills, including how to establish a database to set up a message-based platform and the basics of e-learning and e-facilitation.

Community linkage strategy for community of practice nurturing

With the growing diversity of the learner population, rapid changes in society and needs and increasing expectations about the quality and assessment of education, it was essential to include stakeholders such as parents so that they could understand the CPD that teachers go through and subsequently support the school and the teachers. A community linkage workshop on learning for sustainable development brought together 46 civil society members — members of parent teacher associations (PTAs) and senior management committee chairpersons — education officers and teacher educators. The workshop aimed to sensitise civil society and communities about how they can support schools and help them achieve quality learning outcomes.

Capacity development for the teacher educators

To design the continuous teacher education programme, teacher educators from the Gambia College undertook training on developing and sharing programme resources by using OER to finalise a version of the *Blueprint and Toolkit for School-Based Teacher Development* for The Gambia and a teacher's handbook for in-country use. The staff used the Moodle-based LMS for discussions. The teacher educators used templates to develop audio- and video-based micro-learning resources for in-school learning and CoP engagement. They also contributed to an implementation guide for the SBTD programme.

Thirty-one stakeholders participated in the workshop. They included teacher mentors from the Gambia College, school champions from the project schools and a representative from MoBSE.

The following resources were adapted or developed for the programme:

- *A Blueprint and Toolkit for School-Based Teacher Development: The Gambia*
- *SBTD Implementation Guide*
- *SBTD Implementation Plan*

Project launch and dissemination

The Gambia College and COL organised a seminar to mark the launch of the project in the participating schools. Due to the Covid-19 pandemic, the launch was held virtually via Zoom. The theme of the launch seminar was Improving Secondary School-Level Teacher Development: School-Based Teacher Development. Six panellists, drawn from MoBSE, MoHERST, the Gambia College, Open University, UK, University of Worcester, UK, and Usmanu Danfodiyo University, Nigeria, participated.

The attendees included teachers, teacher champions, MoBSE and MoHERST staff, and teacher educators. Launching the programme via Zoom with speakers from different countries was an eye-opening and new experience for the teachers. They could participate in the webinar at home, at school or in their offices.

Teacher mentorship through webinars

As a result of some challenges that arose during the programme's implementation, the Gambia College, with support from COL, organised a webinar lecture series as an additional mentorship tool for the teachers. Four webinars were conducted with support from COL. Their themes were all derived from the *SBTD Blueprint and Toolkit*:

- Webinar 1: School-Based Teacher Development
- Webinar 2: Improving Teacher Classroom Practice and Student Learning
- Webinar 3: Building Learning Communities in SBTD Context
- Webinar 4: Partnerships, Collaboration and Community Engagement in Teaching and Learning

The webinars turned out to be exciting and effective for the participants. The teachers were able to log into them from their schools and homes. When we spoke to the participants after the webinars, most said they had been able to pool their resources and log in using only one laptop. Teachers were able to save data, time and effort, not least because they did not have to travel to Gambia College to participate. Some responses from the participants are as follows:

> My main challenge was accessing the platform due to a poor Internet connection. When I log in, it takes a lot of time to do so, and if I do, I will sometimes log out due to weak Internet. However, I was able to connect to all the webinars except one. I found the ones I connected to very interesting, and this shows that one can learn and study anywhere and anytime if the Internet connection is strong. One day, most of our training will be online, and the poor Internet [will be] a thing of the past. (Respondent 1)

> During the last webinar (4), I was at home preparing dinner for my family when I remembered that there was a webinar. I used my mobile phone and joined the webinar. I was delighted that I could use the technology from my mobile phone, although from time to time, I would be disconnected and would reconnect. The idea of participating in a webinar is excellent. If we can have training on webinars with a good Internet connection, this will solve some of our challenges. (Respondent 2)
>
> I connected only once, but I wish I had connected to the others. It was my first experience, but I loved it. (Respondent 3)

Outcomes of the programme

Implementing the teacher CPD programme took longer than expected. One of the primary reasons for the delay was the Covid-19 outbreak. Immediately after the sensitisation programmes and before the project's roll-out, The Gambia, like other countries, underwent a complete lockdown. The schools were closed for seven months, which affected the project's in-school implementation. However, at the time of the roll-out, the outputs from the project included three OER for SBTD and several downloadable audio and video lectures integrated into COL's Teacher Futures Moodle platform. The complete set of resources that were developed — including stakeholder development — is shown in Table 4.1.

Table 4.1. Resources developed for the teacher CPD programme

Number of resources developed	Description of the resource
40	School leaders and ministry officials were sensitised, and each expressed their willingness to take part in and support the project.
26	School heads identified school champions who would work with the Gambia College on the implementation of the activities.
20	Teacher mentors were identified and sensitised on their role as champions.
37	Teacher mentors and teachers were sensitised on all the activities planned for the programme implementation.
30	Participants were trained during a facilitation workshop on basic ICT skills, the establishment of a database and e-learning and e-facilitation.
32	Participants were trained on how to develop and share programme resources — including audio- and video-based resources — at a learning design workshop.
1	*Blueprint and Toolkit for School-Based Teacher Development: The Gambia*
1	*Implementation Guide*
1	*Implementation Plan* — revised implementation plan
1	School-Based Teacher Development (SBTD) programme launched at a seminar online through Zoom.
4	Webinars were conducted over four weeks. Teachers, teacher educators, college administration and ministry officials participated in the webinars.

The Gambia College was able to use the knowledge and skills gained from this project to run online classes and virtual classes during the Covid-19 lockdown, while the schools were closed and the teacher CPD activities were on hold.

Challenges Encountered

A significant challenge in this project was the outbreak of Covid-19. Schools were closed, teachers were at home and it was very difficult to mobilise the teachers. Due to the abrupt closures of schools, the Gambia College needed more time to mobilise the teachers through the teacher champions. As a result, much time was lost.

A particular challenge faced by staff in both schools and the Gambia College was reliable Internet access. In addition to being costly in The Gambia compared to other countries, the Internet connection is unstable because of power cuts and damage to cables. Most teachers found it difficult to connect to online activities because of poor Internet connections.

Some teachers and lecturers did not have an adequate level of technology knowledge and skills, which also created some challenges. About 30% of teachers and lecturers did not access the SBTD programme, because they needed help accessing it. For half of the staff who participated, this was the first time they had used online platforms and joined webinars.

Lessons Learned and Conclusion

Both the Gambia College and the schoolteachers realised that teachers need increased knowledge of and skills in ICT. In addition, teachers reported that when and if necessary, teacher professional development training can be done from a distance. According to Jung (2001), despite the limitations of in-service training, it should provide teachers with access to the required training and improve computer literacy. Getting the teachers thoroughly prepared was also a challenge.

Many lessons were learned from the implementation of this project. Many of the teachers who participated had positive perceptions about their knowledge of pedagogy after attending the professional development training. For example, one participant from one of the schools (Respondent 4) said in a group message:

> Having participated in the programme, I realise that I took many things for granted, especially with my teaching methodology. I have spent most of my time preparing my students to pass exams; I now realise that I need more student-centred activities than the chalk and the board.

Teachers were exposed to online teaching and learning activities, which created awareness of the importance of online training. In the context of both pre-service and in-service training, this means that participants learn and practise knowledge and skills at the same time. Furthermore, online training is more affordable than traditional training options for both the in-service and pre-service teachers.

Some studies indicate that the most significant benefit of e-learning opportunities is that teachers can focus their energies on pedagogical functionality. When teachers can automate marking, issue tests digitally and track student progress

with reporting tools and analytics, the education landscape becomes more accommodating and learner-centred. Another important lesson learned from this project is that teachers must attach importance and relevance to technology and e-learning. The number of teachers who did not want to use the Internet-based resources provided for them was a clear reflection of ambivalence towards technology and e-learning. Teachers did, however, express an interest in more CPD programmes in other areas that were relevant to their professional needs.

The SBTD project allowed the Gambia College to support other schools and benefit through capacity building for its staff. It has been able to adopt innovative forms of training from the framework the programme provided, including the different training sessions and the learning design and sensitisation workshops. Management and staff of the Gambia College have greatly benefited from being exposed to a blend of different training modes, ranging from in-person training to technology-supported training.

The adoption of innovative digital technologies, such as the webinars organised during the pandemic, exemplifies a significant lesson learned from this period. The Gambia College management, staff and teachers from the 20 schools were all able to log into the webinars and participate effectively. This experience underlines the critical role of digital platforms in ensuring continuity and continuation of CPD and highlights the potential of such technologies to maintain educational momentum, even in challenging times such as a global health crisis.

Both staff from the Gambia College and teachers from the participating schools were able to build a technology-supported CoP for ongoing engagement beyond the training sessions and webinars. Before the project, most of the instructors at the Gambia College worked separately from each other and from the schoolteachers in the belief that because the Gambia College is an institution of higher learning, instructors have to work separately and individually. The project encouraged the instructors to work together not only with colleagues but also with teachers in the nearby schools. This change in work practices offers hope that the CoP will grow in strength to support more SBTD programmes. The use of a cascading train-the-trainers model was effective in highlighting the value of mentorship and the use of OER for teacher training during the school lockdowns in The Gambia. The increased awareness of online teaching and learning, the development of CoPs and enhanced capacity for digital training during the pandemic bode well for the implementation of future SBTD programmes.

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CHAPTER

5

Harnessing Partnerships and Open Educational Resources to Cultivate Teacher Communities of Practice for Inclusive Education in Kenya

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Abstract

This chapter describes and analyses a project initiated by the Commonwealth of Learning (COL), working in partnership with the Open University, UK (OU UK) and Kenya Institute of Special Education (KISE). It examines an approach to teacher professional development (TPD) that draws on open educational resources (OER) and seeks to create communities of practice (CoPs) within education institutions that will support improvements in teaching in a sustainable way. It draws on teacher education experts' knowledge and experience of working with OER in the context of teacher education to develop two massive open online courses (MOOCs) specifically designed to support teachers and teacher educators in developing their pedagogy. The courses ran twice, on a different platform each time. They were co-designed in context and adopted a novel approach to course facilitation, which contributed to their success.

We explain the Kenyan context and the need for professional development in inclusive education, and situate this work in the context of ideas about teacher learning, CoPs and the challenges and opportunities presented by OER. We explain the rationale for the course design and the co-design process and present some of the evidence that shows the course encouraged changes in practice. We conclude by assessing the extent to which courses like this can support the formation of CoPs and make some recommendations to help others who are seeking to establish a CoP in their professional setting.

Keywords: communities of practice (CoPs), inclusive education, open educational resources (OER), teacher learning

Introduction

This chapter describes a collaboration between the Commonwealth of Learning (COL), Kenya Institute of Special Education (KISE) and the Open University, UK (OU UK), that was designed to address the professional development needs of teachers in the context of inclusive education. The collaboration resulted in the development of two massive open online courses (MOOCs). Each MOOC ran twice, on a different platform each time. The MOOCs drew heavily on the Kenyan context in which KISE operates but are relevant to teachers throughout the world. They were designed to challenge the notion that the concept of inclusive education is relevant only to people teaching children with disabilities or special needs and to show that all teachers should be concerned about inclusion. This latter point is particularly relevant in the context of Kenya, where children with multiple needs are increasingly being integrated into mainstream schools.

The Kenyan Context

In 2017, the Government of Kenya rolled out a new competency-based curriculum (CBC) through which it is seeking to make a significant shift away from high-stakes assessments that rely on recall — and which have led to a culture of rote learning in school — to a more inclusive environment in which lessons are engaging, all students are valued and credit is given for a greater range of skills. The government is also prioritising inclusivity with significant investment in specialised facilities, alongside an expectation that where special schools are not available, all children — including those with disabilities — should be able to attend mainstream schools.

These developments are happening in a context in which it is widely accepted that teacher training courses — not only in Kenya, but also in many developing countries — are highly theoretical and do not involve enough time in school (Global Education Monitoring Report Team, 2014; Verspoor, 2008). The content and process of such courses do not reflect the culture and conditions in the contexts in which teachers work (Heneveld et al., 2006; Manteau, 2012; Ministry of Education [MoE] & Ministry of Higher Education, Science, Technology [MoHEST], 2012; Polly & Hannafin, 2011;Verspoor, 2008). Institutional structures and ways of working still position teachers as "passive enactors of pedagogic strategies" (Murphy & Wolfenden, 2013, p. 264), resulting in a misalignment between policy and practice. Hierarchical relationships between teachers and teacher educators limit the opportunities for teacher educators to learn about new approaches or question their own practices (Akyeampong, 2017).

Research in Kenya suggests that one of the reasons for the mismatch between teacher education programmes and the reality of the classroom is that pre-service and in-service teacher education programmes treat knowledge about teaching as objective, fixed and unproblematic (Stutchbury, 2019). Inclusive pedagogies are not modelled, and the underlying assumption is that learning to teach involves learning a set of rules that can be applied in the classroom. Accepted wisdom among teacher educators and teacher education researchers is that knowledge about teaching is best understood as subjective and socially constructed in a particular context (Kelly, 2006; Putnam & Borko, 2000). This means that effective teacher learning requires discussion, practice and reflection on practice, rather

than sitting in large lecture theatres listening to theories about education. Sets of rules rarely work in every context, and in addition to knowledge of educational theories, teachers need the ability to analyse teaching, analyse their context and determine what will work for their students in their school. The MOOCs were therefore designed to support participants in analysing their practice and discussing the possibilities for their specific context.

Issues in teacher education are compounded by the fact that there is no tradition of collaboration among teacher educators (Stutchbury, 2019). In Kenya, the new CBC requires teachers to teach in different ways. Teacher educators have no experience of these methodologies themselves and need to work together to make meaning of the new policies in the Kenyan context so that they can support teachers. The MOOCs were designed to help them do this.

The introduction of the new curriculum in Kenya was accompanied by training for teachers, but much of it takes place offsite in the school holidays. Research on effective professional development suggests that it should be relevant to the context and supportive, provide access to resources, focus on practice, provide opportunities for discussion and collaboration, and take place over time (Wolfenden, 2022). This implies that ongoing school-based teacher professional development (SBTPD) that builds CoPs in schools is more likely to deliver the significant pedagogical changes required.

The COL/KISE/OU UK collaboration therefore set out to address a significant need: the provision of high-quality teacher education that would address government priorities. A team from the OU UK worked first with lecturers at a face-to-face workshop at KISE and then, through a series of online workshops, with international participants from COL partner institutions in Jamaica and Uganda to develop a practice-focused course that presents teaching as a set of possibilities rather than fixed rules and encourages participants to reflect together on their teaching practices in context. The aim was to create the type of circumstances or conditions in which CoPs would be developed.

Communities of Practice

It has been suggested that CoPs "are a rich, useful and potentially fruitful concept but one which requires . . . specification and illustration" (Hughes et al., 2007, p. 14). The concept of CoPs was developed in the context of ideas about learning and the belief that learning is a social process in which people come together to make meaning. Therefore, it is a highly relevant way to support teacher learning. The three key characteristics of a CoP are:

- Joint enterprise: something everyone cares about and wants to achieve.
- Shared repertoire: the group share methods, tools and language. There is a cultural context for the work.
- Mutual engagement: people interact to do the work, but also to clarify the work and to define and change how it is done (see Wenger, 1998).

A challenge — but perhaps an opportunity as well — is that CoPs rely on flat institutional structures in which different kinds of knowledge and experience are valued equally, which contributes to building collective understandings of complex, social situations. In an environment in which the academic knowledge

held by those in universities is held in higher esteem than the practical knowledge held by teachers, developing an effective CoP requires deliberate interventions that challenge traditional orthodoxy. We therefore drew on the OER literature (Buckler et al., 2021; Hodgkinson-Williams et al., 2017; Murphy & Wolfenden, 2013; UNESCO, 2000) to better understand how to disrupt current understandings of professional development.

Open Educational Resources to Support Professional Development

OER were defined by UNESCO in 2000 as "learning, teaching and research materials in any format and medium that reside in the public domain or are under copyright that have been released under an open license, that permit no-cost access, re-purpose, adaptation and redistribution by others" (UNESCO, 2000, para. 1). OER respect the intellectual property rights of the authors (by requiring attribution), while making resources, and therefore knowledge, freely available. Despite the promise of OER, it has taken many years for the opportunities they offer to be realised. The reasons for this are well documented (see, for example, Hodgkinson-Williams et al., 2017) and include a range of constraints linked to institutional structures, individual skills and cultural attitudes. The sheer volume of materials available requires skills in critical review, and the tight control over the resources used in education exercised by some institutions, and even by governments, militates against the use of OER.

Our own experience in the field of teacher education is consistent with this finding (Buckler et al., 2021; Wolfenden et al., 2010; Wolfenden, Auckloo et al., 2017). The Teacher Education in Sub-Saharan Africa (TESSA) OER (see https://www.tessafrica.net/), designed to support primary school teachers in implementing the policy goals of governments across Sub-Saharan Africa, are very popular among many teachers and teacher educators and have supported positive change (Murphy & Wolfenden, 2013; Stutchbury et al., 2018), but embedding them in pre-service and in-service courses has been problematic in places (Buckler et al., 2021). Experience over many years shows that both the TESSA and other OER need to be mediated for teachers and teacher educators, and MOOCs have proved to be a successful way of doing this (Stutchbury et al., 2023; Wolfenden, Cross et al., 2017).

The TESSA MOOC was specifically designed to challenge teacher educators by presenting teaching in terms of possibilities — rather than a set of rules — and promoting reflection on and discussion about practice. It was a four-week course and ran three times between 2017 and 2019. Over 9,000 participants took part and there is evidence that it helped both teachers and teacher educators change their practices (Stutchbury et al., 2023).

Lessons learned from the three offerings of the TESSA MOOC were used to set up a co-design process to develop and present two MOOCs to support inclusive teaching — called Inclusive Teaching and Learning and Creating an Inclusive School — and a programme for SBTPD in Kenya. We realised that despite there being a plethora of OER to support inclusive education available on the Internet, teachers need structured support. We needed to create a coherent narrative that provides a route through the key ideas and practical resources that they can use in

their work. Thus, despite the promise of free educational resources that OER bring, uptake has been slow. In our work in teacher education, we have used MOOCs as a mechanism for directing teachers and teacher educators towards relevant OER and have evidence that these MOOCs led to pedagogic change.

As with the uptake of OER, developing collaborative networks is known to be challenging in teacher education (Anamuah-Mensah et al., 2013; Stutchbury, 2019). This chapter examines the potential of two MOOCs to support the formation of CoPs to strengthen teacher education.

The Co-design Process

Co-design in the context of developing educational resources such as OER and MOOCs is problematic (Stutchbury & Woodward, 2021). We have learned that co-design does not necessarily mean co-authoring, but instead is about building a partnership in which the expertise of each partner is represented and respected equally. Colleagues at the OU UK wrote and produced effective inclusive education MOOCs, but they could not have done this without the knowledge and expertise of colleagues from KISE and other global partners. The co-design process was as follows:

1. A workshop on inclusive education was held at KISE. It was organised by COL, facilitated by the OU UK and attended by 40 lecturers from KISE. The output was a handbook titled *School-Based Teacher Professional Development (SBTPD) Training for Use in Schools* (versioned from a previous toolkit), a common understanding of the issues in inclusive education, a plan for the potential MOOCs and a set of tried-and-tested learning activities to support inclusive education.
2. Two online workshops with colleagues from Uganda and Jamaica were held in order to test the emerging ideas for different contexts.
3. The OU UK team produced a draft script for the MOOC.
4. KISE colleagues provided audiovisual resources (recorded on Zoom during the pandemic).
5. COL and KISE colleagues provided critical feedback on the content, structure, assessment and selection of activities.
6. Changes were made in response to the feedback and the MOOCs were produced and made available on the OpenLearn Create platform.

Each MOOC ran for four weeks. Participants were introduced to the principles and practicalities of inclusive learning and teaching, with an emphasis on analysing practice, so that they were supported in constructing knowledge about teaching relevant to their own context. They were encouraged to study on their own or with a group of colleagues and to practise new approaches in their classroom or in their role as an educator in a structured and supported way. Each MOOC draws on the wave model (Chakera & Tao, 2019) for inclusive education; this model positions inclusion as the responsibility of all teachers, not just those who teach students with a special need.

The MOOCs targeted the educators — teachers, head teachers, teacher educators and education officers — whose role involves supporting teachers, student teachers

or school volunteers. They were learner-centred and inclusive in their approach (Schweisfurth, 2013). Therefore, the courses:

- build on existing knowledge and challenge participants to learn more
- provide activities aimed at motivating the participants
- take into account the different starting points of each participant
- emphasise the importance of dialogue to support thinking and learning
- draw on examples relevant to everyday life and to each participant's role as an educator
- promote the learning of a range of skills, including critical thinking, problem-solving and creativity
- make space for personal reflection and responses
- encourage participants to work together and discuss the activities

It was anticipated that as well as modelling learner-centred approaches, the MOOCs would expose participants to new ways of teaching and give educators the confidence to experiment with new approaches. The ideas and tools that are provided in the MOOCs will enable participants to become more expert in the field of inclusive teaching and learning. Also — and crucially — the collaboration aspect of the MOOCs would instil a habit of collaboration among the participants and help them sustain a CoP beyond the end of the programme. One particularly important feature of the MOOCs was the online facilitation. A group of seven facilitators from Kenya and Jamaica were trained by the OU UK. They met as a team before the course started, met weekly during the courses and met at the end to reflect on learning. They worked closely together, maintaining an active presence on the course forums, inspiring participants to join in and contribute. This group formed their own CoP, sharing each week the things that they noticed and using their observations to plan how to intervene most effectively the following week.

Replication and Learning from the MOOCs

Learning is a social process. It was hoped that the participants' learning would be enhanced and enriched by their presenting their ideas to others and listening to others in return. Over 1,000 participants registered for the two MOOCs in total. The courses were facilitated by the team of seven facilitators from Jamaica and Kenya, guided by the lead educator from the OU UK. Completion rates for the two courses were 16% and 30%, respectively (the average completion rate for MOOCs is 15%). Feedback from the courses was very positive. One participant commented:

> I have never been keen on Inclusive Education. This is despite having been a high school teacher for over 22 years and a University Lecturer for over 10 years. I know I excluded my students for lack of knowledge, and I am sorry about that, but I will be an Inclusive Teacher going forward. I will sensitise my student teachers on this concept.

Participants were also asked how the changes they had made in their practice had affected their students:

> Learners now pay more attention than before; their level of interaction has also improved.
>
> They are more free with me.
>
> Great change, students become lively and active in class.

The main challenges faced by participants were finding the time to study and overcoming technical issues in engaging with the learning platform, which demonstrates the importance of collaboration. We found that when learners encountered technical difficulties, they got support from peers rather than from course leaders. Even though the courses were completely online, our hope was that groups of educators working in the same institution would work together to support each other, discussing the activities and motivating each other to keep going.

Our analysis suggests that the successes were a result of the learning design and the support provided for participants through facilitation. The process described above generated content and activities that were directly relevant to participants' working lives and helped them navigate the wealth of resources available on the Internet.

Support for learners is crucial, especially in online learning. The MOOCs had discussion forums and activities that invited participants to contribute their ideas. Our aspiration was that every time participants logged on, they would find more posts, replies to their contributions and more opportunities to engage. Achieving this involved the team of seven facilitators, who had all completed the course themselves. They logged on every day, replied to contributions and started new conversations. Their responses were always positive and encouraging and often finished with an open question to promote further discussion. In a weekly meeting, the facilitators and lead educator met on Zoom to discuss the contributions, and a volunteer posted a summary of the main points that had been made that week so that all participants could read them. This approach proved to be powerful and led to the creation of user-generated content. For example, one of the facilitators noticed references in a few forum posts to the issue of language, and it became a topic of discussion during a facilitators' meeting. They then formulated a question about the extent to which language is an inclusivity issue and how it can be tackled. This precipitated a rich thread of contributions which one of the facilitators summarised for participants.

All the facilitators enjoyed the experience and developed new skills, which they have applied in their everyday roles. In the early days of the project, one facilitator was particularly reticent and contributed very little. In week 4, she volunteered to provide the weekly summary; in the final session, she spoke candidly about the profound effect that this opportunity had had on her confidence. She and a colleague went on to plan and run in-service training in their school in Jamaica, drawing on the course resources. With further support from COL, two facilitators from Kenya, who had been part of the evolving CoP, worked with KISE on the second presentation of the Inclusive Teaching and Learning course. They trained a set of facilitators and supported them through the MOOC, which attracted over 2,000 participants globally.

