

Chapter 16:

Towards the Development of a Framework for Distance Education Continuous Professional Development Programmes: The Case of Eswatini's Certificate in Online Teaching for Educators (COTE)

Karen Ferreira-Meyers, University of Eswatini

Introduction

In this chapter, I look at how research informs continuous professional development (CPD) at the Institute of Distance Education (IDE) of the University of Eswatini (UNESWA). In 2008, Dede and colleagues noted that little was known about best practices for the design and implementation of online teacher professional development models. There are many definitions and descriptions of professional development as discussed in this paper, but one of the most all-encompassing definitions is the OECD's one, which says: 'Professional development is defined as activities that aim to develop an individual's skills, knowledge, expertise and other characteristics as a teacher' (OECD 2014: 86). In their 2020 article, Hollands and Escueta highlight how the use of research in educational decision-making has been encouraged and well documented at the K-12 education level in the United States but not in higher education, or more specifically in the domain of educational technology. Gregory and Salmon (2013: 256) argue that the process of developing current staff to meet the needs of online or blended modes of teaching and learning needs to be 'rapid, cost-effective and must lead directly to practical outcomes'. This encouragement for fast action and immediate practical deliverables is even more important in the extreme pandemic situation which started in March 2020. Distance education has been recognised for its ability to open doors to large numbers of learners who would otherwise have no access to further education and training. However, as Hollands and Escueta report, citing Neal and colleagues (2008) and Tseng and Nutley (2014), research about a particular educational programme—or even CPD in general—is often not available, and when it is the findings need to be contextualised around local data, experiences, and

practice with an educational institution so that they can be applied to the decision-maker's own situation. In a bid to avail findings about a CPD programme in the Kingdom of Eswatini, this chapter uses documentary research and case study design to compile and discuss relevant information.

In particular, in this chapter, I discuss the design and implementation of a short course entitled Certificate in Online Teaching for Educators (COTE) in view of extracting a framework for relevant and up-to-date short courses. Getting the right information about stakeholders' needs at the most opportune time is difficult but has to be done if a Higher Education Institution (HEI) is to live up to its mandate of providing learning and training opportunities, especially in countries like Eswatini where the unemployment rate is high. At all points of the design, development, and implementation of the COTE short course, research opportunities are built in such that facilitators, e-tutors, module developers, learners, and university decision-makers can harvest data which in turn leads to improved educational provision.

The research that goes into making decisions relating to short courses and CPD in Eswatini adds to existing research on CPD through ODeL in the region and even beyond. The framework developed is broad enough to be easily adaptable by other institutions of higher learning.

Background and context

The COVID-19 pandemic brought a new reality to the field of education, causing a digital transformation overnight in order to be able to pursue teaching and learning from a distance (Mladenova et al. 2020). Not only did the COVID-19 pandemic make learning online a reality for students, OECD recognised that online learning had also become a reality for teachers as a means for professional development (Reimers et al. 2020). However, not all education systems and teachers were ready for this shift to online teaching and learning. In most countries, educators had—and continue to have—limited digital skills and experience of online teaching and learning. The pandemic lockdown exposed the urgent need for all educators to acquire the skills needed to use digital technologies effectively for online teaching and learning. In addition, countries have to go beyond hastily put together emergency online practices—so-called pandemic pedagogy (Barbour et al. 2020) and develop quality online teaching and learning that result from careful instructional design and planning (Hodges et al. 2020).

In the Kingdom of Eswatini too, the pandemic has had a devastating impact on the education system and its stakeholders. This is documented by Ferreira-Meyers et al. in their 'Selected case

studies from Eswatini: dealing with the COVID-19 pandemic in the education sectors' (2020) and by Pitikoe et al. (2021) in their article entitled 'Who moved my old cheese? Implications of COVID 19 to teaching and learning in Southern Africa'.