Discussion

It was hoped that this project would provide new understandings of inclusive education for participants and build the capacity of KISE to support teachers in practising inclusivity when delivering the new CBC. We tried to do this by supporting the development of CoPs, as described earlier.

In the following sections, we examine the project with respect to the three key characteristics of a CoP: joint enterprise, shared repertoire and mutual engagement (Wenger, 1998).

Joint Enterprise

A joint enterprise is something that everyone involved cares about and wants to achieve. In the work described above, the joint enterprise is a commitment to inclusive education and improving the life chances of all children through education. This commitment is at the heart of both the mission of all the partners (i.e., COL, KISE and the OU UK) and the initiative itself. For the course participants, the joint enterprise was understanding the "how" and developing practical strategies to achieve the shared aims. It was important that the work had a strong theoretical underpinning that was consistent with policy aspirations. The wave model for inclusive education proved to be very helpful in this respect. It provided a clear structure for the work, with the first MOOC focusing on wave 1 (inclusive education is the responsibility of all teachers) and the second focusing on wave 2 (much can be achieved by professionals from different disciplines working together). Wave 3 focuses on specialist interventions, so we hope that eventually a third course will be developed. Because of the simplicity and compelling nature of the arguments behind the wave model, the joint enterprise was clear and easy to articulate. Feedback from those who took part and from the course leaders strongly suggests that we made some progress towards achieving this joint enterprise.

The facilitators also had a profound sense of joint enterprise. They were experts in their field but had little experience of online learning and did the MOOCs alongside the participants. Supported by the lead facilitator from the OU UK, they developed into a strong team, able to openly discuss challenges with colleagues they had never met in person.

Shared Repertoire

A shared repertoire involves the group's sharing methods, tools and language. It requires a cultural context for the work being undertaken. The practice-focused nature of the MOOCs provided participants with practical ideas, tools and resources that they could use in their work long after the MOOCs had ended. Since these had been developed and tested in context, they were relevant to the participants and their classrooms. The shared repertoire was made explicit and available. The fact that all course materials are available as OER is important in this respect as they can be copied, shared and adapted further.

Mutual Engagement

In a CoP, people interact not only to do the work but also to clarify the work, define it and change how it is done. The mutual engagement aspect of the project is more difficult to measure. The MOOCs certainly created the conditions for mutual engagement, and many of the activities specifically suggested that participants post on the forums, comment on other posts and discuss the ideas that were presented with colleagues in their workplace. During the MOOCs there was a sense of being part of a bigger whole, of contributing and being valued. Our vision was that groups of professionals in the same institution would work together on the courses and that this would help them make meaning of government policy for their specific context. More research is needed to establish whether this was achieved. However, we know from similar situations that leadership is crucial to nurturing an enabling environment in which people — teachers, in our particular context — feel confident enough to take risks, share challenges as well as successes and feel valued as equals (Stutchbury et al., 2022). A key aspect of effective leadership is a willingness to learn — and to be seen to be learning. However, the systems in parts of Africa that position teachers lower in the leadership hierarchy can be problematic and, in the face of low achievement, can mitigate against the successful establishment of CoPs. Our project provided the opportunity for the right kind of leader to build a CoP in their school to ensure a truly inclusive environment for both their students and those who work there. It should also be noted, perhaps, that the facilitators were not experts and were not involved in writing the MOOCs. They did the courses alongside the participants, although the lead facilitator gave them a preview.

In summary, we have evidence that these courses have provided the conditions for CoPs to thrive, given the right leadership. The right leadership includes those in control of educational resources accepting that OER have much to offer, and an emphasis being placed on critical engagement in the form of reviewing and adapting existing material rather than rewriting material or creating new material from scratch.

The facilitators' experience demonstrates how empowering and supporting motivated individuals enables those individuals to grow professionally. This experience challenges traditional hierarchies in which facilitators are expected to be technical experts who have formally acquired their knowledge in online facilitation, and who were involved in the course development. The facilitators in this case studied the course alongside the participants and were supported through weekly meetings in facilitation. They were general experts, drawing on their experience and, crucially, very willing and keen to learn about facilitation.

Conclusion

The COL/KISE/OU UK partnership was formed with the intention of providing contextualised, relevant OER for teachers and teacher educators to help them tackle the challenge of inclusive education across a wide range of contexts. The provision of two short, practice-focused courses has been successful for participants, as evidenced by thoughtful forum contributions and accounts of how participants have changed their practices. The partnership has also been

successful for the facilitators, as they have learned new skills which they have applied in other aspects of their work.

We hope that readers who aspire to form a CoP in their workplace will gain practical knowledge from this chapter about how to get started. They could start by running relevant training (joint enterprise) and gradually build on that training. If inclusive education is the challenge, for example, they could run the two inclusive education MOOCs discussed in this chapter (providing a shared repertoire), facilitated by a team of volunteers who are not necessarily senior leaders. By joining in as participants, the senior leaders would be modelling learning behaviours which in turn would support mutual engagement (OpenLearn Create, n.d.).

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CHAPTER

6

Integrating Environmental Education into a Distance Learning Teacher Training Programme: Lessons from Green Teacher Nigeria

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Abstract

In 2019, the Green Teacher Nigeria (GTN) programme, supported by the Commonwealth of Learning (COL), was introduced at the National Teachers' Institute (NTI), Kaduna, Nigeria. The programme had a twofold objective: to use the socialising potential of education to counter reckless human attitudes towards and actions on the environment and to improve the standard and approach of the Institute's distance learning training programme through continuing professional development (CPD) of teacher educators and teachers. The programme was initially offered as a stand-alone course as part of the Advanced Diploma in Environmental Education (ADEE) and was later integrated into some of the Institute's mainstream academic programmes — including the Postgraduate Diploma in Education (PGDE), Nigeria Certificate in Education (NCE), Bachelor of Education degree programme and advanced diploma (AD) courses — so that more teachers across the country could access it. To date, over 20,000 teachers have been trained through the integrated teacher training programme, which was delivered online as part of the Institute's distance learning programme. Many of those teachers are already using the course materials and their new skills in their teaching practices. This chapter documents the experiences and perceptions of both the teacher educators and the teachers in terms of this training programme's impact, as well as the challenges encountered and the lessons learned from its implementation. The curriculum development process and content are briefly discussed, with a focus on the methodological and technological issues that arose from delivering the course online in an educational setting that is primarily paper-based and highly dependent on an in-person, face-to-face delivery mode.

Keywords: education for sustainable development, environmental education, Green Teacher, teacher training

Introduction

Drawing on the traditions and principles of action research, the integrated Green Teacher Nigeria (GTN) training programme was conceived as both a teacher professional development (TPD) course and an attempt to change:

- the existing environmental situation through education, and
- teacher educators' and teachers' attitudes towards technology and new teaching styles.

Thus, the course had two objectives:

- to use the socialising potential of education to counter reckless and damaging human attitudes towards and actions on the environment
- to improve the standard and approach of the Institute's distance learning training by giving both teacher educators and teachers continuing professional development (CPD) opportunities

The overall aim was to educate student teachers and teacher educators about the close relationship between human behaviours and actions and environmental pollution and degradation. It was hoped that the programme would change student teachers' and teacher educators' perceptions of and relationships with the environment and, subsequently, change their students' perceptions and relationships, which in turn would improve the current state of the environment.

The training was expected to promote what is referred to in action research as "greater rationality and coherence of action through critical reflection" (Lewis, 1987, p. 98). The programme is practically constructed in that it was designed to reflect the actual context (environment) in which the training takes place and in which real problems (pollution and environmental degradation) need to be addressed. However, the Institute remained sensitive to the possibility that the student teachers who participated in the programme might focus on achieving their personal goal of receiving certification and not on the programme's goal of changing attitudes and behaviours towards the environment.

The programme was delivered online in order to help both teacher educators and teachers change their attitudes towards technology and adopt new teaching styles. This would help them make the transition from face-to-face instructional practices and a teacher-centred ethic, which are the norm in most schools, to online teaching and learning practices.

As evidenced by the 1977 Tbilisi intergovernmental conference (UNESCO, 1977), world leaders have been concerned about the environment for decades. A growing body of literature documents the effects on the environment of the rapid increase in human population growth and other human actions, all of which threaten the future of humanity (Banarjee et al., 2020; Khan et al., 2020a, 2020b; Meena et al., 2020; Raj et al., 2020). As Shailesh et al. (2021) noted, the industrial revolutions that have taken place over the centuries have led to increased pollution and greenhouse gas (GHG) emissions, all of which destroy the ozone layer and intensify the impact of climate change and ecological disruptions. In turn, these affect all facets of human life, including health, education, livelihoods and transportation. Most countries now generally accept that they must make deliberate efforts to improve the environment.

Grassroots recognition of the threat posed to the environment by human recklessness and attempts to counter this threat have been growing over the past decades. However, the focus has shifted from cataloguing the impact of human actions on climate change and ecological disruptions (Gemeda & Sima, 2015) to taking deliberate action to mitigate the damage. One example of this action was the introduction of environmental education (EE) to schools' curricula. The underlying rationale is that the education for sustainable development (ESD) approach embedded within EE is a powerful tool for instilling knowledge, skills and a caring attitude towards the environment (Fua et al., 2018). Hence, the implementation of EE can result in a community that is capable of solving environmental problems and serving as a model of responsible behaviour for environmental sustainability (Okasha et al., 2016).

Considerable research from a variety of countries has documented the integration of EE into primary and secondary schools, whether through teachers as agents or through the official curriculum (see, for example, Kelani, 2015; Kiarie, 2016; Kimaro, 2018; Mwanza, 2016; Mwendwa, 2017; Shailesh, 2017; Shailesh et al., 2021; Zhao et al., 2015). The climate change and sustainable development policies that many countries have developed (see, for example, Drakenberg et al., 2016) have supported these educational efforts and contributed to the spread of eco-friendly school initiatives aimed at developing good educational practice in sustainable development — that is, teaching students about the need for and value of sustainable development. Iwan and Rao (2017) and Tucker and Izadpanahi (2017), in particular, describe some of the best-known eco-friendly projects in schools, including Green Schools Projects, Green Students Club, Air Quality Metres, Water Bottle Campaign and Energy Conservation Projects, among others. The gradual integration of EE into schools' curricula has resulted in a renewed effort to create the awareness that is required to change the public's attitude towards the environment and improve their understanding of the role they can play in preserving a greener and safer environment.

To date, the introduction of EE has largely been restricted to primary and secondary schools and has mainly been targeted at young learners. However, development partners such as UNESCO, the World Bank, the Department for International Development (DFID) (subsequently replaced by the Foreign, Commonwealth & Development Office, FCDO) and the Commonwealth of Learning (COL) have produced TPD policy briefs and appointed experts with responsibility for TPD and sustainable development. The GTN is the first-known EE programme to be implemented at the post-secondary school level and focused on teachers.

This chapter documents the teacher educators' and teachers' experiences of the GTN programme and their perceptions of its impact. It also looks at the lessons learned from the programme's implementation and briefly discusses the curriculum development process and content, with a focus on some of the methodological and technological issues that arose from delivering the GTN online in an educational environment that is primarily paper-based and highly dependent on an in-person, face-to-face delivery mode.

The GTN Programme in Context

The concept, structure and processes of the NTI's distance learning teacher education programmes have until recently been largely traditional — that is, they used face-to-face and paper-based training modes. Furthermore, in a traditional context, classroom practices and pedagogy are teacher-centred, which runs counter to learner-centred, active learning methodologies. It is therefore not surprising that many teacher educators and their student teachers find it difficult initially to make the transition to online teaching and learning practices and pedagogy. This difficulty has been attributed to many factors, including lack of time, heavy workloads, lack of resources and lack of digital capacity among teachers.

Accordingly, one of the objectives of the GTN project was to improve the standard and approach of training at the NTI through CPD of both teacher educators and teachers. As part of its support for the reform of teacher training in Nigeria, COL provided technical and financial support to the NTI to help it design, develop and launch the Advanced Diploma in Environmental Education (ADEE), also known as Green Teacher Nigeria. The ADEE, which had both online and print-based versions, was designed for primary and secondary school teachers, environmental protection agency staff and other stakeholders in Nigeria. It was developed to provide every person who enrolled with the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment.

In addition to hosting the GTN programme as a stand-alone diploma course, the Institute also integrated the GTN module contents into various other academic programmes, including the Postgraduate Diploma in Education (PGDE), the Nigeria Certificate in Education (NCE), the bachelor's degree in Education (BEd) and various advanced diplomas (ADs). This integration was the Institute's initiative and was based on COL's objectives of "scale and sustainability" in TPD.

The GTN Curriculum Development Process and Content

The very first step in developing the GTN curriculum was to write a concept note and proposal for the project. A consultant assigned by COL provided support for this. The GTN was meant to change learners' attitudes to and perceptions of the environment, increase their level of knowledge about environmental conservation and, ultimately, influence their individual choices and lifestyle.

A working committee, called the GTN Core Team and comprising eight Senior Education officers drawn from the Institute's academic and professional departments, was established and charged with co-ordinating the project. This was followed by a series of capacity-building and curriculum development workshops that resulted in the development of four distinct but inter-related self-instructional learning modules that made up the GTN curriculum. In addition, guides for facilitators and a student handbook were developed. The modules were designed to be studied sequentially. The first and fourth modules focused on environmental education, while the second and third focused on ecology, environment and sustainability and connected these concepts to individual choices and lifestyles.

The curriculum modules were implemented in a regular daily slot of approximately two hours per day for about 15 days, amounting to 30 hours in a month. This meant that, in total, the four full modules comprised 200 learning hours — 50 hours per module — and could be completed comfortably in six to seven months. All four modules were written in a self-instructional style, and students tracked their own progress. Check Your Progress questions/exercises after every three or four pages of text and a small activity/assignment at the end of every unit encouraged the students to participate in self-assessment.

The GTN programme uses a cascade training model organised on a three-tier system (international, national and state levels). That means that people who have been trained are required to pass on the training to others. Figure 6.1 presents a diagrammatic overview of the structure and implementation process of the GTN programme.

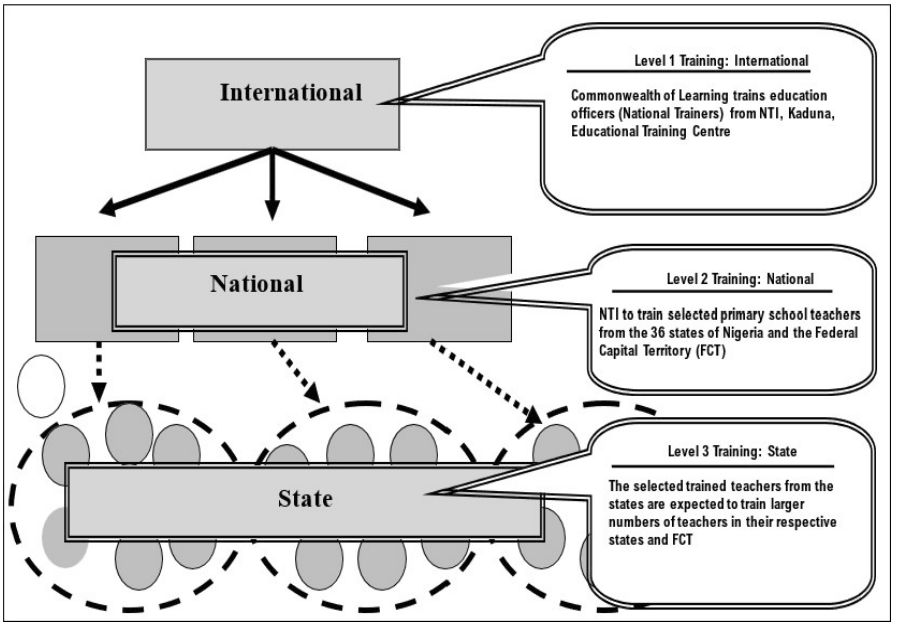

Figure 6.1: An overview of the structure and implementation process of the GTN programme.

At the international level, COL trained education officers from the NTI as national trainers/facilitators. At the national level, these trained facilitators trained selected teachers from the 36 states of the Federation and the Federal Capital Territory (FCT) as state trainers. At the state level, the state trainers trained larger numbers of teachers in each of their respective states and the FCT.

As part of the monitoring and evaluation of outcomes framework, the NTI developed an objectives model of evaluation that entailed a two-pronged review of the learning resources for gender-responsiveness and the quality of the environmental curriculum integration into both the GTN stand-alone ADEE programme and the integrated NCE programme before the GTN programme began. The Institute used the evaluation plan to pilot-test all four modules in terms of gender-responsiveness and environmental curriculum content. It also sought detailed feedback — in the form of formative evaluation — from the participating teachers on all aspects of the project's implementation. The results of this formative evaluation are discussed below.

Gender-Responsiveness

Gender-balanced outcomes are important if an environmental education programme is to positively impact the communities that the teachers and learners come from, especially in developing countries. This is because women in developing countries are the primary users of natural resources such as land, forest and water and are responsible for gathering food, fuel and fodder. Women therefore have a critical role to play in the management and conservation of natural resources. If they receive the appropriate education about their roles and duties, they can raise their voices and even take a leadership role in the fight against environmental degradation, as exemplified by India's Chipko Movement and Kenya's Green Belt Movement (Mago & Gunwal, 2019). Hence, the GTN's first objective — to conserve natural resources and protect the environment — cannot be fully achieved without involving women as equal partners.

Many teaching and learning materials are based on, and often reinforce, gender stereotypes that are firmly rooted in reality. Mainstreaming gender issues into educational resources makes an education programme gender-responsive and compliant with the minimum standards stipulated in international best practices for sustainable education. This is particularly important in an environmental education programme in which learners are expected to contribute to environmental protection in their day-to-day lives, irrespective of their gender.

The GTN aimed to reach over 225,000 young people through the teachers who were trained. The programme's resources therefore needed to be gender-responsive in order to avoid perpetuating gender inequalities through education, per COL's gender equality policy.

Accordingly, in a bid to promote gender equality, equity and empowerment through education, the Core Team evaluated the GTN learning materials for both evidence of gender bias and examples of good practice that promote gender equality and empowerment. They used COL's gender analysis checklist (COL, 2019a) to measure the GTN modules and handbooks for gender-responsiveness to establish the curriculum's potential gender impacts. The GTN's success would be based on people from all levels of society participating, so a holistic approach to gender was applied. The analysis included all categories of groups in society, including marginalised subgroups, such as people with disabilities and people who belonged to minority ethnic groups.

The results of the content analysis indicated that neither the contents nor the pedagogical approaches of the GTN materials were fully gender-responsive. A gender analysis workshop for the Institute's GTN Core Team and other educators was conducted to disseminate the results and train the participants in using COL's *Learning Resources Gender Evaluation Checklist* (COL, 2019b) for assessing teaching and learning resources. The training gave the participants hands-on experience of developing gender-responsive education materials and applying gender-responsive learning and teaching practices and pedagogies. As a result of the gender analysis and follow-up training, the GTN programme is a powerful model for promoting gender equity and empowerment through its curriculum and a growing body of trained teacher educators and teachers who have become environmental champions. These trained teacher educators and teachers can influence individual learners to change their attitudes towards and actions on

the environment, a key prerequisite for the sustainable management of environmental resources (Were et al., 2022). One recommendation from the workshop was to integrate the outcomes and suggestions from it into the modules during the next curriculum review. Meanwhile, the GTN Core Team, who participated in the workshop, noted the observations and recommendations and committed to using a gender-sensitive approach to delivering the curriculum. This commitment will have far-reaching implications for changing traditional gender biases in teaching and learning practices into gender-responsive practices.

Ensuring Quality

In a bid to ensure that the online instructional component of the GTN was of high quality, the Institute employed a number of strategies. First, a questionnaire consisting of 54 items was sent to 200 NCE, bachelor's degree programmes and PGDE students and facilitators, 176 of whom completed and returned it. The responses revealed a high degree of satisfaction with the contents of all four modules among the student teachers and course facilitators: 67% for module 1, 56% for module 2, 54% for module 3 and 57% for module 4.

Experts then reviewed the modules. They confirmed that the contents were adequate and that the language and mode of presentation were sequential, straightforward and easy to understand. They were equally complimentary about the activities and feedback assessments.

Finally, the GTN Core Team and the assigned COL consultant reviewed and revised the modules before they were forwarded to experts in India to have the media resources and pedagogy — inquiry-based learning, experiential learning and interdisciplinary learning — integrated into them.

Another quality assurance strategy adopted by the Institute concerned the project's online education facilitators. Those staff received training to improve their digital and pedagogical skills before the project went live. Since online education provision entails a move from face-to-face to virtual teaching with no direct interpersonal contact with learners, the instructors had to adopt new teaching styles and acquire the relevant digital skills to use technology in their instructional practices. To this end, staff at the Institute were trained in e-facilitation to develop their knowledge of and skills in e-learning and e-facilitation in a virtual environment, using Moodle to deliver and manage the GTN, problem-based learning (PBL) approaches and how the PBL model can be used in combination with e-facilitation to deliver the GTN programme on a Moodle platform. In addition to the Institute's headquarters staff, its zonal officers, state co-ordinators and education officers were also trained in online delivery and management of the GTN programme. These field officers served as facilitators of the programme in their respective zones and states.

The Institute staff also participated in a learning design workshop, which gave them hands-on experience in developing standards for the design of micro-learning resources and their integration into the GTN curriculum. It also provided them with the opportunity to work with an onsite information and communication technologies (ICT) team to develop relevant online learning activities for the four environmental education modules and to upload the modules and other relevant materials developed on both COL's and the Institute's Moodle sites, where the student teachers could access them easily.

As a final quality assurance strategy, the instructors used a learning management system (LMS) — Moodle — and WhatsApp groups to create interactive online teaching and learning communities. These digital structures provided opportunities for virtual interactions at three levels — facilitator-student, student-student and student-content — allowing for greater engagement and learner-centred, active learning processes. Thus, the facilitators were able to connect with their student teachers and student teachers could connect with their peers for follow-up and feedback through instant messaging, streaming videos and peer-to-peer file sharing.

All these strategies have been very effective in helping the participants adjust to the new learning context, learn to use technology and participate actively in online education courses. Many of the course participants and capacity-building and learning design workshop participants who commented on the training expressed appreciation for the practical nature of the training, noting that it changed their attitudes towards technology and the way they organise and deliver learning. Two teachers explained that their training experience eradicated their reservations about open educational resources (OER):

> For the first time I saw the potentials in OER. We never knew we could use it, too. The way we were facilitated to use it was even more interesting. We learnt it through participation. It was more like a hands-on training where we were given the opportunity to learn by participating. It was so easy. Now we know that the best way to teach school pupils is by opening up the spaces for participation so that no one single pupil is left behind. (Respondent 1)

> The first thing I learnt is how to use my smartphone better. Before now I only used my smartphone to browse or help my kids with their homework but now I have realised that I can use my phone for many things. I now use my phone to research my topics and access open educational sites for teaching materials. This has helped me to groom myself before going to the classroom. I do research on how to teach the topics that are difficult because of the problems of language barrier, lack of interest on the part of the pupils and overpopulation, but with the use of the smartphone I have learnt how to manage this problem. (Respondent 2)

Similarly, the effective dissemination of knowledge about the environment through the GTN programme has encouraged many of the teachers to become "flag bearers" for environmental conservation. A number of them planned to incorporate what they learned into their teaching at all levels in their schools, as evidenced in some of their comments about the course:

> The course was excellent because it enhances my skills and understanding in tackling/solving real life situation related to environmental challenges.

> The [GTN] course is relevant and adequate to deal with current environmental challenges in the country.

> The course introduces the teachers to problem-based learning and the skills needed to enhance their ability to facilitate learners to identify challenges and proffer solutions to the challenges, especially as it relates to environmental education. The course increases the skills a client will use as Green Teacher to facilitate students' ability to formulate a problem that leads to conducting research to identify challenges and find solutions to the problems.

Challenges

Notwithstanding the participants' positive testimonies, the implementation of the GTN integrated teacher training programme was not without its challenges. Among these were issues arising from both teacher educators' and teachers' digital competence. The initial lack of digital skills among teacher educators and teachers and the question of whether the programme would be useful in terms of participants' post-training intentions may have influenced teachers' decisions to enrol, or not enrol, in the ADEE programme. The enrolment numbers remained low despite vigorous and widespread publicity ahead of the programme launch date. By June 2019, only 36 candidates had registered for the ADEE. In contrast, 11,405 NCE students enrolled in the GTN integrated NCE programme. The reasons for the low enrolment in the ADEE programme merit investigation among a wider sample of teachers. It should be noted, however, that the decision to integrate the ADEE content into the existing bachelor's, PGCE, NCE and AD programmes addressed the low enrolment issue.

Workshop participants' doubts about how useful the programme would be in terms of their career progression can probably shed some light on the enrolment issue. Many teachers at the workshops who were representative of the intended target of the programme wanted to know if participants would be issued with a certificate at the end of the course, and if the certificate would count in their assessment for promotion. This factor may have been the catalyst for the integration of the GTN concepts, principles and pedagogies into the NCE and other academic programmes of the Institute, which are recognised and used by employers in promoting staff.

The capacity-building workshops conducted for the NTI staff, zonal and state co-ordinators and facilitators were intended to address the initial lack of digital skills among teacher educators and teachers. The aim was to strengthen their skills in basic e-facilitation, e-learning and learning design in order to use technology for instructional purposes.

Issues around unreliable power supply and Internet connectivity also affected the implementation of the GTN programme. The erratic Internet connectivity and frequent power cuts meant that the online sessions were often disrupted and many participants had difficulty carrying out some of their learning tasks, such as accessing the Moodle site to upload/download assignments or update their profiles. This difficulty was compounded by the high cost of data incurred by

the student teachers and the demand on their time, as they were all in full-time employment.

Conclusion and Recommendations

Evidence from the GTN integrated teacher training project suggests that it is teachers' attitudes towards technology and fear of change and innovative ideas that prevent so many of them from using technology, or even considering adopting it, for instructional purposes. These two factors have more influence on the teachers' continuing exclusive use of face-to-face training and teaching than the teachers' digital capacity has. The participants' apparent zeal and enthusiasm for technology after they completed the GTN reflects the increasing recognition that technology is a key factor in enhancing the quality of teachers' pedagogical practices and improving students' learning outcomes. As one of the teachers put it:

> The GTN Problem-Based Learning (approach) and Online Assessment has made me more confident in facilitating and sharing experiences with my colleagues.

And in the words of other teachers:

> The course was highly relevant and increases and widen[s] clients' ability and skills in facilitation as Green Teachers.

> The course is very good as it set[s] me up with basic knowledge on problem-based learning and online assessment. Knowledge gain[ed] will be applied into my dissertation for my M.Ed.

These statements clearly demonstrate how the GTN has influenced, even in a small way, a paradigm shift in teachers' instructional practices. However, it would be foolhardy to conclude that a two- or three-year intervention could generate dramatic change in terms of the project's objectives — environmental conservation and transforming teachers' attitudes towards technology and new teaching styles — given the scale of environmental pollution and the dominant teacher-centred ethic in instructional practices. But recognising the enormity of the problems in their macro social and educational contexts should not prevent us from attempting to achieve change at the micro level. The teacher educators' and teachers' new and developing skills must be nurtured through sustained support aimed at improving their expertise in integrating technology in their pedagogical practices. The process of effective technology integration should not be facilitated as a one-off event. Rather, as one teacher succinctly observed:

> E-learning has come to stay, it has helped a lot in Western countries and Asia, it should be given [a] chance in Africa; while Environmental Education is something that is needed to be integrated into our education system as opposed to the doubts some people are raising about the essence of the course. We need more advocacy and sensitisation.

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CHAPTER

7

Teacher Capacity Development in Digital Education in Sri Lanka Through an Innovative Platform

Shironica P. Karunanayaka and Sanjaya Mishra

Abstract

Commonwealth Digital Education Leadership Training in Action (C-DELTA) is an innovative programme offered on a digital platform by the Commonwealth of Learning (COL). The programme provides a framework to foster individuals' digital education skills, with the intention of developing leaders who can use, and influence others to use, digital technologies appropriately and effectively for learning. The C-DELTA programme is based on the concept that digital education leadership is grounded in the practice that it seeks to foster — digital literacy practice — and the processes involved in teaching that practice — digital education. In recognition of C-DELTA's potential to address a current need to develop teachers' and students' capacity in digital skills and practices, the Faculty of Education at the Open University of Sri Lanka (OUSL) has implemented C-DELTA in the Sri Lankan school system and at OUSL in several rounds since 2018. Over the years, C-DELTA has scaled up at both an institutional level and a national level in Sri Lanka. With the support of the Ministry of Education, it has reached a large number of secondary schools in the country's nine provinces. Further, OUSL offers C-DELTA as a free, non-credit, self-study course to all its registered students. The various interventions for different cohorts focused on teachers' use of the C-DELTA platform to foster their pedagogical thinking and practices, help them become digital education leaders in their own contexts, promote digital learning environments and support student learning. This chapter reports on the outcomes of the innovative practices around the implementation of C-DELTA in Sri Lanka and explores lessons learned from these innovations, with a focus on the following aspects: scaling of the teacher training model, training secondary school students as digital education leaders, case studies on teachers as digital education leaders and adaptation of the C-DELTA platform and its content as a non-credit course.

Keywords: C-DELTA, digital education, digital education leadership, digital literacy, Sri Lanka, teacher capacity development

Introduction

Fostering digital education is crucial in the current era of digitalisation. With the increased use of digital technologies in teaching and learning environments, teachers' and students' digital literacy is more important than ever. However, a lack of institutional preparedness and teachers' limited digital competencies often hinder the integration and implementation of digital technologies (Kummitha et al., 2021; Scully et al., 2021). To be effective in the digital age, teachers must develop both their technological and their pedagogical competencies (Bates, 2022).

Teachers are expected to develop their professional digital competence in order to adapt to the needs of students in the 21st century (Engeness, 2021). Various frameworks highlight essential digital skills that teachers require to help them prepare students for life and work in the 21st century and enhance students' capacity for communication, collaboration, critical analysis, creative use of knowledge and information-finding (Battelle for Kids, 2019; van Laar et al., 2017). However, the literature reveals that there are large-scale systemic barriers to the use of information and communication technologies (ICT) for these purposes, particularly inadequate capacity and capability among teachers and schools (Joynes et al., 2019).

The Covid-19 pandemic accelerated a move towards the use of digital technologies for teaching and learning. However, most education systems were unprepared to deal with such a rapid digital transformation (The World Bank et al., 2021). Moving to this new educational paradigm involves using diverse digital technologies to personalise the teaching and learning process, which in turn requires innovative pedagogies; well-developed social, interpersonal and cognitive skills among students and teachers; and new organisational models (Oliveira & Souza, 2022). This chapter looks at the implementation of the Commonwealth Digital Education Leadership Training in Action (C-DELTA) initiative, an innovative platform to enhance the digital education skills of schoolteachers in Sri Lanka, by the Open University of Sri Lanka (OUSL). C-DELTA promotes digital education practices with the intention of developing leaders who can use, and influence others to use, digital technologies appropriately and effectively for learning. This chapter focuses on the extent to which C-DELTA achieved its intended outcomes and on the lessons learned from the experience.

About C-DELTA

C-DELTA is an open and free online programme offered by COL to promote digital education. It is a learning and assessment platform for digital education skills. (See Figure 7.1.)

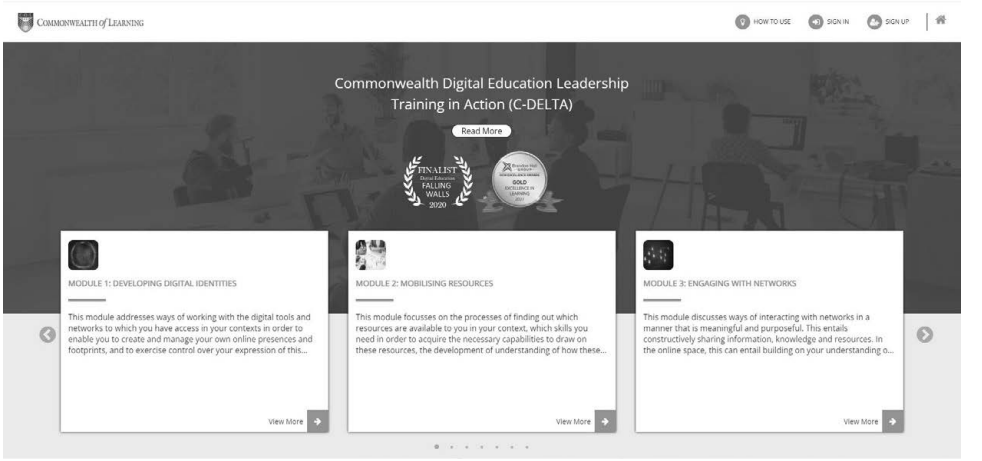

Figure 7.1. Home page of the C-DELTA platform.

Source: https://cdelta.col.org/

The C-DELTA programme's curriculum and learning modules were developed with the support of the Centre for Innovation in Learning and Teaching (CILT) at the University of Cape Town and in collaboration with an international advisory group of experts (Brown et al., 2016).

Conceptual framework

The C-DELTA programme is based on a holistic approach to digital education leadership. Brown et al. (2016) observed that "digital education leadership must be grounded in the practice that it seeks to foster (digital literacy practice) and the processes involved in teaching that practice (digital education)" (p. 4). C-DELTA's perspective on the relationship between digital literacy, digital education and digital education leadership is presented in Figure 7.2.

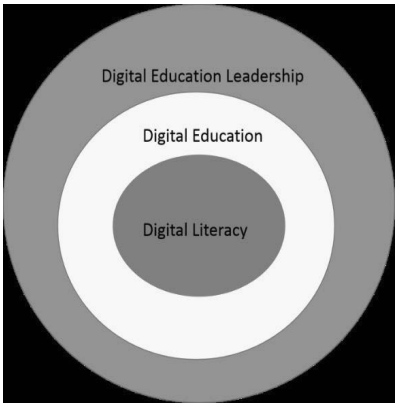

Figure 7.2. A holistic view of digital education leadership.

Source: Brown et al., 2016, p. 10.

Brown et al. (2016, p. 10) explain the information in Figure 7.2 as follows:

- Digital literacy, as a social practice, is understood to be the core, as it is the outcome, the destination of digital education and digital education leadership. It is the purpose of digital education.
- Digital education is the pedagogic intervention that goes into fostering digital literacies. It is the "how" of getting to digital literacy.
- Digital education leadership is concerned with providing direction in terms of digital education by enhancing access, capacitating peers, making informed decisions and cultivating innovation, to achieve the learning goal (digital literacy).

For C-DELTA, digital education is about fostering digital literacy as a social practice. It is an outcome of digital education leadership. Digital education is defined as "people's ability to live, learn and work in an evolving digitally mediated society by (i) mobilising resources, (ii) developing digital identities and (iii) engaging with networks" (Brown et al., 2016, p. 8). Thus, digital education leadership includes providing direction via digital education to foster digital literacy.

C-DELTA comprises seven modules:

- Developing Digital Identities
- Mobilising Resources
- Engaging with Networks
- Enhancing Access
- Making Informed Decisions
- Capacity Building
- Cultivating Innovation

While teachers and education practitioners are expected to complete all seven modules in order to become leaders in digital education, the first three modules are also designed to help students in secondary schools and beyond develop digital education skills and become lifelong learners. The overall objectives of C-DELTA are to help participants:

- develop digital identities and recognise their digital footprints
- create and share digital artefacts that can support learning
- engage in personal learning networks to learn and lead by example

C-DELTA platform

The C-DELTA platform was designed to promote digital education skills training at scale for both students and teachers. As it is an open platform, anyone can register as an individual (as either a learner or a teacher/practitioner). There is also an option to join as part of an institution or group. This feature allows C-DELTA to be implemented through educational institutions and ministries of education, whereby groups of schools can join to use the resources. Such an approach makes it possible for teachers around the Commonwealth to enhance their competencies.

When a user registers with the platform, they must specify if they are a learner or a teacher/practitioner and must also take a test to self-assess their current level of understanding about digital education. If they score above 40, they receive a certificate and subsequently may or may not proceed with the modules. The certificate they receive varies depending on their score (Beginner: 40–59; Intermediate: 60–79; Fluent: 80 and above) and therefore serves as a motivator to explore the modules further to improve their score. After they have completed the self-assessment, users can access a dashboard where the modules are available. Users in the Learner category have access to the first three modules, while users in the Teacher/Practitioner category have access to all seven modules. The participants receive certificates/digital badges as evidence of their digital education skills at various stages: pre-test (initial self-assessment), module completion and post-test. C-DELTA is also a community of practice (CoP) where participants can share digital education skills and learning resources and critically engage in promoting digital education skills in their institutions.

Study Context

Teachers often lack the access, support and enabling environments they need to take advantage of digital transformation opportunities (UNESCO, 2022) — and teachers in Sri Lanka are no exception. As revealed by *Re-imagining Education in Sri Lanka — Summary Report by Presidential Task Force*, digital education is severely hampered by inadequacies in key areas such as ICT infrastructure, connectivity, content, maintenance and capacity building (National Education Commission, 2020).

In the past few years, numerous policy-level decisions and initiatives have led to more computer laboratories, Internet and Wi-Fi facilities, software packages and e-learning resources being made available in schools. Information technology has been introduced as a subject in the school curriculum (Ministry of Education, Sri Lanka, 2011), and the importance of training teachers in digital education has been stressed (Ministry of Education, Sri Lanka, 2012). Despite these measures, numerous issues that impede the development of digital education in Sri Lanka persist, primarily because of unequal access to facilities and resources, especially the Internet (Asian Development Bank, 2021).

However, the use of digital devices and digital platforms has increased considerably in Sri Lanka in the past few years (Department of Census and Statistics, 2021; Kemp, 2021). Unfortunately, cybersecurity-related issues have also escalated significantly (Sri Lanka CERT-CC, 2021). The growing challenges in the adoption of digital technologies indicate the need for awareness raising and capacity building among individuals through digital education. Sri Lanka's National Education Commission has recommended not only enhancing digital learning and teacher professional development (TPD) but also making substantial efforts to encourage the general education system to adopt and apply technology-enhanced education strategies (National Education Commission, 2020, 2022).

This is the context in which the Faculty of Education at OUSL, with the permission of the Ministry of Education and other relevant authorities, implemented C-DELTA as an innovative intervention to enhance digital education in the Sri Lankan school system during 2018–2022.

Process

OUSL implemented a series of C-DELTA projects in Sri Lankan secondary schools in three phases during 2018/2019, 2020/2021 and 2022 (see Karunanayaka, 2020; Karunanayaka et al., 2019; Karunanayaka et al., 2022; Karunanayaka & Weerakoon, 2020). The key aim of the projects was to promote digital education environments in schools and develop capacity among schoolteachers to take a leadership role in the adoption of C-DELTA in their schools.

The projects comprised a systematic process of activities that were implemented through carefully designed intervention programmes. Overall, a twofold approach was taken:

1. Introduce C-DELTA as a free, non-credit, self-directed study online course to students in teacher education programmes at OUSL.
2. Implement an intervention to develop the capacity of teachers and students at selected schools at a provincial level for the adoption of C-DELTA.

An iterative process was used for the project implementation in line with an action research approach, which included planning, acting, observing and reflecting (Kemmis, 2009). For the training of trainers (ToT) workshops, blended and collaborative strategies — for example, face-to-face and Zoom-based sessions, Moodle and WhatsApp groups — were used.

Participants

The target group was teachers who teach at the secondary school level in Sri Lanka. A ToT model, in which the identified teachers were expected to function as school co-ordinators and train other teachers and students in their respective schools, was used for each of the three cohorts. Table 7.1 shows the number of participants, broken down by gender, in each cohort. In the third cohort, nine of the teachers were experienced C-DELTA-certified teachers who also served as provincial co-ordinators.

Table 7.1. Number of participants in the training of trainers' programmes

Cohort	Male	Female	Total
Cohort 1	17	24	41
Cohort 2	12	21	33
Cohort 3	10	35	45
Total	39	80	119

Data collection and analysis

During the three interventions, multiple strategies were used to collect data: logs in the C-DELTA platform, questionnaires, concept maps and mind maps, self-reflections, focus group discussions and evaluation reports submitted by the co-ordinating teachers at the school level. Data analysis was conducted using both quantitative and qualitative methods.

Results and Discussion

The implementation of C-DELTA in three cohorts facilitated the exploration of various impacts of C-DELTA on teachers, students and institutions, including changing teachers' pedagogical thinking and practices to help them become digital education leaders in their own contexts, promoting digital learning environments and supporting student learning. (See Karunanayaka et al., 2022; Karunanayaka, 2020; Karunanayaka & Weerakoon, 2020; Karunanayaka et al., 2019.) The key findings are discussed below.

Adoption of C-DELTA by teachers and students

Raising awareness about C-DELTA among schoolteachers was the starting point of all three interventions. During the interventions for cohorts 1 and 2, C-DELTA orientation sessions were conducted only for the co-ordinating schoolteachers (41 and 33, respectively). The co-ordinating teachers were expected to conduct orientation sessions for other teachers and secondary school students in their schools and encourage them to register for the C-DELTA online modules. However, a different approach was taken for cohort 3. During the recruiting phase for that group, C-DELTA was presented as a non-credit, free, online, self-directed study course for all registered students in selected OUSL teacher education programmes. This strategy resulted in significantly more participants (4,432) registering for cohort 3 than for the previous two cohorts. (See Table 7.2.)

Table 7.2. Number of participants in each intervention, by cohort

Participants	Cohort 1	Cohort 2	Cohort 3
Teachers oriented to C-DELTA	41	33	4,432
Number of schools covered in the intervention	39	33	36
Teachers enrolled in the C-DELTA platform	182	58	1024
Students enrolled in the C-DELTA platform	182	142	436
Participants who took the pre-test (self-assessment)	201	134	599
Participants who completed the course and were awarded certificates (completion rate, %)	135 (37.1%)	100 (50.0%)	450 (30.8%)

The participants in the orientation sessions in cohort 3 included not only current and prospective schoolteachers but also school principals, teacher educators and other education professionals. Raising awareness among diverse categories of education personnel addressed the essential need to instil digital literacy in stakeholders in all sectors of education, especially after the Covid-19 pandemic. It was an important step in promoting digital literacy, digital education and digital education leadership in the Sri Lankan school system through C-DELTA.

Even though the participants who completed the orientation sessions were interested in C-DELTA, and the project team continuously motivated, guided and supported them, various practical problems and unexpected issues (see the "Challenges" section) contributed to the comparatively low number of registrations in the online platform and low completion rates (see Table 7.2). The expectation is that over time, and as conditions improve, more participants will register and use C-DELTA.

Key positive features of the C-DELTA programme

Certain features of the C-DELTA programme contributed to participants' using it. They are presented below.

Accessibility and remote learning: The free and easy access to the online modules is a key feature that encouraged the participants to register in the C-DELTA platform. It also provided them with a way to engage in remote learning wherever they were.

Flexibility and adaptability: Since the programme is flexible and adaptable, the participants were able to engage in self-directed study at their own pace and to adapt the modules by translating relevant content into local languages (Sinhala/Tamil) and integrating those translations into their lessons to fulfil their specific learning needs and teaching requirements. One participant commented:

> I have identified the importance of integration of the very valuable concepts of C-DELTA in my subject and hope to integrate those concepts to increase the quality of my lessons.

Relevance and practicality: The participants considered the content of the modules to be very relevant and timely, enabling teachers to develop the knowledge, skills and attitudes required to effectively integrate digital technologies into their teaching-learning processes. One teacher explained:

> I used the concepts of social networks, search engines, OER, advanced searching, maintaining digital identities, maintaining positive footprints, and minimizing negative footprints in the Grade 11 Internet and e-mail lesson.

Digital certification: Being awarded digital certificates and badges after completing the pre-test, post-test and modules motivated the participants to proceed with C-DELTA. According to one teacher:

> I completed all modules and obtained seven badges . . . it was a very nice feeling . . .

One student remarked:

> I did not want to give up until I get the certificate for both pre-test and post-test, I was so happy when I got the certificates.

Key positive features of the C-DELTA interventions

Certain features of the intervention programmes also encouraged the participants to use C-DELTA. For instance, the action-oriented methodological approach was found to be very effective. It motivated teachers to organise and conduct diverse activities at their schools. Several teachers implemented C-DELTA as a school-based action research project by themselves.

Furthermore, the ToT model adopted in the C-DELTA interventions proved to be extremely beneficial because it was a flexible and cost-effective approach. Selected groups of teachers were trained as school co-ordinating teachers (SCTs), who in turn were required to train others (peer teachers and students) in their schools.

In cohort 3, an additional group, called provincial co-ordinating teachers (PCTs), was trained to support the SCTs. The ToT model also allowed the participants to build connections in their own contexts and facilitated the development of the SCTs' and PCTs' leadership skills. Even though C-DELTA is a fully online learning platform, the blended and collaborative strategies adopted for ToT helped guide the participants, which immensely supported their progress, despite the various challenges.

Challenges

With all three cohorts, the project team and participants encountered various challenges, which hindered the smooth implementation of the project activities. Some of the most common challenges were:

- inadequate computer and Internet facilities in the schools
- slow Internet connectivity and technical issues
- students' and teachers' limited ICT competency
- students' and teachers' limited English language proficiency
- time constraints due to heavy workloads in schools and personal issues
- some staff members' negative attitudes

The Covid-19 pandemic seriously affected the implementation of the interventions for cohorts 2 and 3. Unexpected political, social and economic circumstances in Sri Lanka also negatively affected the implementation of the project activities with cohort 3. Nevertheless, many teachers made valiant efforts to implement C-DELTA in their schools, managing the challenges as best as possible, while others dropped out.

Impacts of Adopting C-DELTA

The main aims of the C-DELTA implementation were to change teachers' pedagogical thinking and practices and support student learning. Analysis of the data collected during the pre-, mid- and post-interventions helped with the assessment of the impacts of the adoption of C-DELTA by teachers and students in the selected schools. Some of the key findings are summarised below.

Impacts of C-DELTA on developing leadership skills among the co-ordinating teachers

The PCTs of cohort 3 reflected on the experience they gained by assuming a leadership role in facilitating the SCTs and how it has affected their professional development. One PCT described it as follows:

> The satisfaction I have had by completing Phase 2 kept me going . . . I had a great time with different schools of different societies . . . I was able to practice as a leader for a group of teachers.

All PCTs expressed their interest and willingness to "keep helping and leading students and teachers," "make future students also to feel the taste of C-DELTA" and "be digital leaders."

The SCTs were also very satisfied with the experience they gained through implementing C-DELTA in schools, which bolstered their digital competency and digital leadership development. For example, one teacher said:

> Though I am an ICT teacher, I still gained a lot of knowledge about online education that we as teachers were not exposed to before which gave me a lot of experience about new digital concepts.

It was encouraging to note that the SCTs were motivated to progress with the C-DELTA project in the future to "provide leadership" and "share knowledge among more students and teachers."

Impacts of C-DELTA on enhancing teachers' and students' digital education skills

The adoption of C-DELTA has helped to enhance teachers' digital skills in different ways. For example:

> They [teachers] got knowledge on how they should use social media and other web sites wisely and safely . . . got the ability of using the digital devices very easily.

> I was able to use concept maps, OER, and advanced searching to develop my students' learning as well as my own teaching-learning process.

Teachers were able to "raise students' awareness and provide them guidance on how to use the Internet safely," "enhance their digital literacy" and "guide them on how to use the social media appropriately." As one teacher explained:

> Students are more responsible when they use social networks. They were able to get a positive impact from . . . safe digital literacy and digital identity into their learning.

Impacts of C-DELTA on changing teachers' pedagogical thinking and practices

Many teachers have started integrating the concepts they learned through C-DELTA into their teaching-learning processes. According to one teacher:

> I found it easier to teach the concepts such as the Digital Divide and Digital Bridge by using the C-DELTA platform and thereby help my students' learning of such concepts.

Their teaching styles have changed. They are now using new methods and incorporating digital tools in their teaching-learning process. Two of the teachers described the changes as follows:

> Teachers have improved their attitudes and changed their teaching styles . . . They used online activities for school-based learning too.

> [T]he use of Open Educational Resources and Mind Maps were prominent among Geography and English as a second language teachers.

Impacts of C-DELTA on supporting student learning

The teachers have used different concepts they learned through C-DELTA to support their students' learning. One teacher said:

> Students started to explore the internet easily and got used to using open educational resources . . . Grade 10 ICT students used the OER to prepare a booklet for the Operating System lesson.