Methodology and data collection

The research falls within the qualitative paradigm. It is presented as a descriptive and analytical narrative based on documents, literature, and reflections. It consists of a descriptive case study which is a construct that describes a real-world event or problem that people or organisations face and how they deal with it. It includes a concise account of the situation, as well as expert commentary, to improve our understanding of the causes of the problem, the forces driving the solution, the outcomes of implementation, lessons learned, and connections to relevant theories, concepts, policies, and tools (Smith and Strahan 2004).

Data was collected through primary and secondary sources and process analysis was applied. This refers to the method where researchers analyse the way things are done in an organisation—in our case a university—to find more efficient methods to perform a particular task (Bowen 2009).

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Continuous professional development (CPD)

Continuous professional development refers to both formal and informal staff-development activities with the purpose to address individual teachers' developmental needs and improve their professional practice through sharing effective practice, knowledge, and skills. According to Collin and colleagues (2012), CPD is one of the major factors of elements required in the advancement of the quality and professionalism of a teacher. Kizilbash (2016) states that there are three major goals of professional development programmes for teachers. These are 'change in classroom practices of teachers, change in their attitudes and beliefs, and change in the learning outcomes of students' (Kizilbash 2016: 20).

When reviewing teacher CPD in South Africa, Luneta (2012), cited in Arends and Phurutse (2009), Bantwini (2009), Kucan (2007), and Murray (2010) identified CPD as the essential ingredient in the drive to improve literacy standards in educational institutions, effective instruction, and high learning outcomes. According to Luneta (2012, citing Arends and Phurutse 2009; Bantwini

2009; Rosemary and Feldman 2009), the purpose of CPD is to enhance the quality of student learning by improving the quality of teaching through constant review and assessment of teachers' instructional approaches, identifying effective teaching approaches, and capitalising on them for the benefit of the learners. For Firestone (2014), CPD plays an important role in building teachers' knowledge and competence, which leads to greater motivation. Similarly, Geoffrey (2014), in his study on high school teachers in Uganda, found a positive correlation between teacher CPD and their performance. Additionally, teachers engage in CPD to see improvements in income, happiness, and health (Chetty et al. 2014; Hanushek 2011; Lochner 2011). For teachers to be up to date and retain appropriate and instructionally effective strategies they must constantly review their knowledge and skills' bases through CPD programmes.

CPD can occur in different places. This had led to the categorisation of CPD models according to the sites where they take place. The models range from school-based PD, over school-focused or school-centred PD, to off-site CPD (Bantwini 2009; O'Sullivan 2002; Bagwandeen and Louw 1993; Eraut 1994; DoE 2006). With the advent of the COVID-19 pandemic, the off-site model has the potential to become the most efficient and prevalent one.

40 CPD prior to COVID-19 mainly consisted of workshops and face-to-face seminars. Even though this used to be common practice, these often day-long trainings were not necessarily the most effective in ensuring that educators acquire highly needed skills and knowledge. This traditional form of professional development is sometimes referred to as 'sit and get' trainings (Matherson and Windle 2017) which educators attend, where they are 'lectured' by instructors, and from where they leave without having discussed how to implement the new strategies into their teaching (Matherson and Windle 2017). Matherson and Windle (2017) are adamant that CPD needs to shift from this traditional form, because educators need to be afforded the opportunity to create change and improve their teaching practice through continuous education that is multidimensional.

To ensure that multidimensional CPD exists, thrives, and develops, it is important to design or re-design a framework. Historically speaking, several teacher CPD frameworks have seen the light. Without being exhaustive, I include a few here, some of which were instrumental in the development of the framework discussed below.

Going back close to 40 years now, Zeichner (1983) was the first to identify and describe the four representative paradigms in teacher education and professional development. The first is an apprenticeship model, focusing on the accumulation of wisdom, based on practitioners' trial and error. The second one is 'expanding the repertoire', according to Sprinthall et al. (1996), and focuses on the acquisition of comprehensive instructional models. More recently, in teacher education

since the 1980s (and still influential today), the expert or competency-based model is built on mastery of knowledge and teaching skills identified by researchers and academics. There is also the inquiry-oriented, holistic, reflective paradigm, where teachers' development goes hand in hand with their capacity for reflective action (Golby and Viant 2007).