It was observed that the adoption of C-DELTA has supported student learning not only by enhancing students' digital and related skills and knowledge, but also by improving other aspects of their learning and learning processes, such as English language, self-regulated learning, independent learning and learning to learn. Teachers commented:

> The students have improved their English language knowledge . . . They have learnt many ICT-based concepts and changed their learning patterns by themselves. They have become more discreet when doing web-based activities.

> This course helped students to learn by themselves and also, it greatly helped to get them good scores in the ICT subject. So, I think C-DELTA, by getting student participants to engage in self-discovery and thereby achievement may have helped them enhance their self-regulatory skills and independent learning which are generic competencies of 21st century learners, in particular, learning to learn.

Impacts on reflective practice

A website titled Digital Education Leaders in Action was created to share the key aspects of the project and the teachers' reflective practice. (See Figure 7.3.)

Figure 7.3. Home page of Digital Education Leaders in Action (https://cdeltaousl.wordpress.com/).

Users can read the following material on this website:

- an overview of the C-DELTA and OUSL project
- teachers' reflections, presented in Teacher Stories
- information about the concept maps and mind maps
- conference presentations and other publications related to the projects

There is also a photo gallery and video gallery, where visitors to the website can look at images of significant moments during the projects.

The 64 reflective stories on the website were written by the teachers who participated in the interventions and implemented the C-DELTA platform in their schools. An analysis of the teachers' reflections produced the following observations about the C-DELTA interventions:

- It is a practical solution for improving digital knowledge and literacy among Sri Lankan schoolteachers. It motivates them to join the digital world and to introduce students to it. As a free programme, it provided a great opportunity for continuing professional development (CPD) for the teachers.
- It helped to accelerate awareness of relevant technical topics and professional ethics in the context of using digital tools for teaching and learning among teachers and students.
- It is especially useful in the context of the Covid-19 pandemic and the need for online education.
- It improved digital literacy and education for both teachers and students, motivating them to maintain their digital identities and increasing their confidence to sit online examinations.
- The programme allowed for better management of the teaching and learning process and provided useful knowledge about Internet security and copyright issues.
- The programme enhanced collaboration and communication skills and provided Internet connectivity for some schools.
- Teachers began using student-centred teaching methods and encouraging the use of search engines and child-safe approaches.
- Teachers began using advanced search engines and digital tools — for example, interactive whiteboards, multimedia projectors and e-books — in their teaching practice.
- Teachers and students improved their digital literacy skills, including their ability to search online. Teaching became more effective, and learning became more attractive to students.
- The C-DELTA project improved the overall learning and teaching process, and students became more confident about using digital content and tools in their learning.

Some short videos that summarise the outcomes of the C-DELTA implementation in the three cohorts are available at https://cdeltaousl.wordpress.com/videos/.

Conclusions and Implications for the Future

Despite the challenges that arose during the project's implementation in schools, C-DELTA provided a novel experience to the teachers, who were subsequently very motivated to implement it in their schools. Overall, the implementation of C-DELTA has helped enhance teachers' digital education leadership skills and provided them with a way to promote digital education in their schools.

Lessons learned from the outcomes of implementing C-DELTA in Sri Lankan schools provide some significant insights for the future in terms of scalability, adaptability and sustainability. The teacher training model that used an action-oriented and ToT approach could be systematically scaled up to reach more participants. The co-ordinating teachers who are already trained can play a significant leadership role in expanding the programme. Training selected secondary school students as digital education student leaders would be another useful strategy to help expand the programme.

The existing programme could be adapted and tailored to meet the specific needs of the Sri Lankan education system by translating content into local languages and incorporating local examples to make it more relevant and meaningful to the participants. The content could also be linked with existing school curriculum requirements. Adapting the C-DELTA platform and its content as a free, non-credit course would be an effective strategy for both scalability and sustainability. Offering C-DELTA as a CPD opportunity for teachers, and providing ongoing support to all teachers, will sustain the programme in the long term. The open sharing of experiences and reflections of teachers as digital education leaders will undoubtedly inspire others to follow suit.

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CHAPTER

8

Innovations in Teacher Development for the Pacific

Deepak Prasad and Tony Mays

Abstract

This chapter considers how open, distance and flexible learning (ODFL) can help address the needs of out-of-school children and youth in the Pacific. Using Gunawardena's Wisdom Community (WisCom) concept as a lens, the chapter explores two inter-related initiatives: the Wisdom Community of Pasifika Teachers, an initiative of Fiji National University, and the Partnership for Open, Distance and Flexible Learning in the Pacific (PODFLP), an initiative led by the Commonwealth of Learning (COL) and the University of the South Pacific (specifically, the entity PACFOLD Learn) and supported by the Ministry of Foreign Affairs and Trade in New Zealand. Both initiatives offer teachers online learning opportunities to develop their knowledge of and skills in technology-enabled learning (TEL), ODFL and open educational resources (OER), and both encourage the teachers to take the lead by participating in a professional community of practice (CoP). An examination of what has been achieved to date is followed by some suggestions for future practice.

Keywords: community of practice (CoP), open, distance and flexible learning (ODFL), open educational resources (OER), Wisdom Community (WisCom)

Introduction

The Pacific Island Countries (PICs) have made significant progress in providing access to primary schooling, but completion rates and the transition from primary to secondary schooling are still a challenge. In addition, the transition rates from junior to senior secondary education and completion rates of secondary schooling are not ideal (Narayan et al., 2021). Open, distance and flexible learning (ODFL) approaches could, to some extent at least, help mitigate these challenges. However, an increase in ODFL opportunities requires capacity building among teachers

and the development of the information and communication technologies (ICT) infrastructure (COL, 2020a, 2020b; Naidu et al., 2022; Prasad et al., 2016) — both of which must be approached in ways that are sensitive to the cultural diversity of the region (Matopo, 2021; Reynolds, 2017; Taleni et al., 2018). An appropriate frame of reference must be in place before embarking on any type of teacher capacity building or ICT infrastructure development.

Conceptual Model

Gunawardena's (2020) Wisdom Community (WisCom) framework provides a useful approach for culturally sensitive initiatives: "By emphasising divergent thinking, consensus building, and the exploration of multiple solutions to complex, real-world problems, WisCom maximises opportunities for participants' diverse backgrounds and experiences to be valued" (p. 5). Key factors addressed in the framework are:

- Wisdom: Respecting wise people's practical knowledge and judgement
- Community: Wisdom developed with, by and for the stakeholders, including platform co-operativism to make decisions about the what and the how
- Communication: Supporting translanguaging and finding ways to mitigate the limitations of online communication
- Technology: Learning how to use technology in culturally and contextually appropriate ways
- Distributed co-mentoring: Moving beyond the simple binary of mentor and mentee to recognise that multiple people can provide mentoring in different areas at different times and across cultural boundaries; community members might be mentors for some things and mentees for others
- Learner support: Providing support for individual learners when they need it and in a way that meets their needs
- Problem-solving and collaborative inquiry: Moving away from experts expressing their point of view towards inclusive problem-solving involving all community members
- Transformative learning: Encouraging insight, flexibility, humility and the ability to challenge one's own deeply held beliefs when needed in order to promote personal growth
- Cultural bias: Recognising that the WisCom framework is a cultural creation and the collaborative approaches it advocates may be uncomfortable for teachers and learners who are used to more traditional approaches (Gunawardena, 2020)

We will explore and analyse two mutually reinforcing interventions in terms of this framework:

- Fiji National University's Wisdom Community of Pasifika Teachers, which seeks to enhance teachers' skills to use technology to support student success

- The Commonwealth of Learning's (COL) Partnership for Open, Distance and Flexible Learning in the Pacific (PODFLP), which seeks to develop teachers' knowledge and skills in relation to ODFL and OER

Wisdom Community of Pasifika Teachers

The Wisdom Community of Pasifika Teachers was launched in June 2021 and is a growing network of teachers from all levels of education from the PICs. It aims to build the capacity of teachers in the Pacific to support student success by learning together, sharing, connecting and moving forward together. One of WCPT's services is Please Talanoa Karo, Pasifika! (PTKP), an online engagement platform hosted on Fiji National University's (FNU) Moodle where members can collaborate and share experiences, information, resources and ideas (Prasad/Fiji National University, 2022).

Inception of the WCPT

The WCPT was established in response to the closure of schools and higher education institutions during the Covid-19 pandemic. Fiji was the first PIC to be affected by the pandemic and the first to close the doors of its educational establishments. However, the other PICs soon found themselves in the same situation, and education providers in the region were forced to pivot quickly in response to the change in circumstances. Like their counterparts around the world, they had to abruptly embrace remote, home-based learning approaches in order to maintain the continuity of education during those challenging times.

The sudden shift to remote learning was accompanied by numerous challenges for both students and education providers, including limited access to technology and the Internet, particularly in rural and remote communities; difficulties in delivering effective online lessons and assessments; and new difficulties in engaging students. Online teaching was a new experience for many teachers who had to adapt quickly to new teaching methods and technology and required professional development not only in technical skills but also in pedagogical knowledge and understanding. The challenges emphasised the need for continued support and resources for remote learning, as well as urgent professional development for teachers to ensure the success of remote learning in the region.

Higher education institutions in the region were relatively better equipped than the schools to handle the shift to remote learning, as they typically had departments dedicated specifically to online learning and teaching support. These departments took the lead in facilitating the transition, supplying the necessary resources and support to help both students and teachers adapt to the new learning environment. However, it is important to note that not all higher education institutions had these resources, and neither did the majority of schools in the region. The absence of resources and support posed significant challenges for students and teachers, especially those in primary and secondary education.

In response to the teachers' professional development challenges, the FNU's Centre for Learning and Teaching Enhancement (CLTE) set up the WCPT as a vehicle to equip teachers with the skills and knowledge they needed to teach effectively in this new environment. The WCPT recognises that the need for professional

development did not end when schools reopened and is committed to providing ongoing support to teachers to enhance their skills and knowledge. For example, it regularly offers workshops and courses that address the advancements and changing needs in the field of education so that teachers remain well-equipped to meet the needs of their students. The WCPT is dedicated to supporting the growth and development of teachers throughout their careers, helping them stay at the forefront of the education field.

The WCPT's infrastructure

The WCPT is a culturally inclusive virtual community in which all its members, who are located throughout the Pacific region, can actively participate. This aspect of the WCPT allows its diverse and geographically dispersed membership to collaborate and connect, despite geographical barriers. The WCPT operates through its main platforms, Moodle and the website (see Figure 8.1), which serve as the primary means of communication and information sharing. The Moodle platform provides a comprehensive learning management system (LMS) that is used for delivering and managing educational resources and professional development opportunities effectively, facilitating discussions, seeking feedback and making announcements. The website serves as an informational hub where the latest news, events and initiatives of the WCPT are posted. Together, the two platforms foster seamless communication and collaboration among WCPT members. To further enhance its communication efforts, the WCPT also uses Twitter and Facebook to promote its activities.

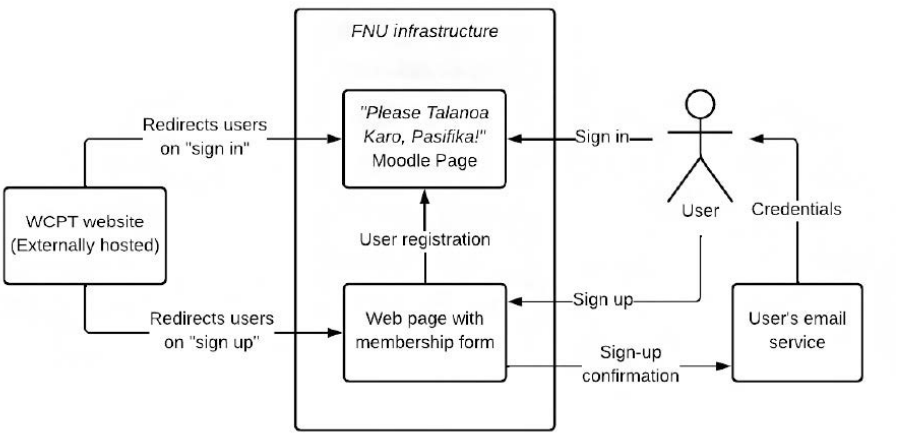

Figure 8.1. WCPT's system architecture.

As shown in Figure 8.1, the WCPT website contains links to the WCPT's Moodle page, which is called Please Talanoa Karo, Pasifika!, and to a registration form to join WCPT. This involves a two-step process as follows:

1. Clicking the sign-up link on the website redirects the user to a web page with a membership form. After the user has filled out the required fields and submitted the form, they are registered in the Please Talanoa Karo, Pasifika! Moodle page (via the Moodle Web APIs). The user receives a username and a

temporary password by email. They can change the temporary password to their preferred password when they first sign in.

2. Once registered, members can log in and access the Please Talanoa Karo, Pasifika! Moodle page. The page features various discussion forums, short courses, feedback links, an application form for digital badges and other relevant information. Members receive notifications about forum announcements via email.

Membership and incentives for member engagement

The WCPT offers free membership to all teachers and trainers from the 22 Pacific Community member nations and territories — American Samoa, Cook Islands, Fiji, French Polynesia, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Palau, Papua New Guinea, Federated States of Micronesia, Northern Marianna Islands, Pitcairn Islands, Solomon Islands, Samoa, Tokelau, Tonga, Tuvalu, Vanuatu, Wallis and Futuna — across all educational levels, including early childhood education, primary, secondary and tertiary institutions. It currently has 3,246 members working in early childhood education (32), primary education (1,446), secondary education (1,394), tertiary education (69) and other sectors (305), with this final group primarily comprising trainee teachers and trainers from NGOs and training centres. Most of the members come from American Samoa, Fiji, Kiribati, Papua New Guinea, Samoa and Vanuatu.

Immediately after the WCPT was formed, the WCPT team conducted an extensive membership drive aimed at recruiting as many educators as possible. They sent out direct emails, sent invitations to various educational institutions and ministries and circulated membership flyers via Facebook and Twitter. Current members who recruit new members, and thus contribute to both scaling provision and longer-term sustainability through more teachers collaborating with other teachers, are eligible for the WCPT contributor badge (see Figure 8.2). This badge is implemented through Badgr, a digital platform for issuing and tracking badges. To earn the badge, members must provide evidence that they have met at least two of the following conditions:

- Engagement in any 10 forum discussion posts on WCPT's online platform, Please Talanoa Karo, Pasifika!
- Contribution to the growth of the community by introducing at least 3 new members to the platform.
- Open sharing of at least one (original or localised) educational resource with other members via the Please Talanoa Karo, Pasifika! platform.
- Participation in the organisation and facilitation of at least one professional development activity.
- Collaboration with the WCPT team and other members to carry out at least one joint project or research activity. (https://au.badgr.com/public/badges/K7IJXHitSKqD1pY7M5kgbw).

Figure 8.2. WCPT contributor badge.

Administration and activities

The WCPT team comprises five members of FNU's CLTE and is responsible for the effective administration of the WCPT's digital platforms, communication, and the design and facilitation of professional development activities and promotional materials. In addition, the team members moderate the discussion forums to ensure that all participants have an engaging and productive experience. Initially, the WCPT team members were all volunteers who generously donated their time and resources. However, thanks to the support of COL's PODFLP, they now receive compensation for their time and expert contributions to the successful operation of the WCPT.

The WCPT offers an array of workshops and events designed to enhance its members' professional growth and advancement throughout the year. These continuing professional development (CPD) opportunities encompass a diverse range of topics, from learning design to best practices in teaching, both in and beyond the classroom. In order to engage and involve members as much as possible, the WCPT uses a multi-channel approach to distributing promotional materials: Moodle announcements, Twitter posts and Facebook posts. Between June 2021 and January 2023, a total of 103 Moodle announcements, 51 Facebook posts (nine of which were boosted) and 38 tweets were sent to a wide audience.

Between its inception in June 2021 and the end of 2022, the WCPT offered a short course titled Enhancing Grammar Basics, which 595 teachers completed. Each participant was awarded a digital badge to acknowledge their achievement. In addition, the WCPT organised and facilitated 44 workshop sessions which covered 11 diverse topics and attracted a total of 4,781 teachers. During the lockdown period, one of the most sought-after workshops was Mobile Device as Document Viewer (see https://www.youtube.com/watch?v=GqERjSan04Aon), which was about using mobile phones to view documents. Another very popular offering was the Writing Exam Questions workshop, which attracted the most participants — 582 — for a single session. Figure 8.3 gives more details about the workshops that were offered.

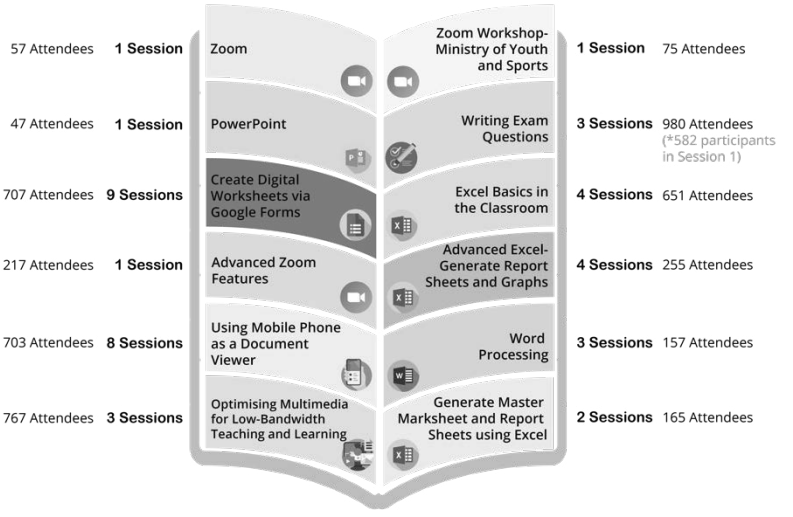

Figure 8.3. Distribution of workshops.

Challenges and rewards

During its early days, the WCPT encountered several challenges. Its motives were subject to significant scrutiny and debate, particularly because of a perception that it aimed to dictate how teachers should do their jobs. Another issue was the argument that its activities were only suitable for higher education and did not accommodate the diverse pedagogical approaches required for primary and secondary school settings. This concern arose from the fact that the WCPT's activities were managed by staff from a tertiary institution. Additionally, some people viewed the WCPT as a profit-oriented start-up that would eventually demand a subscription fee for membership. Furthermore, some teachers regarded the WCPT's free professional development as lower-quality training, which posed a challenge in terms of attracting members. Finally, some school heads were hesitant to promote the WCPT's activities, citing the need for approval from their education ministry, which made it difficult to reach out to teachers.

The WCPT overcame the initial challenges by gaining more visibility and recognition through persistent awareness campaigns. This helped dispel concerns about its motives and make its mission more widely understood as being aimed at offering support and resources to teachers rather than dictating how they should work. As its reputation grew and members shared positive experiences, school heads became more open to promoting its activities. Despite its success, though, the WCPT still faces ongoing challenges such as establishing contact with ministries of education in different countries. Securing recognition from these ministries would enable the WCPT to attract more educators and furnish them with valuable resources and training opportunities. At time of writing, the Ministry of Education in Fiji has recognised WCPT workshops, and teachers who attend them can count the hours they spend at the workshops towards their required 20 hours of professional development sessions. If the WCPT can get similar recognition in more countries, it will be a big step forward in its goal to improve education in the Pacific region.

One of the most rewarding aspects of the WCPT has been the consistently positive remarks and feedback from its members (see Figure 8.4), which indicate that the network is headed in the right direction.

Figure 8.4. A snapshot of feedback from participants.

Partnership for Open, Distance and Flexible Learning in the Pacific

Another initiative is COL's PODFLP, which supports teacher capacity development through open educational resources (OER) and ODFL training and is increasingly taking a training of trainers (ToT) approach, with teachers in the Pacific teaching other teachers in the region.

In this section we discuss the following aspects of the PODFLP:

- using and creating OER for online learning
- promoting the use and revision of OER
- Pacific open courses
- open course catalogue
- mentoring

Open educational resources for online learning

An important precursor to the PODFLP initiative was COL's response to a request from the Ministry of Education in Fiji near the start of the pandemic for a teacher's guide to using online tools and resources for emergency remote teaching. COL very quickly created and offered a short online course. Although there was no time to consult with teachers in the region before launching the course, a key design feature was that it encouraged teachers to share resources and experiences with one another. As noted by one of the participants:

> The best decision that l took in 2020 was to take this course. It has been so fulfilling and enjoyable. I have started to use all the skills learnt in preparing my worksheets and using OER so wisely, ensuring that it is not copied but open for use. The research guides, quizzes and portfolios were best part of learning. In addition, knowing more from other students was so meaningful and motivating. There wasn't a time when l felt like giving up. This course inspired me to become [a] better teacher (Participant Iteration 1). (Cited in Mays et al., 2021, p. 35)

Responses like this influenced many of the decisions made in the roll-out of the PODFLP initiative, especially in Workstreams 1 and 3. As summarised on the project website:

> Open, distance and flexible learning (ODFL) is an important channel for increasing education opportunities and outcomes. It is particularly relevant for the Pacific, given small dispersed remote populations and limited access to secondary and post-secondary opportunities in rural and outer island locations. Despite the importance of ODFL to the region and the immediate need to build capacity, there has been limited investment. The Covid-19 pandemic has further reinforced the need for the Pacific to be well prepared for non-contact teaching and learning approaches outside traditional classroom-based practices.
>
> Partnership for ODFL in the Pacific is a 5-year project (2020–2025) funded by the New Zealand Ministry of Foreign Affairs & Trade to support enhancing capacity and efficiency of education sectors in the Pacific through greater use of innovative delivery mechanisms and technology. Commonwealth of Learning (COL), together with the Pacific Centre for Flexible and Open Learning for Development (PACFOLD), implements the project in the nine Commonwealth countries in the Pacific (Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu). (COL, 2023)

Promoting the Use and Revision of Open Educational Resources

One of the earliest activities in Workstream 1 of the PODFLP initiative was the development of a regional OER collection that provided teachers with free access to a variety of guidelines and examples of how to use digital resources to support emergency remote teaching and, subsequently, blended and online learning. The regional collection was then replicated at a national level to allow each country to customise it in accordance with its own national curriculum structure and interests. Two countries had modified and added locally developed resources to their national collections with help from COL by September 2022 (Muthu & Mays, 2022). In addition, COL published guides on reversioning OER and integrating OER into teaching in ways that would fit better with local contexts and needs (COL, 2021a, 2021b).

Pacific open courses

Given that most teachers' experience has been in physical classrooms, the teachers needed training in how to use ODFL methods. This was the focus of Workstream 3.2 of the PODFLP initiative. Building on the very successful short courses developed at the start of the pandemic, COL partnered with the OER Foundation (OERF) to design, develop and facilitate an open online micro-course called Digital Skills for OER Sharing (DS4OERS). Lessons learned from the facilitation of the inaugural cohort offering were used to make some revisions to the course, and it continues to be openly hosted to allow stakeholders to access, use or adapt it as best suits their needs (Mays & Mackintosh, 2022). For example, the University of the South Pacific has offered a slightly adapted version of the short course on several occasions. Lessons learned from offering revised versions of the courses have shaped the development of several subsequent short courses such as Communication Skills for ODFL, Assessment Skills for ODFL, Learner Support for ODFL and, most recently, Quality Assurance for ODFL. The design and content of the latter short course were also informed by a series of regional webinars. This marked a shift away from COL anticipating training needs towards stakeholders in the Pacific identifying and addressing local challenges and related training needs. To this end, COL commissioned the development of a short course called Empowered Digital Teacher for Online Learning to train senior teachers in the Pacific to use the open course platform — Pacific Open Courses — which was developed to create and offer courses for other teachers in the Pacific. As with the WCPT initiative, this strategy can contribute both to scaling up to reach more teachers and to sustainability by developing capacity at a national level to continue with CPD activities after the project has ended.

Open course catalogue

COL commissioned the development of an open course catalogue to provide a one-stop website where teachers can find other open training opportunities they might need. The intention was that the course catalogue would be increasingly populated with open courses developed and offered in the region and that the platform itself would eventually be maintained by an institution based in the region (Mays, 2022). While the catalogue has been used to advertise course re-offerings by PACFOLD Learn, new, locally developed offerings cannot be added until the process discussed in the section above has been completed. Currently, COL continues to maintain the platform.

Mentoring

In all iterations of the open courses developed and offered in the Pacific, local mentors were contracted to support the learning process and help contextualise the learning. COL commissioned the OER Foundation to review the lessons learned from these mentors and to propose ways in which the mentoring model could be improved.

Three key trends emerged from the analysis:

1. Many Pacific teachers lacked the requisite ICT skills to fast-track their independent learning online.

2. Many Pacific countries lacked the ICT infrastructure and skills to manage open online ecosystems effectively.
3. Many of the mentors contracted to support the learning process lacked both the requisite technical skills and the online interactive pedagogy skills. (OERF, 2022, pp. 3–4)

OERF therefore proposed "the establishment of a 'Collaborative OER Technology Community' drawing on the success of 'platform cooperativism'" (OERF, 2022, p. 4) to:

- operate as a **shared** Free and Open Source Software (FOSS) technology ecosystem for educators, technologists, and administrators providing access to a range of online tools needed for collaborative work towards the goals of the PPODFL initiative,
- enact the Pacific concept of "**Motutapu**" as a digital safe space for discussion and negotiation of viable solutions, recognising indigenous expertise and engendering the co-operation required to navigate complex and dynamic regional challenges,
- function as a **mentoring network** for Pacific Island technologists wanting to build hands-on skills supporting open technologies locally, that is, a "Community Garden" for authentic learning,
- nurture the development of a thriving **community of practice** for ODFL for the region, and
- welcome and encourage active engagement and ongoing participation from a wide range of **institutions** in a "neutral" organisational space that fosters open and transparent dialogue. (OERF, 2022, p. 7)

Progress to Date

The PODFLP initiative sought to offer nine open courses to 3,000 Pacific teachers by the end of the project in 2025; by March 2023, it had offered seven open courses to 4,803 teachers/officials and 23 "master" teachers (able to mentor other teachers).

As affirmed by an independent mid-term evaluation report by a New Zealand-based organisation called Standard of Proof (2023), overall completion rates for the short courses average about 10%, which is slightly below a global average of 12–15% for MOOCs but not entirely unexpected in the Pacific, where Internet access is often unreliable and/or expensive, albeit improving (Naudu et al., 2022). Understanding the context, we deliberately built in multiple exit points where teachers could earn digital badges.

Table 8.1 shows the overall statistics for the Digital Skills for OER Sharing short course (OERF, 2021).

Table 8.1. Overall statistics for the Digital Skills for OER Sharing short course

Category	Number/%
Registered students	1,534
Course site page views	46,197
Course site users	1,586
Automated course emails sent	28,540
Percentage of registrations from the Pacific	95%
Gender of participants	67%
Badges awarded	98

However, because the courses remain open after facilitation activities have ended, teachers can complete or start them at any time and continue to earn badges. Moreover, the University of the South Pacific (USP) PACFOLD Learn re-offers the courses from time to time, and Kiribati and the Solomon Islands are currently learning how to revise the courses to make them better fit their own contexts. The plan is to gradually shift the training and retraining of teachers from COL to Pacific partners over the next two years.

Discussion

To what extent do the WCPT and PODFLP initiatives meet the requirements set out in Gunawardena's WisCom model and how might this influence possible future improvements to them?

- Wisdom: Both the WCPT activities and the PODFLP open courses deliberately foreground teachers in the Pacific sharing their practice with other teachers in the Pacific and giving feedback.
- Community: WCPT members are encouraged to contribute by receiving a digital badge in recognition of their contribution, and feedback from community stakeholders increasingly informs the PODFLP initiative's agenda about what training is offered and how.
- Communication: The WCPT has a robust communications network that uses local languages. Although PODFLP OER and open courses are initially developed and shared in English, the contents are openly available for translation and the resources they contain can be substituted with resources in other languages.
- Technology: Encouraging WCPT members to lead professional development sessions and including local mentors in PODFLP open courses is a deliberate strategy to enable appropriate engagement with appropriate technology in appropriate ways.
- Distributed co-mentoring: Both the WCPT professional development activities and the PODFLP open courses emphasise sharing ideas and experiences within and across cultural boundaries.

- Learner support: An integral design feature of the WCPT activities and the PODFLP open courses is to integrate mentor and tutor support from the very beginning of the process.
- Problem-solving and collaborative inquiry: The digital badges available at key exit points from the WCPT workshops and PODFLP open courses are based on sharing contextually appropriate resources rather than giving "right" answers.
- Transformative learning: Spontaneous feedback from WCPT members and pre-course, post-course and longitudinal surveys suggest that many teachers feel that access to the PODFLP open content and open training opportunities has had a positive impact on their practice, even if they did not complete all the courses in which they enrolled.
- Cultural bias: COL is aware that it has its own agenda and understandings, but there is a deliberate attempt in the design of the intervention to increasingly shift the locus of action from COL to national ministries and other Pacific stakeholders. This is one reason, among many, that PODFLP now supports the WCPT initiative.

Conclusion and Recommendations

The WCPT and PODFLP initiatives both provide CPD opportunities in ways that are increasingly led by teachers in the Pacific region themselves. This is in line with a strategy to mentor local partners in ministries to increasingly address their own teacher development needs in a contextualised way (COL, 2022). This process is complemented by activities that COL supports outside of the scope of the Pacific Partnership initiative — for example, support provided to the Flexible Open and Distance Education unit of the Ministry of Education in Papua New Guinea to build capacity to offer blended and online learning, support provided to the Ministry of Education in Vanuatu to develop digital content that can be used offline, and the establishment of a sub-directorate to guide and manage distance education provision and support in Tonga to develop a national policy framework for ODFL. In all these cases, COL is responding to needs that were identified by the respective ministries. This type of response is essential for sustainability.

However, there is always room for improvement.

We have several recommendations to improve teacher professional development opportunities.

1. Conduct a training needs assessment in each country to create a directory that outlines the key competencies and skills that teachers need to develop over time in order to offer more open, distance and flexible learning opportunities. This will help provide clarity and direction for professional development opportunities.
2. Develop guidelines for school heads to pair experienced teachers with new or struggling teachers to provide ongoing support and guidance. This can help improve teacher retention and increase the effectiveness of professional development efforts. Face-to-face support is not always required for this, as the partnership has created spaces for online mentoring and support.

3. Empower more teachers in the Pacific region to use the platform and tools created to co-develop and offer CPD short courses that reflect and meet emerging national and regional needs. Increasingly, new CPD offerings should be developed and offered by teachers in the Pacific for other teachers in the Pacific. This will be key to scaling CPD provision and to the long-term sustainability of CPD provision after the project has ended. We are currently supporting two ministries with fortnightly mentoring support, at their request, with a third ministry also expressing interest in receiving support.
4. The partnership will develop training opportunities for a more formal engagement with ODFL. USP PACFOLD Learn should continue to support ministries in this process, even after the Pacific Partnership has formally ended.
5. Support for the WCPT should be a long-term strategy of the Fiji National University.

As noted at the start of this chapter, ODFL can be employed to address the needs of learners who cannot access traditional classroom-based provision. However, for this approach to be effective, teachers need to be skilled in ODFL, OER and TEL. The WCPT and the Partnership for ODFL in the Pacific offer two examples of how this might be done.

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CHAPTER

9

Professional Learning for Teachers and Educators Across the Commonwealth: Designing Online Assessments

George Veletsianos

Abstract

This chapter focuses on the design, development and lessons learned from the implementation of ten offerings of the Virtual University for Small States of the Commonwealth's (VUSSC) Designing and Developing Online Assessments (DDOA) course. Designed for post-secondary teachers, instructors and educators, this online course was developed in the early months of the Covid-19 pandemic, and first delivered in September 2020, to help educators around the Commonwealth explore online assessment practices and principles. The self-paced course typically took six weeks to complete and required approximately five hours of independent work per week. It was ungraded and consisted of a range of learner activities including readings, podcasts, practical work, discussions and self-directed work. Its design focused on four principles: flexibility, trust, relevance and localisation. Given its timing, it prioritised helping adult learners complete the course, or as many parts of it as they deemed relevant to their work. This chapter describes the four principles and explains how each one was reflected in the design of the course. It also describes how and why the course transitioned from a centralised version to a distributed model of offerings for educators.

Keywords: faculty development, online assessment, Virtual University for Small States of the Commonwealth (VUSSC)

Overview

When the Covid-19 pandemic forced the closure of schools and universities around the globe in early 2020, organisations of all kinds provided resources and training to equip educators with the skills and knowledge to facilitate and assess online and remote learning. One of the actions that the Commonwealth of Learning (COL) took was to offer a short professional development course titled

Designing and Developing Online Assessments (DDOA) through the Virtual University for Small States of the Commonwealth (VUSSC). This online course was designed to familiarise post-secondary educators with the principles of online assessment and provide them with an opportunity to develop and practise skills relevant to designing and conducting assessments suitable for an online course they were currently teaching or expected to be teaching. This chapter describes the DDOA course, including the teachers' and educators' responses to it, and presents four principles that guided its design, development and implementation over ten iterations. These principles — relevance, flexibility, trust and localisation — could also be applied generally when designing and developing online courses at scale.

Context

Much has been written about the role of online learning and digital literacy in today's societies. Brown (2017), for example, notes that "digital literacy is now essential for successfully living, learning and working in today's increasingly digitalised society and knowledge economy" (para. 2) and Veletsianos (2020) notes that online learning has become an "ordinary" aspect of daily life for millions of citizens. It is provided by an array of public, private, non-governmental, non-profit and for-profit organisations and has become a regular and standard part of educational offerings. Even though debates around modes of education persist, many researchers, administrators, policymakers and businesspeople recognise the role that online learning can play in expanding access and opportunity and addressing inequities by, for example, enabling people in remote and rural communities to access educational opportunities.

While reaching a wide range of non-traditional students — for example, working adults and adults who are exploring a different career — has been a goal of distance education for decades, the Covid-19 pandemic suddenly introduced online, hybrid and remote approaches to education to many people around the world. The transition to emergency remote learning (Hodges et al., 2020) has not always been easy, and educators at all levels have faced various challenges arising from it (Marshall et al., 2020; Spinks et al., 2023).

The goal of the DDOA course was to familiarise post-secondary educators with the principles of online assessment and provide them with opportunities to develop and practise skills relevant to designing and conducting assessments suitable for an online course they were currently teaching or expected to be teaching. One of the problems that many educators faced with the transition to emergency remote learning was that even though they were familiar with the overall principles of assessment strategies, they generally lacked familiarity with designing and managing assessments in and for the online environment. This challenge was exacerbated by:

- pressure to replicate in-person assessments in an online context, rather than redesigning assessments specifically for the online context
- time pressures, as educators attempted to rapidly switch modalities at the same time as they were dealing with the impact of the pandemic in all other areas of their lives

By improving educator capacity, the course aimed to improve institutional effectiveness in leveraging online and distance learning across participants' home institutions. It was hoped that by the end of the course, learners would have explored online assessment practices, familiarised themselves with principles of online assessment, and developed and practised skills relevant to designing and conducting assessments suitable for a course they were currently teaching or expected to teach online. The course's specific learning objectives remained stable throughout its varied iterations. By the end of the course, participants were expected to be able to:

- explain why they assess students
- distinguish between different types of assessments
- select and justify a choice between different kinds of assessments
- investigate different kinds of assessments
- revise one of their existing assessments (or create a new one) to make it appropriate for the online environment

The timing of the course was significant and consequential. The initial transition to remote learning during the early weeks of the Covid-19 pandemic (February – March 2020) involved a sudden interruption of in-person education and an emergency transition to online education largely aimed at enabling students to complete their courses. As our collective understanding of the virus developed, and effective treatments and vaccines remained elusive, that first semester of pandemic lockdowns was fraught with many unknowns and anxieties at the societal, institutional and personal levels. Over the next year or so, as waves of the virus continued, it was unclear when there would be a return to in-person or hybrid instruction. The DDOA course was designed in June and July 2020 and first offered in September 2020. Decisions about the August – September 2020 semester — that is, whether teaching would return to normal or be conducted remotely — were taken relatively late, and many instructors were unclear about how they were to approach the teaching of their courses. The DDOA course was therefore introduced at a time of great need and uncertainty. As such, it was positioned to support instructors in improving on their early attempts to transition their in-person teaching and learning assessments to remote approaches.

The pandemic also created a challenging work environment for many participants. VanLeeuwen et al. (2021) provide evocative illustrations of the challenges through their interviews with post-secondary instructors who described their experiences as characterised by feelings of never-ending repetition, sadness and loss, and juggling multiple responsibilities with a limited sense of direction. They write that instructors who participated in their study faced "the enormous sense of pressure to manage their professional and personal roles, which had negative impacts on their mental and physical well-being" as many "had to parent while working, support the learning of children, negotiate schedules and space with partners, provide care to extended family while spending much of their days restricted to home" (p. 12).

Design and Delivery of the Designing and Developing Online Assessments Course

Initially the DDOA was offered by COL to three cohorts across the Commonwealth (September 2020, November 2020 and February 2021). It was subsequently offered in collaboration with partner institutions in Belize, Jamaica, St Vincent and The Grenadines, Mauritius, Guyana and Namibia, either embedded in projects as part of faculty training or as a stand-alone course. Participants were college and university faculty, although two cohorts also included secondary school teachers, many of whom also taught at the college level.

While the DDOA course activities were customised to address local realities and varied institutional contexts, the content of the course and its learning objectives remained relatively consistent. The course activities included readings, practical work, text-based discussions, podcasts, video contributions and self-directed work. In nearly all its iterations, the course was self-paced, asynchronous and ungraded. It required approximately five hours of work per week and initially took five weeks to complete. By the fifth iteration, in early 2022, the completion time was extended to six weeks. Synchronous sessions were added in some iterations of the course.

Outcomes

Data were collected through pre- and post-course surveys for each iteration of the course. In addition, interviews with facilitators and selected participants and an evaluation survey were conducted across the partner institutions between three and nine months after the course was completed. According to Cunningham-Dunlop (2022), the intended outcomes were both appropriate and accomplished: institutional staff were able to access and complete courses, participants' competence in designing and delivering online assessment was improved and institutions' capacity to offer the course independently was developed.

Over the ten iterations of the DDOA, 377 individuals enrolled in the course and 174 received certificates of completion. Of the 47 participants who responded to the pre- and post-course surveys, nearly all assessed their level of knowledge about designing and developing online assessments as higher at the end of the course. (See Table 9.1.)

Table 9.1. Respondents' perceived level of knowledge about online assessment

Perceived level of knowledge	Excellent	Good	Average	Minimal
At the beginning of the DDOA course	0 (0.0%)	9 (19.1%)	24 (51.1%)	14 (29.8%)
On completion of the DDOA course	12 (25.5%)	30 (63.9%)	5 (10.6%)	0 (0.0%)

In their open-ended responses, participants often commented on the design of the course (see the section "Process and principles of course design," below). Beyond the pedagogical design, they indicated that they appreciated:

- being able to interact with other educators and learners
- being able to focus on redesigning their own assessments

- being exposed to relevant and interesting readings
- receiving clear guidance and prompt feedback
- learning about a wide variety of alternative assessment methods

A detailed examination of the outcomes is provided in Cunningham-Dunlop's (2022) evaluation report for COL.

Challenges

The model of collaboration with partner institutions had positive aspects, such as iterative improvements and enhanced sustainability through multiple offshoot offerings of the course, but there were also some challenges. Differences in institutional contracts for registering participants, different incentives for completing the course and competing demands on faculty led to a variation in completion rates between institutions. The fact that the teachers and educators were taking the course while simultaneously dealing with personal and professional challenges that arose because of Covid-19 explains in part why some participants completed the course but did not submit the final assignment and therefore did not earn a certificate.

Sustainability

By the beginning of 2023, three of the ten institutions had independently offered multiple offshoot offerings of the course. For example, one university offered the course three times to teachers in local schools. In addition, in mid-2022 and early 2023, they embedded it in the university's faculty development programme, and every faculty member is now expected to take it. Two other institutions decided to train their part-time and full-time lecturers using the DDOA course and to introduce the course to its partner institutions in-country. Another institution now has a course planning policy that all department heads must review their assessment practices based on what was learned in the DDOA course.

Process and Principles of Course Design

Four key principles guided the design of effective, efficient, engaging and equitable learning experiences through the DDOA: relevance, trust, flexibility and localisation. Each principle is described below. (All participant quotes are from Cunningham-Dunlop, 2022.)

Relevance

> The course was very interesting, enlightening, and relevant to the current demands and needs of teaching. Online instruction and assessment have never been this necessary; so, I am very grateful to have received this opportunity of honing my technology skills, while learning how to effectively assess my students in an online nature. Being not too technology savvy, this course brought me out of my comfort zone, and provided me with different ideas on how to improve my online class assessments, keeping in mind different principles and best practices. (Course participant)

As noted earlier, the DDOA was offered at a time when many educators were searching for support with moving their courses from the classroom to online platforms. Therefore, the course was not only timely but also relevant, as it met both an immediate personal need and an institutional need to equip faculty with the skills, abilities and mindsets they needed to conduct and manage online assessment. This was borne out by participants' responses when they were asked to rate the professional relevance and value of the DDOA course. The data in Table 9.2 indicate that almost 70% of respondents indicated that it was relevant.

Table 9.2. Respondents' perception of professional relevance and value

Perceived level of professional relevance	Very relevant	Relevant	Somewhat relevant	Not at all relevant
	35 (65.0%)	15 (27.7%)	3 (5.5%)	1 (1.8%)

Three other dimensions of relevance were integral to the course.

- **Content selection:** Content selection — for example, readings and sample online assessments — was guided by a desire to develop a course that was relevant to a broad population of educators across the Commonwealth who may have different disciplinary needs. With educators teaching courses as diverse as English, computing, engineering and chemistry, the examples of online assessments needed to be diverse enough that every participant could apply them to the context of their own discipline and see how to translate them to that context. This was achieved by:
    - providing access to more than 100 online assessments used by faculty around the world and allowing participants to explore the ones that they found the most meaningful and pertinent to their practice (e.g., The University of Queensland's Assessment Ideas Factory — see https://aif.itali.uq.edu.au/), and
    - inviting participants to discuss their emerging ideas around online assessment in their own discipline so that peers could learn from one another and explore how others are thinking about and approaching assessment in their own context.
- **The nature of the final assessment:** The final assessment in the course invited participants to apply their learning to their own assessments and explore the assessments that their peers created. This approach provided opportunities for participants to immediately apply their learning to their own context, making it personal and relevant.
- **Criteria for success and completion:** The course was conceptualised as having multiple ways in which one could judge its success. Success and completion are typically defined by the instructor and quantified through metrics that measure a satisfactory level of completion. For example, 377 participants enrolled in the course and 174 received certificates of completion. That translates into a completion or success rate of 46%, which is a respectable outcome for an online course that was not part of an academic programme and that was implemented at short notice during the Covid-19 pandemic. Much of the distance education literature highlights that many students face personal and academic challenges that

> affect their chances of success (Segbenya et al., 2022; Tulaskar & Turunen, 2021), but one factor that has received less attention is the possibility that course completion rates, especially for free courses, may reflect that learners participate in a course only until they feel they have fulfilled the needs they had before they began the course. This possibility must be accommodated in debate around course completion and the definition of "completion," as it recognises that learners have agency and are able to make choices around their learning — and those choices may not be reflected in the course designers' understanding of "completion." This point was particularly pertinent in the context of the DDOA, which is a professional learning course aimed at adult educators. Therefore, when the course was designed, it was recognised that the percentage of certificates awarded was only one way to evaluate completion and that it was imperative to recognise that participants would be able to judge the relevance of the course to their lives and practices and decide themselves how much they would participate. This approach also reflects the principle of "the nature of the final assessment."

Trust

> [I appreciated] the freedom of time to complete assignments and the creation of my own assessment. (Course participant)

Trust in learners was a key design principle of the course and was incorporated in a variety of ways. For example, in some iterations, participants confirmed they had completed certain activities, and that was a sufficient metric of completion. In other words, adult learners who were educators were trusted to be honest about their efforts and activities. In this way, the course embodies an inherent understanding that educators would participate in the DDOA up to the point where they found the course meaningful, relevant and necessary in relation to all the other commitments in their life, and that instructor-defined metrics of success would vary by person and by context. Approaching the design of a course in such a way may be challenging for those of us who are accustomed to institutional policies that seek to create a common definition of completion and success, and thereby limit learner agency. Other ways to design for and cultivate trust in online courses include fostering a culture of belonging, support and co-operation and resisting technologies and practices that rely on learner surveillance and so perpetuate a culture of distrust. Surveillance technologies were never a part of this course, even though the context at the time encouraged them.

One aspect of traditional education that educators sought to replicate online during the pandemic was supervised examinations. Because in-person exams were no longer possible, remote proctoring technologies were seen by many as offering a relatively easy way to continue doing the same assessments under similar conditions. Remote proctoring refers to a family of technologies that create exam-taking conditions in remote environments — for example, remote invigilators watching students while they are taking their exam, or remote technology that employs algorithms and software to check for sounds and movements that might indicate cheating behaviours. By listening to, watching and attempting to restrict students' activities, these technologies enable faculty to police their classrooms and their students' physical spaces. When these

technologies are used, they can create a culture of distrust between educators and learners. For this reason, the DDOA course:

- opened conversations about proctoring and other surveillance-laden approaches to assessment
- identified ways in which such approaches can be unproductive and damaging
- examined and reflected on alternative assessments that could be designed to be meaningful to learners — for example, reflections and student-led discussions

To summarise, this course was designed with trust in mind in two major dimensions. The course designers trusted that learners would be able to judge the relevance of the course modules to their own lives and contexts and would complete their assignments with honesty and integrity. This meant rejecting the use of proctoring tools for assessment purposes and devising alternative assessments, which had the further benefit of enabling learners to see alternative types of assessment in practice, and not just in theory, during the course.

Flexibility

> I didn't face any major issues with the content, interactions, or with the technology, though the challenges of the pandemic were felt by participants. To this end, I was more flexible than typical with participants extending deadlines and supporting them as they felt necessary. (Course facilitator)

"Flexibility" is sometimes used concomitantly with "online learning," as the term is often used to describe instruction and learning that are not locked into a predetermined time and place. While the DDOA course was certainly flexible in this respect, which meant it could be offered to people in different geographic locations across different time zones, it was also flexible in its pedagogy. For example:

- Learners had choices about the content they engaged with. Multiple content options were provided; some of them were required, others were optional and yet others were presented as a menu that learners could choose from.
- Facilitators afforded much flexibility to participants to engage with the course in the ways that were meaningful to them and typically supported them in completing the course in the ways that made most sense to them. For example, while some learners completed multiple activities at the start of a week, others completed activities for two or three weeks at a time, when it was more convenient for them.

Designing a course in this way means being flexible with deadlines and considerate of the ways in which activities are designed. For example, group work may be challenging when flexibility is a key criterion, and strict guidelines around when learners can or should participate on discussion boards and similar platforms may pose a barrier to individuals who have competing needs and responsibilities outside the classroom. Conversely, some learners appreciate having a defined set of expectations and guidelines for participation, as well as

typical schedules, to help them integrate the demands of the course with their broader life. In other words, while flexibility is important, learners are diverse, and designing a course with flexibility built into it does not necessarily mean providing learners with the freedom to engage in any activity at any time but rather providing the supports and scaffolds they need to succeed. That may mean allowing extra time to complete an assignment or providing a schedule that allows them to plan ahead for the activities that they need to complete.

Localisation

> I worked with the [Commonwealth of Learning] liaison to customize the course for delivery to lecturers . . . I modified the learning activities and tasks for all five units of the course. (Course facilitator)

The first three offerings of the course enrolled educators from across the Commonwealth. In those instances, the course was offered through COL. The subsequent seven iterations were offered by institutions themselves to local audiences, in collaboration with and with the support of COL, providing organisations with the opportunity to customise the course to reflect local needs and realities. This model aimed to make the offerings more sustainable by sharing ownership and leadership and empowering organisations to customise the course to fit their needs more closely. For example, as mentioned earlier, after it received support for one offering, one institution offered the course three more times to teachers and educators from other local institutions and has now embedded the course into a course series so that every single faculty member at the institution participates in it. Another institution has decided to use the DDOA course to prepare all its educators in online assessment.

Furthermore, instructors, COL staff and staff at the various institutions that provided the course ensured that it was culturally responsive. Examples, activity descriptions and illustrations in the course were all thoroughly examined and adapted to match the context of each institution. For example, when the course was offered at a maritime institution in the Caribbean, the examples presented in the course used localised resources that would resonate with faculty in the region.