Recently existing teacher CPD frameworks have taken into consideration the need for online communities. In her article entitled 'A design framework for online teacher professional development communities' (2012), Katrina Yan Liu lobbied for the inclusion of the general community's learning direction and outcomes. In our case, this refers to what the Eswatini community wishes, especially now that the pandemic has put the educational sector in a tight corner to deliver education to all (when schools and campuses were closed for several months in a row). Then there are the communication tools which should be based on the learning goals: in Eswatini, we strive to have teachers and lecturers equipped with tools and skills on how to use these tools for online teaching. Below, we will discuss that these are embedded in a Learning Management System (in our case, Moodle, mainly because it is open-source software) and used in conjunction with WhatsApp, which is one of the most popular social media apps used by young and old alike in Eswatini. Liu uses 'participant structures' to refer to what Shaffer (2005) referred to as discourse in a more general sense, which in an online environment includes non-linguistic symbols such as pictures and videos. Regarding 'participant responsibilities', Conrad (cited by Liu 2012) highlighted in his 2005 research that adult learners felt that they themselves were the primary architects of their community. In their teacher CPD they were not just learners, they also took on roles as instructors and administrators responsible for helping to create a sense of community. Figure 1 below shows how the goals are central to the CPD community, be it online or offline. The outer fields of the Figure refer to the context, both cultural and political, as well as financial aspects (funding for sustainability). Culture refers to the culture of collaboration—does this exist in a particular CPD context?—while politics has to do with whether or not there is political will towards CPD. These are important aspects, which play a significant role in all teaching and learning environments.

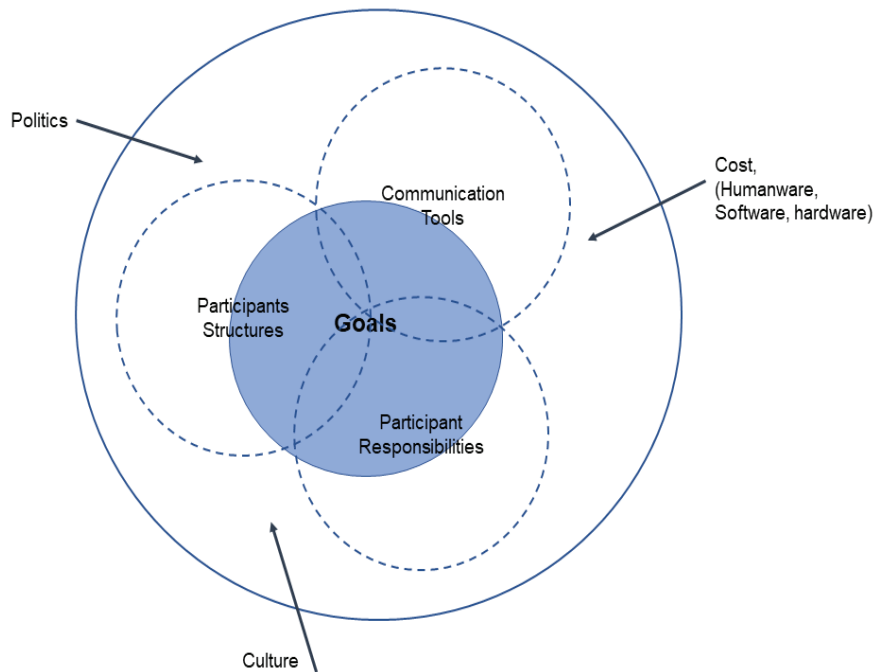


Figure 1: An online professional development community for teachers (Liu, 2012)

In a country where no specific in-service teacher training programmes are organised (due mainly to financial constraints), even though the Ministry of Education Sector Policy (2011) described in-service training as supplementary training to improve teacher knowledge and competency, teachers and lecturers find ways to upgrade and upskill themselves. One way to do so is to take up short-term courses like COTE.