A significant design decision that aided the localisation process was the licensing of the course and its materials. Created as an open educational resource (OER) with a CC BY licence (see https://creativecommons.org/licenses/by/4.0/), the course provided institutions and participants with two important rights: to share (i.e., "copy and redistribute the material in any medium or format") and to adapt (i.e., "remix, transform, and build upon the material") for any purpose. Instructors benefited from having access to the materials from earlier iterations of the course, and faculty participants benefited from being able to access and reuse assessment tasks and rubrics that were produced by earlier participants and were licensed in the same way.

Conclusion

A number of learning design principles can be applied to the design of online learning materials to ensure that they are effective, engaging, efficient and equitable. For example, developing a plan for learner-instructor, learner-learner and learner-content interactions; creating a learning environment that includes cognitive, social and teaching presence; and adhering to instructional design fundamentals such as alignment between learning objectives and assessments. The DDOA course expanded on these and used design principles that aimed to account for faculty and teachers transitioning to unfamiliar teaching and learning contexts during the Covid-19 pandemic. It respected participants' agency and diversity, while recognising that they were facing professional and personal challenges. The guiding principles of relevance, trust, flexibility and localisation resulted in an innovative course that has proven to be effective in diverse geographical contexts. Licensing the course as an OER and decentralising its subsequent iterations and offerings enabled numerous institutions to adopt, reuse and revise the course to fit local contexts and needs.

While the DDOA course was developed in response to educators' professional development needs, prompted by the pandemic, its application, relevance and value extend beyond that first catalyst. Educators may find it valuable and worthwhile to examine the principles described in this chapter and reflect on whether they apply to their own courses. Individual faculty, for example, could investigate whether their course design has sufficient relevance, trust, flexibility and localisation and consider how their course might look if it put more focus on any of these principles. While individual faculty may ask these questions, their design decisions are often, if not always, constrained by institutional contexts. Institutional leaders could therefore examine the degree to which their institutional structures support these principles. They might consider ways in which the institutional structures stifle innovation and explore ways in which they might be able to support their faculty in exploring these principles, as well as others that may aid all educational professionals in rethinking the ways in which we design, develop and deliver online courses.

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CHAPTER

10

Innovating for Organisational Change: Helping Teacher Educators to Provide Quality Blended Learning in Guyana

Barbara G.Reynolds, Kevaun Sears and Olato Sam[†]

Abstract

Education is central to Guyana's national development, and it is the foundation of personal and professional development for the Guyanese. The bedrock of this education tradition is early childhood, primary and secondary education, and at the heart of the education system is the Cyril Potter College of Education (CPCE). Founded in 1928, the CPCE, Guyana's national teacher training institution, has trained almost every teacher in Guyana. It offers credentials for early childhood, primary and secondary school teachers, with specialisations in 13 areas in two- or three-year residential and non-residential programmes at 19 centres across Guyana. While a few faculty members had introduced virtual courses before the pandemic, the physical closure of schools during Covid-19 impelled the CPCE to formalise and implement plans to institutionalise online education. With support from the Commonwealth of Learning (COL), CPCE teacher educators were trained in the development and delivery of online courses, the college's information and communication technologies (ICT) capacity was expanded to support this initiative, and the college provided orientation to students and faculty before and during the roll-out of the new blended courses that were developed. This chapter examines the internal and external contexts in which the CPCE undertook this major initiative; the importance and significance of the scale-up of distance education for different stakeholders; the aim and objectives of the training, orientation and infrastructure capacity development; and what was done and why. It documents the challenges, enablers and lessons learned and draws out the policy and programme implications for both the college and Guyana. Essentially, the chapter addresses how providing a specific platform and training faculty in online andragogy, assessment, quality assurance and learner support expanded geographic reach and impacted teacher educators and students, in line with the

[†] Sadly, Olato Sam passed away in 2023.

national aim of reorienting or reimagining education delivery and other processes and practices at the college.

Keywords: Guyana, online education, teacher education

Introduction

Guyana is a relatively small nation of some 750,000 people spread across 83,000 square miles on the northern coast of South America. A Creole- and English-speaking country, Guyana still bears the scars of the Spanish, French, Dutch and British settlers' takeover of the lands of the Indigenous peoples — the Akawaio (Kapohn), Arekuna, Patamona, Waiwai, Macusi and Wapishana — the enslavement of Africans and the subsequent indentureship of Portuguese (from Madeira) and Indian residents, along with Chinese labourers. As a result of these waves of immigration, Guyana is a nation of six races/ethnicities, and an increasing number of people have a mixed ethnic or racial background.

About half of Guyana's population lives along a narrow strip of the coast, with towns and villages scattered across the hinterland, where there are few navigable roads but several rivers. The three major rivers — the Demerara, Berbice and Essequibo — lend their names to Guyana's three counties and serve as arteries for inland shipping of produce, imports and exports.

According to the last census, in 2012, 309,645 Guyanese — just under 50% — were aged 19 and younger (Bureau of Statistics, 2016). This cohort of Guyanese are the focus of pre-primary, primary and secondary education, and the secondary beneficiaries of the teacher education programme of the Cyril Potter College of Education (CPCE), Guyana's national teacher training institution. A recent determinants analysis of education in Guyana revealed several challenges to the education system relating to systems interventions, the enabling environment, supply, demand or quality, all of which directly or indirectly affect the CPCE (see Figure 10.1).

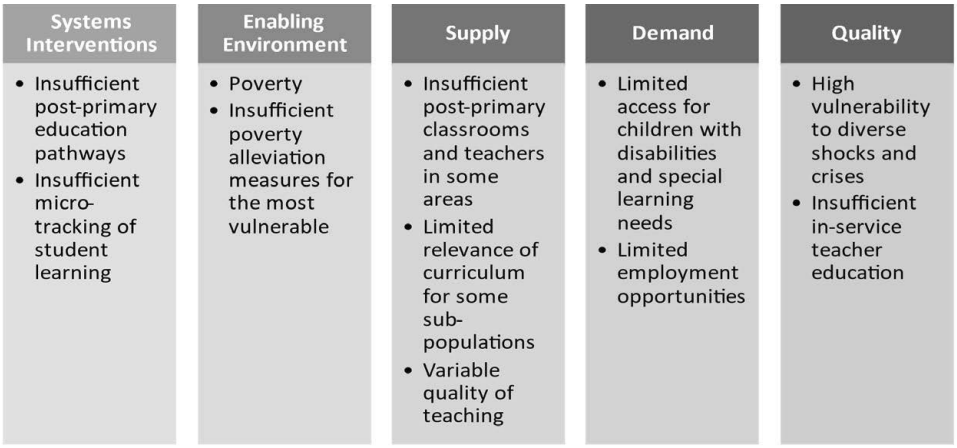

Figure 10.1. Analysis of the determinants of education in Guyana.

Source: Adapted from Reynolds, 2021, p. 64.

Context

When the first cases of Covid-19 were detected in Guyana, the education system was quick to respond with sweeping measures to prevent further spread of the disease. As a result, in March 2020, schools closed for two weeks to allow for an assessment of the situation. The subsequent months-long closure paralysed the education system, leaving the fate of the CPCE and hundreds of aspiring teachers in the balance. Forced into taking a longer-term view of the pandemic and its trajectory, institutions began to reformulate their policies and procedures, and the Government of Guyana directed the CPCE to reopen fully. To do this, the college had to migrate from primarily face-to-face and limited print-based distance education delivery modes to a completely online environment. The comprehensive restructuring of the institutional arrangements — which required adopting and using innovative methods in a relatively short period — proved challenging, largely because of the traditional hierarchical nature of the system. Initially, this inhibited the pace and level of the integration of innovations. The introduction of innovative approaches — with support from the Commonwealth of Learning (COL) — to promote more widespread involvement and capacity building among faculty and concrete strategies to respond to student needs served as a catalyst for improvements in both the breadth and depth of the transformation. The strategies used to achieve full integration of the new approaches were what Chin and Benne (cited in Kennedy, 1987) would characterise as a move from power-coercive to normative-re-educative approaches. The former reflects the top-down, centralised style captured in the Ministry of Education's directives and related demands as opposed to the CPCE's collaborative, inclusive methods.

The transformative experience also forced the institution to confront matters well beyond improvements to infrastructure, instructional capacity and student access — for example, deeper issues in relation to equity and social justice. The reality that innovations often exacerbate existing inequalities and injustices was brought sharply into focus as the institution was forced to answer the key questions posed by Ellis et al. (2018): "Why is change needed in the ways that we prepare and support the continuing professional learning and development of teachers? Who gets to decide and who should be the primary beneficiaries of this change? How do we achieve change and based on what (and whose) values?" (p. 3). Ultimately, the college sought to use the innovations to bridge the digital and geographic divides with more culturally responsive strategies.

The process the CPCE used to introduce and implement the innovations in teacher development — as well as the outcomes it realised — provides insights into the complexities of orchestrating organisational change, particularly in the context of a crisis such as the Covid-19 pandemic. Valuable lessons were learned from both the successes and the failures experienced during the process. The relevance, sustainability and potential expansion of the approaches have yet to be fully addressed. Once that has happened, it will be possible to better define the true nature of the impact of the initiative.

Process

The online programme at the CPCE was born from the need for the college to respond to the global shutdown caused by the pandemic. Traditionally, the CPCE employed strategies deeply rooted in physical, in-person interaction and mainly supported by print materials. These strategies required teacher candidates and facilitators to come together in the same space, which was no longer an option during the shutdown period.

To overcome the limitations of teaching/learning posed by traditional teaching/learning strategies in the Covid-19 pandemic environment, the CPCE created an online option that was initially intended to allow a cohort of teacher candidates to complete their training. As the pandemic persisted, the CPCE, with assistance from the Ministry of Education, agreed in late 2020 to partner with the Virtual University for Small States of the Commonwealth (VUSSC), under the auspices of COL, to provide a learning management system (LMS) designed to facilitate online learning. The support from the VUSSC/COL required equal, if not more, support from the education system for the partnership to succeed and evolve to satisfy the needs of the college's entire population.

The CPCE's vice principal (Curriculum and Instruction), who had oversight responsibility for all instruction to the teacher candidates, served as the liaison between the VUSSC/COL and the college. Two technical officers were identified to support the CPCE: one was a faculty member of the college and the other an officer within the Ministry of Education. In addition, the VUSSC education specialist provided the vice principal and the college with technical guidance and help with project management.

The partnership allowed for a collaborative effort to strengthen institutional capacity for online teaching and learning. The agreement provided the college with access to an LMS — Moodle — that could accommodate 300 learners for one year. Support from COL provided training for up to 70 faculty to design and deliver 28 online courses hosted by the VUSSC/COL on the Moodle platform to prepare them to engage their learners in the online learning environment.

The college decided on a hybrid (blended) approach to online distance learning, comprising in-person and virtual face-to-face (synchronous) sessions using multiple platforms and apps, and asynchronous sessions on the LMS. The plan was tailored to meet the needs of the two categories of teacher candidates in training: pre-service candidates who were studying for their degree before entering the work environment, and in-service candidates who were already employed in the education system but were accessing professional training. The college's administration staff also took into account that the blended approach to online teaching/learning presented challenges to teacher candidates located in remote regions because of the inadequate digital infrastructure in those regions.

Results

To assess the impact and success of the initiative, data were gathered, analysed and reported as part of an evaluation in 2022. Data comprised student and faculty surveys, focus group discussions with selected faculty and students and key informant semi-structured interviews with ministry and college personnel. The

results showed that there was a substantial and significant increase in the capacity of CPCE staff to design, develop and deliver quality courses for online delivery, but that there was still inadequate use of existing orientation and training, an urgent need for training in online assessment and a need for broader training of administrative staff to complement the academic programme. Institutional capacity to offer online and blended courses improved, as evidenced by the 66 teacher educators who successfully completed the training and the 28 online and blended courses that were developed and made available to students.

The evaluation of the online programme showed that the results were very positive overall. Online reach was quite high for both student and faculty respondents, and student respondents were very positive about the availability of courses online. As shown in Table 10.1, 34% of student respondents and 60% of faculty respondents indicated that all their required courses and taught courses, respectively, were online. Furthermore, a total of 77% of student respondents indicated that at least half of their required courses were online, and the same number indicated that they would like to have had half or more of their classes online. Among faculty respondents, 80% indicated that at least half of their courses were taught online, but only 70% indicated that they would have liked to teach half or more of their classes online.

Table 10.1. Online availability of courses in 2022

% of courses available online	% of required courses available online, as reported by students	% of taught courses delivered online, as reported by faculty	% of courses that students would have liked to be available online	% of courses that faculty would have preferred to teach online
0%	2%	4%	2%	12%
25%	8%	4%	8%	7%
50%	11%	5%	11%	19%
75%	32%	15%	32%	11%
100%	34%	60%	34%	40%
I don't know	13%	12%	13%	11%

It is important to note that while online courses were welcome, a significant proportion of students and staff still wanted face-to-face interaction. This reflects the overall ethos of the CPCE as a very dynamic and interactive institution with a distinct school culture.

Additionally, the evaluation showed that perceptions of the online programme were mixed. Among respondents who had taken or delivered an online course elsewhere, 45% of students and 44% of faculty respondents indicated that the online courses at CPCE were well designed by comparison (see Figures 10.2 and 10.3). While another 48% of students and 49% of faculty partially agreed with this assessment, these data suggest that there is significant room for improvement in the course design for both students and faculty.

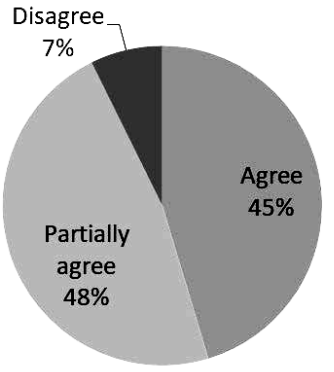

Figure 10.2. The courses at the CPCE are well designed compared to courses offered elsewhere: Students' opinions.

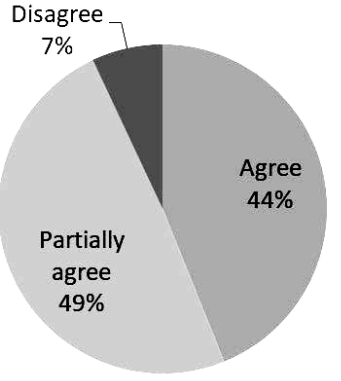

Figure 10.3. The courses at the CPCE are well designed compared to courses offered elsewhere: Faculty's opinions.

Enablers and Challenges

Overall, the results were encouraging and the project outcomes were exceeded. However, several enabling factors and challenges influenced the implementation of the project.

The online programme was inspired and influenced, in part, by the CPCE's foundations, its values and principles, and the sheer grit and determination of its faculty and staff in the face of Covid-19. Prior to Covid-19, although there was ongoing discussion at the CPCE among faculty, the executive administration and the board of governors about adopting new modes of instruction, only one faculty member had offered an online course.

In response to the widespread challenges and demands brought on by the pandemic, and with the support of the Government of Guyana, the CPCE executive administration embarked on a concerted effort to introduce online courses. The technical, infrastructural and financial support from COL was a major enabling factor that also provided a significant morale boost to a receptive executive administration.

The major technical limitations faced by the CPCE related to the design and development process, all of which were made more acute because of the

pandemic. At the outset, although some faculty and students reported having delivered or taken an online course prior to their CPCE online courses, the executive administration and faculty recognised that the CPCE did not have the immediate capacity to design, develop and deliver online courses. Faculty and staff had limited digital literacy; no experience in the design, development or delivery of online courses; and no experience in managing an LMS. The IT staff had limited technical capacity to adapt to online courses and respond to the quantum increase in demand for IT support from students and faculty.

Additionally, the move to an online environment required extensive changes to the existing organisational structure, composition and resources. In its efforts to respond quickly to resume teacher training that had been suspended for over six months for some candidates, the CPCE did not institute all the necessary changes before the system was implemented. While a technical officer for the college was identified from among the IT technicians already on staff, there was no additional or specialist IT support to facilitate the transition to online learning. At the beginning, there were no policies to guide the use of the new learning environment. Faculty members were provided with some training over a six-week period, but this was not enough for those who were not IT-proficient, and many adjunct faculty members who were required to support the new teaching environment did not access the training.

Some of the CPCE centres outside of the capital, including in remote areas, did not have Internet connectivity, and faculty had to use their personal resources to develop and deliver their online courses. Without a dedicated online IT unit, newly trained faculty became responsible for converting materials, building courses, and operating and managing the related problems and issues that students faced. In addition, the executive administration, faculty and staff had to take into consideration the limitations that their teacher candidates, especially those in remote areas, faced — for example, inadequate devices, electricity and Internet access, and limited digital literacy that hampered their ability to adjust quickly. Teacher candidates who lived in outlying areas not served by a telecommunications provider were given the option to live on or near campus so they had the Internet access required to benefit from the initiative.

Other limitations were financial; infrastructural — for example, lack of servers and computers, reliable CPCE-wide Internet access, reliable electricity or alternative power sources — administrative — for example, no procedures, processes and protocols were in place — and, very importantly, related to time constraints, especially because there was a sudden, and unexpected, change in the college leadership. This change introduced another layer of uncertainty and placed even more pressure on executive staff.

In summary, the specific circumstances during which this initiative was launched meant that those involved did not have the luxury of waiting until sufficient research and resources were available before implementing it. Furthermore, the institution had no time to formalise a strategy to move beyond implementation. As such, certain problems that arose very early in the execution phase forced the CPCE to recruit consultants for support — in particular, for technical advice, general guidance on migration and help with making arrangements for the CPCE to be ready to manage its own platform, CPCE Online, independently by the time the project ended.

Impact and Sustainability

The CPCE was strengthened by the improvements in the abilities of the 66 faculty who successfully completed the initial training initiative to design 28 online courses which were subsequently completed, reviewed and offered. Two cohorts of teacher candidates benefited from the initiative, with one of the two using the blended approach for their entire two years of study. Faculty went on to create and develop another 73 online courses, which are in various stages of completion. With the subsequent launch of CPCE Online in 2023 and the Ministry of Education's plans to see 100% of public school teachers formally trained by 2025, the online programme initiative has now become sustainable and is maintained as good practice in the delivery of teacher education in Guyana.

The initiative also allowed the CPCE to open its doors to the largest number of learners in its history, approximately five times more than its highest averages. Although trainees in outlying and riverain areas had severe challenges, teacher candidates from those regions were able to access the same associate degree in General Education programme that was previously available and offered only to candidates in the coastal regions.

In a broader sense, the wider education system in Guyana has benefited from the transformations at the CPCE. The college's actions have significantly increased access to training across the country. This has facilitated a mandate from the Ministry of Education that all untrained in-service teachers must enrol at the CPCE. The objective is to ensure that all remaining untrained teachers in the education system are trained as soon as possible. The CPCE's actions have also drawn attention to the structures required in other subsets of the education system for both the expansion of online programme options and the effective use of the skillsets acquired by teachers trained in the new modalities. Parallel systems have been implemented at the ministry's National Centre for Educational Resource Development (NCERD) to facilitate online access to continuing professional development (CPD) for teachers upon completion of their training. These initiatives, linked to innovations at the CPCE, have created an increased awareness of and appreciation for the potential benefits of the effective use of technology in the education system.

The institution has also been able to attract educators from other regions of the Caribbean and further afield as instructors for the programme.

Lessons Learned and Future Perspectives

While this initiative has proven to be a worthwhile venture, an important lesson learned is the need for dialogue between policymakers, practitioners and researchers (Ginsburg, 2001). The implementation of any reform strategy into an existing education system must be supported by research about the local context and data to inform the process. The rapid and far-reaching changes in the CPCE's leadership happened alongside demands that the college adopt new teaching and learning modalities and change how it operates. The cumulative effect was considerable disruption and social dissonance at the college, which resulted in expressions of concern and fear of reprisals. The CPCE's experience highlights the danger of an institution's losing its cultural identity when pushed into changing its systems without sufficient time and resources to configure its specifications to reflect its users' culturally diverse backgrounds. In sum, changes in teacher

education and training systems can sometimes be slow and arduous, but crisis situations can sometimes lead to innovations that benefit institutions. Adopting a collaborative and inclusive approach can serve to facilitate greater buy-in, thereby accelerating the process.

Given the existing innovations at the CPCE, the Ministry of Education has put into action plans for the expansion of institutional offerings. It is laying the foundation for the seamless integration of the technological framework at the college with the ministry's education management information system (EMIS). In addition, links to the online libraries at the University of Guyana and to open educational resource (OER) repositories will increase access to resources. The available course options will be expanded, and the possibility of providing training for foreign students is being explored. Furthermore, the viability of twinning the CPCE with other teacher education and training institutions is being examined. The innovations introduced as a result of the Covid-19 crisis have opened up the possibility of a multiplicity of potential growth pathways for the CPCE.

Conclusions and Recommendations

There is consensus that the inclusion and integration of online courses was a great achievement for the CPCE, not only as a response to the Covid-19 pandemic but also as a step towards achieving the college's own long-term vision. The changes in policies and processes will help the college respond to an expanding mandate to ensure all of Guyana's teachers are fully prepared for teaching in the 21st century.

The need to expand the college's resources — that is, to enhance basic infrastructure such as IT equipment, Internet access and reliable complementary communication channels — was laid bare. There is also a need to intensify and enhance the ongoing training of faculty and orientation of students to equip them to function effectively in an online, blended or face-to-face environment. Furthermore, it is crucial to expand the capacity of faculty and staff by enhancing their digital literacy, skills and competencies in order to safeguard the future of the CPCE and teacher education in Guyana. Finally, there must be robust, well-researched plans in place to prepare institutions and individuals for any major shifts in the short or long term and to help them cope with such shifts.

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CHAPTER

11

Providing Support for Emergency Remote Teaching in Trinidad and Tobago

Tony Mays and Betty Ogange

Abstract

At the request of the Ministry of Education in Trinidad and Tobago, the Commonwealth of Learning (COL) created a new version of one of its online short courses, Using Open Educational Resources for Online Learning: An Introduction (OER4OL), to assist teachers with emergency remote teaching during the Covid-19 pandemic. The success of the first offering prompted a request to offer the course again; that second offering eventually reached over 8,000 teachers. Feedback from participating teachers at the start, mid-term and exit points indicated that the course met or exceeded expectations for most of them. A strength of the intervention was that the ministry actively engaged in providing mentors and allocating continuing professional development (CPD) points to participants who completed the course. A weakness of the second offering was that because of the need to complete training prior to the start of the new school term, new cohorts of teachers were brought into the course every two weeks. Those teachers felt pressured to complete the four-week course in only two weeks. A cohort approach was used because only a limited number of mentors were available to support engagement at any one time. However, no teachers were deregistered, so they could complete the course in their own time, albeit without active mentor support after the first two weeks.

Keywords: continuing professional development (CPD), massive open online courses (MOOCs), open educational resources (OER)

Introduction

When school campuses closed because of the Covid-19 pandemic, teachers had to be trained very quickly to use technology tools to support the continuity of learning through emergency remote teaching (Hodges et al., 2020). In Trinidad

and Tobago, the Commonwealth of Learning (COL) and the Ministry of Education collaborated to adapt an existing short course, COL's Using Open Educational Resources for Online Learning: An Introduction (OER4OL), to meet this need. OER4OL was originally developed for the Ministry of Education in Fiji; its revised version contained guidelines and resources to help teachers cope with school campus closures by using resources and applications available online. This chapter explains what was done, what actions were taken, the results of those actions and what we learned, all of which can, we hope, be used to inform future initiatives.

As Mary Burns (2023) observes:

> Overcoming the challenges of distance teacher development depends on technical and methodological support and improvements. But this endeavor requires a transformation in our own beliefs about what distance education is, is not, and should be.
>
> Emphasizing quality, understanding the complexity of change, and recognizing that technology alone cannot drive effective distance education are key. By embracing these principles, those who fund, manage, support and design teacher professional development can propel these programs forward in fulfilling their promise to provide impactful and high-quality teacher learning—in-person and via distance. (Paras 17–18)

The specific context created by the Covid-19 pandemic meant that a pragmatic response was required (Hookway, 2016), one that used a social scientist approach (Babbie, 2016, 2017), to find practical, but not permanent, solutions to constantly changing education challenges, grounded in appropriate research. This chapter consequently explores five inter-related questions:

- How was the course designed, developed and promoted?
- How was the course offered?
- Who participated in the course?
- What feedback did participants provide?
- What did we conclude and what do we recommend?

How Was the Course Designed, Developed and Promoted?

Design and development

The design and development process followed a model that was originally developed by Florida State University for the US military and known as ISD (Branson et al., 1975) but has since been modified and widely adopted by educators (Crompton et al., 2023): Analyse, Design, Develop, Implement, Evaluate (ADDIE).