In the next section, the COTE programme is discussed as a case study on design, development, implementation, and evaluation of a CPD programme which has as its main purpose to assist educators with knowledge and skills of online teaching.

The COTE programme: a case study at the basis of a CPD framework

During the pandemic, the rapid and mainly unplanned transition to emergency remote teaching compelled educators to adopt pedagogical activities enriched by Information and Communication Technologies (ICT), regardless of whether they were prepared or not. Well into the pandemic, in 2022, we can no longer afford to undertake these activities without proper planning, design, and development. The question that begs to be answered then becomes: How can a university assist when it comes to teacher CPD? Liu (2012) observed that teacher professional development programs based in universities have the potential to nurture and maintain online communities. They can do this by offering access to subject matter content and pedagogical expertise, as well as a degree of technical guidance and leadership.

As highlighted by Barber and Mourshed (2007), among others, continuous learning and review of both content and instruction is an essential component of the teaching profession. The Eswatini intervention in the form of the COTE six-week short course for educators focuses in particular on the 'instruction' part of the teaching profession. The COTE programme aims at skilling, upskilling, and re-skilling of a variety of stakeholders in the education sector. As indicated previously, the COVID-19 pandemic revealed gaps in knowledge and skills regarding online teaching. Little in current teacher training programmes allowed budding teachers to prepare for the online teaching environment, while already established and experienced teachers had not had any opportunity to learn the twenty-first century skills needed to move swiftly and smoothly into the virtual world.

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An important gap

In their 2022 comparative study of CPD in SADC countries, Mwila et al. (2022) note the following about the Eswatini CPD environment:

- No specific policy on CPD for teachers except the 2011 policy on in-service Education of Teachers (INSET).
- No harmonisation of CPD between the Teachers' Council as a regulatory body and the role of CPD for teachers as well as a lack of budgetary provision for CPD.
- Three levels of in-service training were offered to provide ongoing professional development for teachers: at teacher centres, offices at a more regional level, and at the schools themselves.

The key goals of these trainings were to give practicing teachers continual technical support, expand their knowledge of classroom management strategies, and share organisational techniques. This CPD aimed to equip teachers with the skills needed to ensure effective teaching and learning across all classrooms.

Clearly, the existing policy environment has given no thought to online CPD. This gap will be addressed by the COTE programme, which is described and discussed below.

In addition, the review of Mwila et al. also highlighted the different CPD approaches in the SADC region. Amongst the different approaches globally that guide the provision of CPD, the review established that the notable approaches practiced in the SADC region inter alia include: training, award-bearing, deficit, cascade, standards-based, coaching/mentoring, community of practice, action research, transformative, and ICT-based CPD. The review (Mwila et al. 2022) further established that countries in the region use a blend of these approaches based on technical staff, resource availability, and implementation structures. This is also the case in Eswatini. However, no online programmes existed before the start of the pandemic, and within the Ministry of Education and Training CPD practices still not today. This is why the Institute of Distance Education took it upon itself to design and implement a Certificate in Online Teaching for Educators (COTE) programme within a transformative approach paradigm. A transformative approach links reflection and action and intends to increase teacher capacity for professional autonomy. In such an approach CPD is effective when programmes are ‘experiential, regular, ongoing, sustainable, supported by administrators, and informed and designed by teachers’ (Mwila et al. 2022: 115).

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COTE programme design

Lo (2021) et al. listed the following characteristics of effective CPD programmes. A CPD programme is effective

- if it is sustained over time (Darling-Hammond et al. 2017; Herro et al. 2019)
- if teachers take part as a group; teachers collaborate (Singer et al. 2016)
- if teachers identify with and endorse taking part in it
- when it involves training in subject knowledge (Brenneman et al. 2019)
- when it involves reflection and feedback (Darling-Hammond et al. 2017)

- when it involves coaching and outside expertise (Brenneman et al. 2019)
- when it involves opportunities to use, practise, or apply what has been learned; active learning (Williams et al. 2019)