The course design sought to focus on practical ways to address the challenge of school closures in the short term by:

- scaffolding independent use of existing prescribed resources
- supplementing prescribed resources with open educational resources (OER)

- using appropriate technology to support communication and learning
- providing appropriate assessment and feedback

The background to the original short course — the Fiji version as well as the first iteration in Trinidad and Tobago — and its design and development are provided in the report on its earlier iterations which were shared previously with the Ministry of Education (COL, 2020).

Essentially, we structured engagement with OER and open access resources that COL's Open Schooling and Teacher Education portfolios had collated at the start of the pandemic to support emergency remote teaching. We sought to create a cohesive narrative around these resources based on activities that teachers could implement fairly easily. We also developed pre-course, mid-course and end-course surveys to help teachers reflect actively on their experiences. The course was divided into four lessons or units, each requiring about three to five hours to complete, depending on teachers' prior experience.

We realised that different teachers would be motivated to engage with the course in different ways for different reasons. Some would engage only with the parts that spoke directly to their current needs. Others would want to earn badges that they could share for recognition for continuing professional development (CPD) points. Still others would work through the content but choose not to complete assessment tasks. We therefore designed the course to have multiple exit points. Also, it was felt that lessons could be learned and applied even after schools reopened.

The latter point was later reinforced by at least one participant's reflection on why they had engaged with the course:

> Our school excels in both academia and extra-curricular activities. It is a well-respected institution in our community and many parents would like their children to attend same. As a result of this, it is quite over-crowded and lacking sufficient space for each level. However, all our teachers are hard-working and continue to beyond the call of duty. (Respondent, 3.570)

And as another participant reflected, there is still much need to advocate for the provision of educational opportunities outside of traditional classrooms:

> I hope that there would be additional opportunities for this type of professional development especially as it is relevant to the times and the profession in which I am currently in. Should have a similar programme for students, parents and external stakeholders because the perception still exists that online teaching is not to be taken seriously and face-to-face/direct instruction is "REAL teaching." (Respondent, 1.2)

We took this observation to heart: it led to the development of a series of follow-up short courses and guides, including a parents' guide for supporting open, distance and flexible learning (ODFL) learners.

The positive feedback from the first iteration of the short course, offered in partnership with the Ministry in Trinidad and Tobago, prompted a request from the ministry to offer the course again to try to reach more teachers. The intake for

the second iteration of the course was in cohorts to help manage the mentoring support. Overall, 8,759 participants registered.

Promotion

The target participants for the course were teachers in the Caribbean, specifically Trinidad and Tobago. A course brochure was made available to COL's and the MoE's contacts in the region.

Once the course opened, participants from other regions could also enrol.

While most participants were from Trinidad and Tobago, teachers from a total of 104 countries registered in the two iterations of the short course.

Of 2,778 participants who answered a pre-course survey question about how they heard about the course, 876 (34.45%) responded to an email invitation, 672 (26.43%) heard about it from a friend in a social network and 1,369 (53.83%) indicated they heard about it in "other" ways.

How Was the Course Offered?

Following a first iteration of the course in June/July 2020, which reached 1,114 teachers, a second iteration was offered in July – October 2020 and reached a further 8,759 teachers (Mays et al., 2021). This chapter focuses primarily on the second iteration.

COL's MOOCs for Development website hosted the course (see https://www.mooc4dev.org/OnlineTeaching). Topics in the MOOC were introduced by short videos followed by content-based activities embedded in downloadable PowerPoint presentations. Each activity was linked to a discussion forum to encourage the teachers to share their lessons, their experience and their own examples. Participants were given lists of additional reading materials, online resources or both. Assessments were based on active participation in discussion forums, a quiz and an assignment to design a lesson plan using OER that could be taught without teachers and learners having to be in the same place at the same time. Ten local mentors identified by the Ministry of Education offered support in using social media for discussion forums to three cohorts of teachers over the duration of the course, which opened on 22 July 2020 and closed on 06 October 2020.

Two types of certificates were available for participants in the OER4OL short course: a Certificate of Participation and a Certificate of Completion. For a Certificate of Completion, participants needed to watch at least 80% of the videos, obtain 70% or more on the quiz, submit a revised lesson plan as an assignment and participate in at least four forum discussions. A Certificate of Participation was awarded to participants who completed all the minimum requirements but did not submit the final lesson plan. There were 4,830 certificates issued in the second iteration, which was the larger iteration. This is a much higher completion rate (55.14%) than the 10–15% generally seen in MOOCs (Hollands & Kazi, 2018). It is attributed to the active participation of the ministry, and in particular to its promotion of the course, provision of ministry-appointed mentors and recognition of completion for formal CPD points.

Who Participated in the Course?

Registration for the second iteration was managed through three two-week cohorts, with 8,759 registrations by the end of the course offering. The enrolment pattern is illustrated in Figure 11.1 (unique daily registrations).

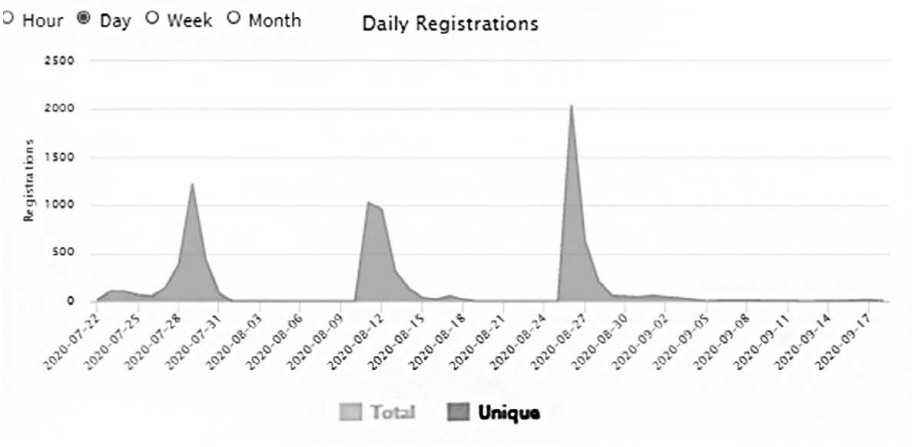

Figure 11.1. Enrolment pattern for the short course.

The peaks in the graph in Figure 11.1 reflect the three cohorts of teachers who were registered. The third peak is slightly higher, reflecting the ministry's efforts to reach as many teachers as possible before the start of the new term.

The gender and age profile of the participants showed that significantly more female than male teachers registered, and that most participants were aged between 21 and 50 (see Figure 11.2).

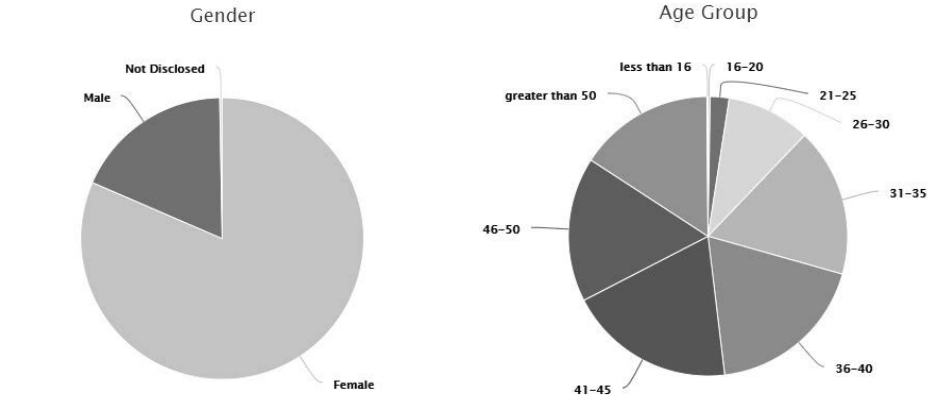

Figure 11.2. Gender and age profile of participants in the short course.

Most participants were graduates, and identified their affiliation as academia, government or individual, as illustrated in Figure 11.3.

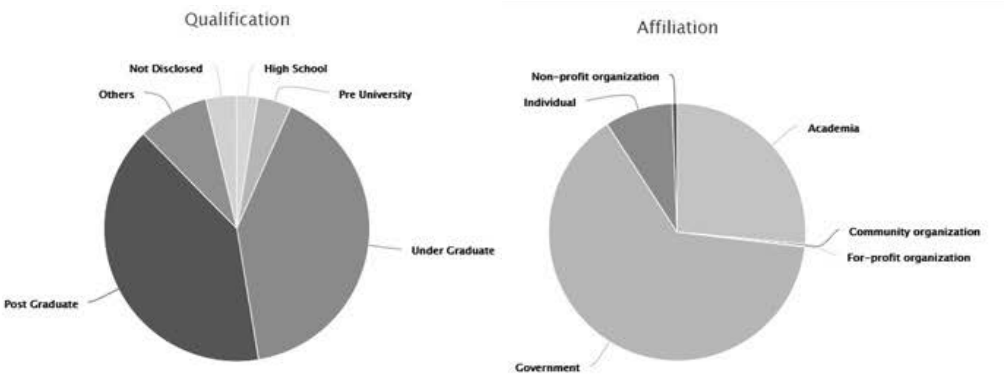

Figure 11.3. Qualification and affiliation profile of participants in the short course.

Due to the sequence of cohort registrations, interaction was fairly consistent throughout the course. As one cohort neared completion and started to exit the course, another cohort registered, as illustrated in Figure 11.4.

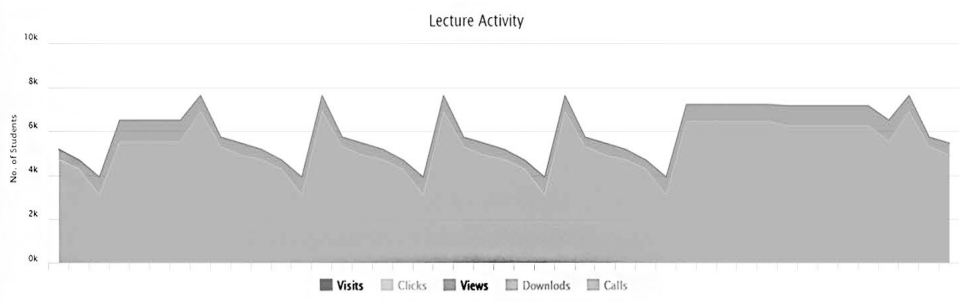

Figure 11.4. Lecture activity.

There were 10,930 forum posts and 81,835 comments shared during the course. Most participants managed to complete the course within the two-week cycle recommended by the ministry, with most participants having completed it by Wednesday 09 September.

What Feedback Did Participants Provide?

> I am grateful for the information and opportunities for thought and reflection that this course brings. Some of the information is redundant but I know the course is a basic one that caters for all levels of learners. As a "techie" person I was/am hoping for more training in online teaching and bridging the gaps that occur in the transition from face to face to online. However, I am learning new things and I think it will improve my online professionalism and abilities in the future. (Respondent 1.379)

> I really enjoy learning. This program was also very informative. However, at times very confusing but with everything these barriers make life interesting. (Respondent, 3.1303)

> I thought that this course was very informative and teacher centred. The content was very relevant and helped a lot with the current situation facing education. (Respondent, 3.1265)

Feedback was solicited from participants at three points in their learning journey:

- pre-course
- mid-course
- end-course

Participants submitted 2,778 pre-course surveys, 2,003 mid-course surveys and 1,623 end-of-course surveys. Analysis of this feedback, together with analysis of feedback from an iteration of the OER4OL offerings in the Pacific, subsequently informed the development of an unmediated, self-paced version of the short course.

Pre-course survey

There were 2,778 responses to the baseline survey, representing 31.7% of the final number of participants.

Of these, 96.6% indicated English was their first language and 39.91% indicated they had completed an online course previously. Of those who responded, 84.62% identified as female and 12.71% identified as male.

Of those who responded, only 12.93% reported that they were currently enrolled in another educational course.

Connection to the Internet was by wired/wireless connection (home/office) for 91.49% of the survey respondents. Mobile Internet was available for 44.22%. As would be expected, most respondents indicated they were employed in education/training (91.38%). Thirty-three respondents (1.26%) indicated they were students.

Most of the respondents had limited experience of supporting learners outside of the physical classroom, with 19.43% reporting no experience and 32.72% reporting eight weeks' experience or less.

The respondents also ranked their previous knowledge and experience of OER and online learning: about half ranked themselves between 5 and 8 out of 10, indicating more prior knowledge and experience than was anticipated in the course design.

Few participants (15.45%) reported that their previous studies had included components of OER or online learning, although some (33.46%) agreed that one or the other had been at least partly addressed.

Despite having some prior knowledge, 83.01% ranked improved knowledge of OER and 86.87% ranked improved knowledge and ability in online learning as their primary expectations of the course. In addition, 65.12% of respondents noted that gaining a completion certificate was a high priority for them and 64.49% anticipated that their stronger teaching skills would lead to greater job security. Also, 71.33% of the respondents anticipated that they would have stronger online skills that could be used in daily life.

Mid-course survey

Midway through the course, participants were invited to respond to a second survey. This survey focused on issues related to their perceptions, practices and pedagogical orientations. Our goal in this short orientation course was to shift participants' belief systems about learning and teaching towards a more open, participatory and sharing culture and the ways in which digital platforms can support this. We did this by seeking to model such a culture ourselves. For example, we asked participants to share their work openly and freely with their peers during the course so they could all benefit from each other's thinking. For certification, we set hurdle requirements as opposed to grading while encouraging participants to provide feedback on other participants' work.

Fewer participants responded to the second survey: 2,003, or 22.9% of the registered participants.

The objective of the survey was to tease out the participants' underlying belief systems about education and OER. They were asked to rate 38 statements (see Annex 1). The findings, which we divided into six primary themes, shed light on the participants' thoughts about open educational practices. This type of participant engagement aligns with the earlier quote from Burns about the importance of being able to articulate our own assumptions.

Education and technology

The first theme, which we termed Education and Technology, illuminated the participants' views on the intersections of education, human rights and technology. For example, the first statement of the survey, "Education is a human right," drew strong agreement from an overwhelming 82.81% of participants. The second statement, "Technology can enhance the teaching-learning process," saw similar levels of agreement, with 70.99% strongly agreeing.

These figures show a strong belief among the participants in the foundational status of education as a human right and the potential of technology as a powerful enabler in the teaching and learning process.

> Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners. (Office of Educational Technology, 2017, p. 3)

Openness in education

The second theme, Openness in Education, centred on the participants' views on access to publicly funded educational resources. Statements 4 and 5 in our survey specifically addressed this theme. A significant majority of the participants (more than 80%) agreed or strongly agreed that educational resources developed with public funds should be open access, signifying an inclination towards a more open, inclusive and equitable educational ecosystem (Ogange & Carr, 2021).

Designing learning experiences

The third theme, Designing Learning Experiences, examined the perception of teaching as a process of designing learning experiences for students. The related statements from the survey showed strong agreement with this notion, indicating that the participants saw their roles not as merely disseminators of information, but as designers of meaningful learning experiences. For example, the statement "Teaching is about designing the learning experiences for students" drew strong agreement from 30.86% of the respondents and agreement from 57.96%. Considering that teachers were required to respond promptly to learners' evolving needs during the pandemic, this perception was critical.

Adaptability in resource use

The fourth theme, Adaptability in Resource Use, explored the participants' attitudes towards using and modifying educational resources in their teaching. Statements such as "Being able to modify educational resources helps me to customise my teaching" revealed the participants' readiness to use resources flexibly to meet their students' diverse needs. This adaptability allows educators to enhance the learning experience by tailoring resources to their unique teaching contexts.

Creativity and collaboration

The fifth theme, Creativity and Collaboration, highlighted the creative possibilities offered by OER and the collaborative culture that results from sharing these resources. For example, the statement "Being able to combine and/or reorganise component parts of educational resources allows me to be creative in my teaching" showed the participants' recognition of the creative potential inherent in OER (Ogange & Carr, 2021). This theme illustrated the participants' understanding of the value of a shared culture in enhancing educational outcomes.

Open licensing frameworks

The final theme, Open Licensing Frameworks, shed light on the participants' understanding of the importance of frameworks for sharing educational resources. The statement "An open licensing framework (such as Creative Commons) is essential for sharing of educational resources" garnered a strong positive response. This indicated the participants' appreciation of the role of open licensing in facilitating the sharing of educational resources (Wiley & Hilton, 2018).

In conclusion, the mid-course survey provided valuable insights into the participants' beliefs about education, especially regarding open educational practices. The emergence of these six themes from the survey results outlines the participants' evolving perspectives as they delivered emergency remote teaching in their country. These themes demonstrate a shift towards openness, adaptability and collaboration in teaching practices, as well as a recognition of the transformative potential of OER and technology in education, especially when learning is disrupted (UNESCO, 2020).

End-of-course survey

There were 1,623 responses to the end-of-course survey (18.5% of registrations). Of these, 81.96% identified as female and 13.77% as male. Public institutions employed 85.58% of respondents; 3.26% of respondents were from private institutions and 7.61% were from "other" kinds of institution.

Participants were fairly evenly split between urban (48.12%) and rural (39.86%) areas.

As with the pre-course survey, the respondents to the end-of-course survey represented a range of ages.

In relation to their learning, 63.26% of respondents rated increased exposure to OER as "very useful" and 29.75% rated it as "useful." In a similar vein, 55.19% thought that learning to develop a lesson plan using OER was "very useful" and 36.74% thought it was "useful." Sharing the lesson plan was found to be "very useful" or "useful" by 68.49% of participants and 65.34% found the sharing of feedback "very useful" or "useful." However, students' and teachers' access to computers; teachers' knowledge, skills and access to training opportunities; and Internet reliability and costs will all significantly affect the take-up of information and communication technologies (ICT).

In reflecting on what the course set out to achieve, the mean rankings for the key components, with 5 being the highest possible positive score, were as follows:

- Using prescribed resources (Unit 1): 4.02/5
- Using OER (Unit 2): 4.09/5
- Using communication and support tools (Unit 3): 3.93/5
- Using assessment and feedback (Unit 4): 4.01/5
- Motivation to learn more about online learning: 4.28/5
- Motivation to integrate more ICT into teaching: 4.41/5

In reflecting on their experience of the course in relation to some of the baseline expectations, the mean rankings for various issues, with 5 being the highest possible score, were as follows:

- Meeting requirements for certification: 4.46/5
- Gained stronger teaching skills for enhanced job security: 3.95/5
- Gained stronger online skills for daily life: 4.04/5

The course was designed with the expectation that participants would spend about three hours on each unit (although many optional readings were also provided). Respondents reported spending on average 4.34 hours per week (8.68 hours over two weeks), but some in the second cohort felt they needed the full four weeks to complete the course properly.

The mean response to a question about how likely they were to recommend the course to other teachers, with 1 meaning "not at all" and 5 meaning "I think every teacher needs this course," was 4.43/5.

Teacher stories

A total of 965 participants posted reflections on ways in which the OER4OL short course impacted their teaching during the Covid-19 pandemic. Using a reflection guide developed by the course leaders, the participants also shared stories about their plans for their future classroom practice and expectations for teacher professional development and recognition (Mays et al., 2021).

Review of assignment: Lesson plans

A total of 4,952 lesson plans were uploaded after review and discussion in a dedicated lesson forum, using a rubric as a guide. A review of a random selection of these plans helped us identify some initial lessons (Mays et al., 2021):

- While it is good to provide a fully worked example, this can potentially limit creativity. From the 4,952 assignments available, the ministry could build a set of examples that need to be improved and examples that could be used as models.
- Many teachers need more support to help them think carefully through what tool to use, and how and when to use it in order to ensure ongoing communication throughout the learning process.
- Teachers generally need more support in how to structure activities for learners who are working independently and how to provide written guidelines.

The collection of shared resources created by these uploaded lesson plans is a rich source of information that could be mined further for reuse in other contexts or as learning resources in a course.

What Did We Conclude and What Do We Recommend?

The OER4OL MOOC was designed, developed and implemented with an in-country partner institution within a very short period. As an introduction to finding a way to respond to a very specific set of needs in a very specific context, it was a successful intervention. Findings from the mid-course and end-of-course surveys indicate a high level of satisfaction with the course, its content and its activities, and most respondents expected that they would continue to integrate OER and ICT into their teaching. However, it was clear that each of the course components would need to be explored in more depth in subsequent CPD support.

As an introduction, the short course seemed largely to have served its purpose. The major challenge for most participants in the second country-specific iteration was the shorter time frame that was adopted in order to support multiple cohorts before schools reopened. One of the challenges when high numbers of learners are all posting examples and comments at a given time is that it becomes difficult to track engagement and respond appropriately. By using a cohort system to limit the number of very active participants to about 2,500 at a time, we hoped that it would be easier to provide valuable feedback and support.

As noted, the much higher completion rate than is generally found with MOOCs is attributed to the active participation of the Ministry of Education, particularly

its promotion of the course, provision of ministry-appointed mentors and recognition of course completion for formal CPD points. To paraphrase Burns (2023), as quoted at the start of this chapter, it is not just about the technology. It is about using appropriate technology in appropriate ways at a distance. We should model the open, collaborative and quality practices we seek to promote through our CPD work with teachers.

As noted by Tondeur et al. (2023), multiple factors influence teachers' experiences with "the great online transition," and we need to use that information to shape a more thoughtful engagement with teachers' professional development going forward. As Schwartz (2023) observed, however, many teachers feel that the professional development opportunities they currently receive neither match their expectations nor help them address real-life teaching issues, and so there is a real need to research what we learned during the pandemic and what it tells us about the nature of the professional development support we need to offer going forward (Lo & Hew, 2023; Philipsen et al., 2023).

All of the above implies that we should involve teachers more in the analysis, design, development and review of courses designed to support their CPD; be more responsive to their feedback during the implementation of initiatives and programmes; and make appropriate adjustments when and where required. However, an educational emergency requires an emergency response. In this light, the rapid development and continual refinement of the short course were essential, mirroring the urgency and adaptability needed in such situations. The short course discussed in this chapter went through several iterations, with each iteration modified based on lessons from experience — and as Mark Twain once observed, "continuous improvement is better than delayed perfection."

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Annex 1: Mid-term Survey Statements and Responses

Note: Response options ranged from strongly disagree to strongly agree.

Statement 1: Education is a human right. Of 2,003 respondents, 82.81% strongly agreed.

Statement 2: Technology can enhance the teaching-learning process. Of 2,003 respondents, 70.99% strongly agreed and 24.98% agreed.

Statement 3: Teaching is about getting the learners to simply understand the subject matter content. As might be expected, there was some divergence of opinion on this question.

Statement 4: Educational resources developed with public funds should be available cost-free. Of 2,003 respondents, 42.3% strongly agreed and 42.56% agreed.

Statement 5: Education resources developed with public funds should be available for open access. Of 2,003 respondents, 40.51% strongly agreed and 49.27% agreed.

Statement 6: The use of educational resources that are openly licensed and freely accessible by teachers has the potential to change their approaches to the teaching-learning process. Of 2,003 respondents, 37.64% strongly agreed and 52.84% agreed.

Statement 7: Teaching is about designing the learning experiences for students. Of 2,003 respondents, 30.86% strongly agreed and 57.96% agreed.

Statement 8: Educational resources that are openly licensed and freely accessible have the potential to change the design of students' learning experiences. Of 2,003 respondents, 32.46% strongly agreed and 58.15% agreed.

Statement 9: Teaching with technology increases my teaching workload. This statement provoked mixed responses.

Statement 10: Being able to use the same educational resources multiple times helps my teaching. Of 2,003 respondents, 18.59% strongly agreed and 56.81% agreed.

Statement 11: Being able to modify educational resources helps me to customise my teaching. Of 2,003 respondents, 40.51% strongly agreed and 54.82% agreed.

Statement 12: Being able to combine and/or reorganise component parts of educational resources allows me to be creative in my teaching. Of 2,003 respondents, 38.72% strongly agreed and 56.74% agreed.

Statement 13: Being able to share multiple copies of educational resources helps promote a culture of sharing. Of 2,003 respondents, 31.88% strongly agreed and 56.74% agreed.

Statement 14: Searching for appropriate educational resources that are openly licensed and freely accessible for my teaching is poor use of valuable teaching time. Of 2,003 respondents, 21.6% strongly disagreed and 51.69% disagreed.

Statement 15: The reliability of educational resources that are openly licensed and freely accessible cannot be always assured. Of 2,003 respondents, 40.89% either agreed or strongly agreed, while 37.06% were neutral.

Statement 16: An open licensing framework (such as Creative Commons) is essential for sharing of educational resources. Of 2,003 respondents, 22.11% strongly agreed and 61.6% agreed.

Statement 17: I integrate technology in my teaching. Of 2,003 respondents, 39.81% said sometimes and 39.1% said often.

Statement 18: The main focus of my teaching is students' understanding of the subject matter content. Of 2,003 respondents, 45.37% said this was always the case and 36.55% said it was often the case.

Statement 19: I use proprietary educational resources (i.e., privately owned and copyrighted) in my teaching, instead of those that are in the public domain or which are openly licensed. This statement provoked a mixed response, with 50.67% of participants responding sometimes and 21.66% rarely.

Statement 20: I avoid using educational resources that are openly licensed and freely accessible in my teaching. Of 2,003 respondents, 39.68% responded never and 31.01% responded rarely. This is a slightly more positive attitude towards OER than in previous iterations of the course.

Statement 21: I use educational resources that are openly licensed and freely accessible to enhance the learning experiences I design for my students. Of 2,003 respondents, 45.11% said this was sometimes the case and 36.04% said this was often the case.

Statement 22: I develop my own educational resources. Of 2,003 respondents, 53.99% said this was sometimes the case and 29.33% said this was often the case.

Statement 23: I use the same educational resources multiple times in my teaching. Of 2,003 respondents, 51.63% said this was sometimes the case and 32.01% said this was often the case.

Statement 24: I modify educational resources before integrating them in my teaching. Of 2,003 respondents, 48.65% said this was sometimes the case and 35.21% said this was often the case.

Statement 25: I combine and/or reorganise component parts of educational resources to enhance the quality of my teaching. Of 2,003 respondents, 42.56% said this was often the case and 41.79% said this was sometimes the case.

Statement 26: I share multiple copies of educational resources I have developed, freely with the others. Of 2,003 respondents, 38.34% said this was sometimes the case, while 29.84% said it was often the case.

Statement 27: I use educational resources that are openly licensed and freely accessible to help improve my teaching. Of 2,003 respondents, 46.52% said this was sometimes the case, while 36.17% said this was often the case.

Statement 28: I evaluate the content of educational resources that are openly licensed and freely accessible before integrating them in my teaching. Of 2,003 respondents, 38.91% said this was always the case and 30.67% said it was often the case.

Statement 29: Access to educational resources that are openly licensed and freely accessible enables me to be innovative in my teaching. Of 2,003 respondents, 42.48% said this was often the case and 30.8% said this was sometimes the case.

Statement 30: Access to educational resources that are openly licensed and freely accessible allows me to share educational resources with anyone. Of 2,003 respondents, 37.96% said this was often the case and 31.95% said it was sometimes the case.

Statement 31: Access to educational resources that are openly licensed and freely accessible enables me to design a variety of learning activities for my students. Of 2,003 respondents, 44.35% said this was often the case and 29.9% said it was sometimes the case.

Statement 32: Access to educational resources that are openly licensed and freely accessible allows me to design effective learning experiences for my students. Of 2,003 respondents, 44.09% said this was often the case and 29.84% said it was sometimes the case.

Statement 33: Access to educational resources that are openly licensed and freely accessible allows me to design engaging learning experiences for my students. Of 2,003 respondents, 44.92% said this was often the case and 30.42% said it was sometimes the case.

Statement 34: Access to educational resources that are openly licensed and freely accessible allows me to integrate new/updated educational resources in my teaching. Of 2,003 respondents, 43.39% said this was often the case and 30.61% said it was sometimes the case.

Statement 35: Access to educational resources that are openly licensed and freely accessible allows me to design high-quality learning experiences for my students. Of 2,003 respondents, 42.17% said this was often the case and 32.78% said it was sometimes the case.

Statement 36: Finding appropriate educational resources that are openly licensed and freely accessible in my teaching is a time-consuming task. Of 2,003 respondents, 50.42% said this was sometimes the case and 22.56% said it was often the case.

Statement 37: Integrating appropriate educational resources that are openly licensed and freely accessible in my teaching is a time-consuming task. This statement provoked a mixed response, with the highest response — 51.76% — being that this was sometimes the case.

Statement 38: Using educational resources that are openly licensed and freely accessible can result in erroneous or invalid information being given to students. Of 2,003 respondents, 39.87% said this was rarely the case and 39.81% said it was sometimes the case.

Conclusion: Charting a Way Forward for Digital Teacher Professional Development

Tony Mays and Betty Ogange

Introduction

As noted in the main Introduction, the primary purpose of this book was to document how different countries responded to the need for teacher professional development (TPD) when the Covid-19 pandemic closed campuses and restricted face-to-face interactions. A related purpose was to ascertain which of the innovative approaches that were taken could be used post-pandemic to improve teachers' capacity to enhance retention, pass rates and progression and improve overall quality of learning.

When they were conceptualising this publication, the editors speculated that interventions would involve, among other things, leveraging open educational resources (OER), implementing blended learning and online assessment, advancing digital education leadership and promoting both school-based teacher development and TPD communities. In reflecting on the final set of case studies, they confirmed that their predictions had been accurate. As noted at the end of the Introduction, "The case studies in this book illustrate how the incremental adaptation of blended and online learning, supported by innovative thinking, can foster a dynamic and resilient teaching workforce, capable of responding effectively to both natural and human-made disruptions." In-person TPD, and education and training in general, may be disrupted for any number of reasons, including pandemics, the effects of climate change and civil unrest. Teachers in the system must be well prepared to support the continuity of learning when circumstances change and traditional provision is no longer feasible.

Before we consider lessons learned or potential steps forward, it is important to note that the case studies must be read in the context of the dramatic changes in technology, particularly in the area of generative artificial intelligence (GenAI), that have occurred even since the case studies were first documented. The scope of those changes means that both the roles and competencies of teachers, and

the associated TPD teachers will need if they are to implement and use new technologies effectively, will need to be continuously revisited (Fairman et al., 2022; Hennessy et al., 2022; Sancar et al., 2021). Teacher educators will need to consider how GenAI could influence the type of open educational practices they might like to promote (Tlili et al., 2024). Recognising this need, the Commonwealth of Learning (COL) has initiated a new collaborative project to explore the use of GenAI by teachers which will be reported on in due course.

The new project is based on the premise that when they work together to share examples and practices — from entire courses down to effective prompts — teachers can learn from their collective experience about what works and does not work in different contexts. They can integrate particular technologies, such as digital gaming or simulations, into specific TPD focus areas as diverse as physical education and STEM education (Hsia et al., 2024; Mikeska et al., 2025), but how do we, as teacher educators, help them make informed decisions about which technologies to use and where and how to use them, and can GenAI help in this decision-making process?

Effective learner-centred feedback and feed-forward have long been central to the impact of any learning experience, but they were, and continue to be, difficult to manage at scale. However, it is now possible to use GenAI tools to automate at least part of the feedback and feed-forward process (Aldino et al., 2024) and subsequently use the related digital learning analytics to personalise the learning experience (with the caveat that there may be some privacy issues to address first) (Jin et al., 2024; Misiejuk et al., 2025). It is important to note, though, that while automated feedback can be useful because it is available immediately at any time, human feedback can provide more nuanced responses, including emotional support, and will, therefore, continue to be critical (Alfredo et al., 2024). This is why COL advocates for keeping the teacher or teacher educator involved, rather than relying solely on GenAI.

Mays (2024) argues that the most effective way to deal with the evolving GenAI landscape is to take a pragmatic approach by helping teachers to use AI appropriately; automate routine administration and teaching tasks; balance offering personalised support with the risk of creating over-dependence; support critical reading and interpretation of GenAI responses; refocus on authentic assessment; address cybersecurity and academic integrity issues; consider the use of digital avatars for learners who are reluctant to engage in person; use learning analytics ethically; and, more generally, imagine what could be possible in the future (Bates, 2024; Du et al., 2024; Kizilcec, 2024; Law, 2024; Sevnarayan & Potter, 2024; Williamson, 2024). A recent *Education Week* study noted that "lack of knowledge and support is one of the top reasons why teachers say they are not using AI in the classroom" (Langreo, 2024, Why teachers aren't using AI). The study findings led to the development of a tip sheet containing the following four practical actions to take to foster engagement (Langreo & Solis, 2024):

1. Get input from staff, students, and parents about their concerns and questions.
2. Focus on how the technology might support certain teaching strategies.
3. Provide meaningful training that shows AI's strengths and weaknesses.
4. Don't rush AI implementation simply because the tech is evolving fast.

Cobo (2024) notes that some teachers are sceptical about how useful AI is to them and provides a useful summary of the 2024 UK Department for Education report *Use Cases for Generative AI in Education*, which, as the title implies, identifies examples of how teachers can put GenAI to practical use to enhance various aspects of their work. While it seems clear that there are ways in which teachers might engage productively with GenAI, Bozkurt et al. (2024) caution against a too uncritical engagement with it and argue "for robust, evidence-based research and conscious decision-making to ensure that GenAI enhances, rather than diminishes, human agency and ethical responsibility in education" (p. 488). Their comment aligns with calls for Human-in-the-Loop (HITL) systems in schools to safeguard against AI errors and biases (UNESCO, 2024a). Such systems include methodologies that involve the active participation of educators and learners in the deployment and oversight of AI, while maintaining ethical standards and improving educational outcomes.

It was noted at the start of this section that the initial intention for this publication was to document how countries responded to the need for TPD during the recent pandemic and what lessons could be learned and applied in the future. However, post-pandemic, a new set of opportunities and challenges arose when GenAI became publicly accessible, opening up its potential use by both teachers and learners. This is only one example of how the changing nature of the teaching environment points to TPD as an ongoing process rather than a one-off event.

Lessons Learned

While each case study in this publication focuses on a different context, it is possible to draw several widely applicable lessons from them.

As noted in Chapter 8, it may be useful for teacher educators to conduct a training needs assessment at the start of a TPD intervention to create a framework that outlines the key competencies and skills that teachers need to develop over time through more open, distance and flexible learning opportunities. Moreover, and perhaps more importantly, as observed in Chapter 10, there must be robust, well-researched plans in place to prepare institutions and individuals for any major shifts in the use of open and distance learning (ODL), digital technology and GenAI in the short or long term and help them cope with such shifts.

The authors of Chapters 1, 2 and 5 all noted that structured access to OER is a contributing factor in improved learning outcomes and the successful roll-out of remote/distance learning TPD programmes. However, teachers are more likely to use and reuse OER when they are tailored to their specific context and endorsed by their Ministry of Education. Additionally, OER and other resources for online learning should be assessed, ideally by the responsible ministry at the national level, to identify areas in need of improvement before programmes are rolled out nationwide. This review process would include supporting the development of OER that are not only curriculum-based but also in local languages and in varied formats to offer more inclusive provision.

As noted in Chapter 6, TPD for new and developing skills requires sustained support aimed at improving expertise in integrating technology into pedagogical practices. Effective integration is a continuous process because of the evolving nature of the field. The authors of Chapters 1, 3, 4 and 5 note that while MOOCs

and webinars are a useful way to reach teachers at scale, they must be well structured. Guided online capacity-building courses should ideally include assistance from course mentors; provide technical skill-building that aligns with the tools and technologies available to teachers; support participation in moderated online communities of practice (CoPs); and provide access to a platform that facilitates the sharing of country-specific and low-cost, offline access to resources. Retention and success in TPD are greater if completion is recognised nationally through a continuing professional development (CPD) points system and/or for credit in formal teacher qualification programmes.

However, as noted in Chapters 3 and 7, training and qualifications are not synonymous with competences. Teachers must be able to provide evidence of improvement in some aspect of their work — for example, improved lesson planning, more inclusive provision, more authentic assessment and better use of assessment data for improved retention, pass rates and progression — as part of their assessment process.

Several case studies included an observation that classroom teachers' apparent reluctance to engage with technology may have more to do with the nature of the opportunities provided for them than with any inherent reservation about using technology. If TPD is offered in manageable bite-size chunks, using appropriate technology in appropriate ways, with immediate practical applications so that teachers can easily see the benefits, it is more likely to foster meaningful and prolonged engagement. A significant benefit of e-learning opportunities is that teachers can focus their energies on immediately applying what they learn to their teaching in context. For example, as noted in Chapter 4, when teachers can automate marking, issue tests digitally and track student progress with reporting tools and analytics, they can make the learning experience more engaging and impactful for both their learners and themselves.

Chapter 9 highlights that the design process for appropriate TPD opportunities must make provision for learner-instructor, learner-learner and learner-content interactions; create a learning environment that includes cognitive, social and teaching presence; and adhere to instructional design fundamentals such as alignment between learning objectives and assessments. This helps model good practice more generally.

In Chapter 4, the authors note that a cascading train-the-trainers model can be effective in highlighting the value of mentorship and the use of OER and technology for TPD. The lead teachers initially trained in such a model could start by providing an engaging orientation, perhaps in the form of a webinar, and gradually begin using or modifying existing MOOCs, facilitated by a team of volunteers who are not necessarily senior leaders, for training purposes. The authors of Chapter 5 explain that when senior leaders join in as participants, they model learning behaviours, which in turn supports mutual engagement. This point is key, because, as noted in Chapter 7, for TPD to be effective, the form of provision should model the values and behaviours it seeks to promote. The open sharing of experiences and reflections of teachers and education leaders would ideally motivate others to follow suit. In a more learner-centred observation, the authors of Chapter 7 suggest that training selected secondary school students as digital education student leaders could help increase the impact of technology-enabled learning (TEL).

The overall lesson learned from all the case studies — and from Chapter 11 in particular — is that we should involve teachers more in the analysis, design, development and review of courses designed to support TPD; be more responsive to their feedback during the implementation of initiatives and programmes; and make appropriate adjustments when and where required. The technology may be changing quickly, but the move to blended and online forms of TPD is a marathon and not a sprint.

Building on Lessons Learned

In a recent report titled *The Price of Inaction*, UNESCO (2024b) estimated that the annual global cost of school dropout and inadequate access to schooling is a staggering USD 10,000 trillion. Sometimes learners drop out of schooling, but in many countries in the Commonwealth, there are too few secondary school places available. Many countries have simply been unable to build enough secondary schools and employ sufficient well-trained secondary teachers to accommodate all the learners exiting primary school or dropping out somewhere along the way (Commonwealth of Learning [COL], 2022; Narayan et al., 2021).

The following sobering statistics put this challenge into perspective:

- 1.6 billion learners in more than 190 countries had their schooling disrupted by the Covid-19 pandemic (UNESCO, 2021); post-pandemic, chronic absenteeism rates have doubled in some areas (Carman & Wesley, 2024).
- According to the World Bank (2024), reporting UIS data, the Gross Enrolment Ratio at the secondary level was still only 77% in 2022.
- According to Statista (2024), on average, 21.78% of young people aged 15–24 globally were not in employment, education or training in 2023.

The scale of the challenge, just five years away from the 2030 deadline to achieve the goal of universal basic education, indicates that a traditional bricks-and-mortar approach will not solve this problem. It can be addressed only by expanding ODL. *The Price of Inaction* tells us that 128 million boys and 122 million girls are currently excluded from schooling. Furthermore, as noted earlier, in addition to out-of-school children, there are large and growing numbers of young people who are not in employment, education or training, particularly in the less economically developed regions of the Commonwealth (COL, 2022; Narayan et al., 2021). In these regions, schooling is often disrupted by natural disasters such as flooding, droughts or disease. Children who are affected by the disruption and subsequent displacement may never return to school — and too often, the opportunity to return to school is no longer there, even if families are willing and able to send their children back. As a result, these young people fail to secure gainful employment later in life, which in turn negatively affects not only their own lives and livelihoods but also the lives and livelihoods of the generations that follow. Without the opportunity to get a good education, there is little chance for young people to escape the cycle of poverty and disadvantage. Girls are particularly vulnerable in this respect, as they are at greater risk of being married off when they are not in school. ODL offers an opportunity to begin to break the cycle of disadvantage without building new or replacement infrastructure and other resources (Naidu, 2023) — but it still needs human

teachers. According to the UNESCO 2024 *Global Report on Teachers* (UNESCO, 2024c):

- "Teachers are essential to achieving sustainable development goal (SDG4) which commits to ensuring inclusive and equitable quality education for all by 2030" (p. 17).
- "44 million primary and secondary teachers will be needed by 2030 to reach SDG targets" (p. 18).
- "In sub-Saharan Africa . . . 15 million additional teachers are needed" (p. 34).

To harness the full potential of ODL and deliver quality education, teachers need pre-service training that prepares them to use hybrid forms of education provision effectively, and in-service training that supports their ongoing professional development without taking them away from their classrooms. The Technological Pedagogical Content Knowledge (TPACK) framework (tpack.org, 2012) provides a useful conceptual model in this regard, while UNESCO's ICT Competency Framework for Teachers (version 3) (UNESCO, 2023) and AI Competency Framework for Teachers (UNESCO, 2024a) provide insight into the evolving roles and competencies of teachers in a digital age.

As noted above, not only is the world recruiting and training too few teachers, but in addition, many countries are building too few new secondary schools to meet the need for secondary education using bricks-and-mortar approaches alone. The need to explore blended and online forms of schooling provision seems to be increasingly strong. We therefore need an increased focus on teacher development in and through ODL within a context of increasing digitalisation.

Looking Forward: A Proposal for the Future

Based on the foregoing discussion, the authors propose a new project, tentatively titled Beyond Numbers: Scaling Quality Teacher Development in Sub-Saharan Africa with ODL (Beyond Numbers project).

Leveraging ODL and digital delivery modes has the potential to expand the current pool of qualified educators — thus addressing the significant shortage of teachers identified by UNESCO (2024c) — and prepare a new generation to meet the growing demand for quality education, particularly with a view to improving gender equality and inclusive provision.

The case studies in this publication collectively highlight and emphasise that ODL and digitalisation present a transformative opportunity to address the current, and growing, challenge in education. These innovative approaches can be used to facilitate accessible and flexible training programmes tailored to meet the increasing need for quality education for all learners. Key components of a comprehensive TPD programme would include developing a framework for integrating technology in general, and AI in particular, into teacher education at both pre-service and in-service levels, enhancing content development and learning methodologies to include ODL strategies, ensuring academic integrity and empowering teachers to keep both themselves and their students safe while delivering online learning (Buyu & Ogange, 2022), along with a code of conduct for digital education.

Additionally, focusing on digital skills development for teachers and enhancing competency-based curriculum (CBC) development and delivery will prepare educators for the new reality of a combination of in-person, blended and online provision. This strategy should have a twofold aim: to cultivate a new generation of capable teachers and to improve learning outcomes for students. Its success is dependent on collaboration among governments, educational institutions and technology providers so that policies and resources are effectively aligned to create an inclusive and dynamic educational landscape that addresses gender equality concerns.

One approach that can be adapted to empower and support teacher development efforts is co-creative mentoring, which draws on the concept of Human-in-the-Loop AI. Co-creative mentoring is a collaborative approach whereby teacher mentors and pre-service or in-service teachers jointly engage in the development of OER. Interpreted as Teacher-in-the-Loop by COL and partners, the model leverages GenAI to produce high-quality, inclusive and pedagogically sound materials that are customisable and aligned with curriculum standards. By working together, teachers and learners can ensure that AI-generated resources are contextually appropriate and address diverse learning needs effectively. Furthermore, the collaborative process reinforces pedagogical practices among educators, leading to improved teaching strategies and enhanced learning outcomes for students. The resulting curriculum-aligned OER would be published as e-books, providing accessible materials for broader educational use.

Objective

The objective of the Beyond Numbers project, as currently envisioned, would be to create a sustainable teaching workforce by scaling teacher training through ODL and equipping teachers with 21st-century skills through digitalisation. This approach would build the capacity of educators to meet the growing demand for quality education. In the "scaling beyond numbers" concept, the impact of training is not about simply tracking numbers but rather embracing sustainable quality-focused scaling efforts. Outcomes can be tracked through, for example, the level of teacher preparedness, inclusion using localised content, leveraging digital technology and using reflective teaching practices.

Key focus areas

Given that it will not be possible to address everything at once, and given the budget limitations that COL and its partners generally work with, we suggest concentrating initially on six focus areas.

1. **Scale teacher training through ODL**
   Increase the number of qualified teachers by developing and delivering flexible, scalable ODL programmes. These programmes would reach underserved and rural populations, providing them with access to high-quality teacher training.
2. **Enhance teacher quality through digitalisation**
   Train teachers to use digital tools and emerging technologies, including AI, effectively to enrich the classroom experience. This training would focus on

equipping educators with the digital literacy and pedagogical skills required by modern, TEL environments.

3. **Develop 21st-century competencies**
   Develop teachers' critical thinking, creativity and communication skills in digital contexts so that they can foster these same competencies in their students. The focus should be on creating adaptable, innovative teachers who can respond to the evolving needs of 21st-century learners.

4. **Create a collaborative framework across member countries in different regions**
   Support collaboration between ministries of education, national teacher agencies and teacher training institutions to facilitate the exchange of knowledge, resources and best practices and ensure that TPD is contextually relevant and equally impactful across different countries.

5. **Develop relevant partnerships**
   Each country involved could establish a partnership between a national teacher agency and one or more teacher training institutions. This type of partnership would ensure that the project has both policy-level support and institutional implementation capacity.

6. **Offer in-country workshops**
   To build momentum and ensure national engagement, each participating country could host an initial in-country workshop. Such a workshop would ideally bring together stakeholders — including government representatives, educators, technology providers and policymakers — to align strategies, discuss training programmes and share insights on best practices. Countries could subsequently compare their frameworks and approaches and draw from each other's experiences and findings. It would be useful if participating countries met online first to agree on a common agenda and timeframe, although workshops would not need to be held synchronously.

While each workshop would be tailored to meet country-specific needs and preferences, some key components would include the following:

- developing a scalable ODL framework for teacher training, adaptable to different countries' specific requirements
- creating digital literacy training modules for teachers, with clear guidelines for recognising the successful completion of training
- designing a national action plan to integrate 21st-century competencies into teacher training
- providing policy recommendations to support large-scale teacher training via ODL and digitalisation
- producing a report on key insights, challenges and successes from the workshop to guide regional strategies

Outputs of the proposed in-country workshops would include the following:

- a scalable ODL framework for teacher training, customised to meet the needs of each participating country

- a suite of digital literacy training modules for teachers, with practical guidelines for the implementation/recognition of skills and competencies acquired
- a national action plan for integrating 21st-century competencies into teacher training curricula
- policy recommendations for supporting large-scale teacher training through ODL and digitalisation
- a report capturing insights, challenges and successes from each country's workshop to inform broader regional strategies

Conclusion

The impetus behind this publication was a desire to explore how different countries responded to the pandemic-related closure of campuses by moving learning, teaching and TPD online. With the pandemic behind us, it is important to look at the case studies and reflect on lessons learned from the experiences of those countries that could be used to help shape future practice. In particular, how might TPD that builds on the lessons learned but also takes into account the continued rapid development in technology, especially in relation to GenAI, be integrated into a new teacher professional development project that will benefit teachers and learners alike for years to come?

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INNOVATIVE MODELS AND PRACTICES IN TEACHER DEVELOPMENT: CASE STUDIES FROM THE COMMONWEALTH

Innovative thinking is transforming teacher professional development, making it more adaptable, inclusive and technology-driven. Against a backdrop of ongoing disruption to education, open, distance and technology-enabled learning has emerged as a sustainable way to equip teachers with the skills they need to succeed in digital and blended learning environments.

In light of this shift away from traditional practices, especially during and immediately after the Covid-19 pandemic, the Commonwealth of Learning collaborated with partners across the Commonwealth to reimagine teacher training. *Innovative Models and Practices in Teacher Development: Case Studies from the Commonwealth* presents the results of that collaboration in the form of 11 case studies that showcase innovative approaches to teacher development, including school-based learning, digital education leadership, professional learning communities and the use of open educational resources.

Spanning Africa, Asia, the Caribbean and the Pacific, these case studies highlight how educators have leveraged open educational resources and other digital tools not only to support teacher training and professional development but also to enhance classroom teaching, especially in low-resource contexts.

Looking to the future, this book emphasises the need to scale teacher development through open, distance and technology-enabled learning, ensuring that educators remain at the forefront of technological advancements while keeping teaching learner-centred.

By embracing digitalisation, artificial intelligence and innovative professional development models, this book provides practical examples of new approaches to resilient, high-quality teacher education, recognising that investing in teacher capacity will shape a more equitable and dynamic future for learners everywhere.

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