Keeping in mind these seven characteristics, the COTE programme was designed based on five of them. The design team did not take into account characteristic 1 (sustained CPD over time) and 4 (subject knowledge). Rather than sustained CPD (the first characteristic) an opportunity for repeated practice is included in the COTE course by design. All other characteristics were included: teachers took part as a group; they endorsed participating in the CPD (they even pay for it); the CPD included reflection and regular feedback (a daily reflection journal is included in module 4; feedback is given within 48h maximum on all activities); the CPD involved outside expertise (materials' design, ICT in education, and ODeL experts are key facilitators); and it gives participants opportunities to use and apply what they learn through activities, assignments, and tasks, all part of active learning.

According to Reimers et al. (2020) there has been an increase in teachers participating in and receiving professional development through a digital medium. Du Preez and Roux (2008) elucidate further that successful CPD programmes include teachers in the design and implementation of the programmes. Rosemary and Feldman (2009) indicated that effective CPD ensures that participants reflect on learning through close analysis of evidence gathered from activities and assessment tasks, which they subsequently use to improve teaching. Importantly, all stakeholders should work in iterative cycles of examining data, establishing goals, evaluating, reflecting, and revising. To ensure maximum teaching and learning outcomes, teachers must constantly be involved in professional development programmes that hinge on the knowledge bases in their specific context (Lotter et al. 2006: 185).

Research (Blank and de la Alas 2009; Blazer 2005; Croft et al. 2010; Darling-Hammond et al. 2009; Desimone et al. 2002; Kucan 2007; Steiner 2004) identifies five characteristics of effective CPD:

- alignment with goals of the Department of Education, the Curriculum Assessment Policy Statement (CAPS in South Africa), and teachers' professional development needs
- focus on the knowledge bases and the effective instructional approaches appropriate for high learning outcomes
- inclusion of learning opportunities for acquiring new instructional strategies
- provision of opportunities for reflection and collaboration among teachers
- inclusion of built-in follow up and continuous feedback

There are several methods of professional learning, including action research (Parsons and Brown 2001), self-directed study, using distance learning, receiving on-the-job coaching, mentoring or tutoring, school-based and off-site courses of various lengths, job shadowing and rotation, personal reflection, experiential assignment and collaborative learning, case discussions, lesson study, and examining student work (Archibald et al. 2011; Cohen and Hill 1998, French 1997; Luneta 2008; Steiner 2004).

By creating micro-groups that participate in the same professional development, the likelihood for collaboration to take place amongst participants is increased.

The COTE programme is housed and delivered on Moodle. The COTE programme uses the Moodle Learning Management Systems (LMS) as a fully-fledged teaching and learning environment, and no longer as a mere critical tool in Emergency Response Teaching (ERT) amid an absence of instructional design principles among faculty and challenges with access on the part of students (Dlamini and Ndzinisa 2020). In addition, quite extensive use is made of WhatsApp. It is anticipated that WhatsApp in particular will be useful when it comes to building a community of inquiry/practice (CoP) that continues to grow after the end of the six-week course. Barab et al. (2006) defined a CoP as a persistent, sustained social network of individuals who share and develop an overlapping knowledge base, set of beliefs, values, history, and experiences focused on a common practice and/or mutual enterprise. As noted by Kaur (2021), for successful teaching and learning, educators should provide regular and timely feedback and guidance through Moodle's chat function and other systems like group emails/chats such as WhatsApp. In a kind of train-the-trainers course such as COTE, which provides training to educators via Moodle, and is supported by communication via WhatsApp, ensures that these educators, in turn, use similar strategies with their own learners following the training.

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Development of the COTE programme

The development of the COTE programme from design to implementation and evaluation went as follows. After a brainstorming session within the Institute of Distance Education and the identification of the development team members, the COTE design and development started in earnest with a design workshop, sponsored by the Commonwealth of Learning and facilitated by a SAIDE (South African Institute of Distance Education) staff member. The three-day face-to-face workshop allowed the team to build on its initial design ideas of having four modules, delivered fully online, over a four-week period, focusing on skills' development in the areas of designing

and developing online courses and programmes, integrating ICT and multimedia through the development of digital teaching and learning resources, facilitating online, and assessing online. The workshop allowed the team—comprising of already experienced online facilitators for the most part—to re-examine online learning theories and principles in addition to adapting OER in the field of online teaching (e.g., COL's C-Delta modules).

This initial phase was followed by an intense two-month writing period in small teams (two per module) with regular Zoom meetings to discuss challenges, successes, and progress. The IDE quality assurance officer was on standby to assist with checklists (what should be included in an online course) and advice. All team members could look at the different modules and propose amendments. Before the COTE programme went into a one-month piloting phase, the modules were edited for language, and submitted to external parties for vetting (COL and the face-to-face workshop facilitator). Below is Table 1 showing the different modules and their content.

Table 1: COTE modules and content

Module	Content
IDE101: Designing and Developing the Online Course	<ul style="list-style-type: none"> - Basic concepts and underpinning principles to planning/designing online programmes or courses - From theory to learning design - Designing an online learning course - Planning for content development
IDE102: Creating Digital Learning Materials	<ul style="list-style-type: none"> - The process of digital learning material development - Technologies for creating digital learning materials - Technologies for social media in education - Selecting an authoring tool

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Module	Content
IDE103: Developing Online Facilitation Skills	<ul style="list-style-type: none"> - Introduction to online teaching and learning - Learning theories informing online teaching and learning - Roles and competences of an online learning facilitator - Discussion as an online learning tool and managing online discussion - Facilitating the live online lesson
IDE104: Creating Authentic Online Assessment	<ul style="list-style-type: none"> - Assessing Online: Justification for assessments, assessment of learning or assessment for learning, - Types of assessment - Planning Assessment: Plan, Cycle and Components - Constructing Assessment - Discussing Assessment: Feedback, rubrics, and ethics - Evaluating Assessment: Quality Assurance

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Eleven pilot participants were purposely identified, five from the University of Eswatini and six from schools in different regions of the country. The purpose of the composition of the sample was to include educators who work at different levels (primary, secondary, and tertiary) of the Eswatini educational sector. They were all enrolled on Moodle for each module, and on WhatsApp. Some had used Moodle before, many had not. Most had little experience either as a teacher or as a student of online learning. The four modules had two facilitators each (who had also been the module developers and as such were able to step into the task easily as they already knew the content matter well). Interaction was observed and a debriefing Zoom meeting was held after each week (i.e., each module).

COTE programme evaluation

The modules were developed in line with research which emphasised that CPD programmes have to be evaluated so that better decisions are made about the programme (Guskey 2000; Hansen and Rush 2008; Joyce and Shower 2002; Killion 2002). Evaluation involves asking questions and gathering information about the programme, drawing conclusions, and making recommendations. A comprehensive report on the COTE pilot study was produced and disseminated among the facilitators. This in turn helped the module developers to revisit and further improve the four modules. Examining the attainment of the set goals and objectives (Hansen and Rush 2008; Swanson et al. 1997) is essential and is done through evaluation tools specifically designed for a particular programme, which, in the case of the COTE programme, was done internally by the Research and Evaluation officer of IDE who was involved in the different design and development steps from the beginning. Conforming to the advice of Guskey (2000) and Kirkpatrick (1998) on how programme evaluation should be conducted, the COTE programme underwent three phases of evaluation—namely, continuous internal evaluation, punctual external evaluation, and programme piloting with pre- and post-surveys.

The overall evaluation of the COTE programme was highly positive: respondents, both internal and external, reported discovering that the course boosted their confidence in communicating and teaching in an online setting. Generally, participants were very satisfied with the COTE short course. Their feedback comments shed light on some of the aspects they appreciated and areas where adjustments were needed. One of the main suggestions they made was to allow more time for each module. The adjustment from four weeks to six weeks in total was made. The pilot participants also noted the importance of facilitators' presence (teaching presence).

The module authors met, discussed the pilot findings, and incorporated additional activities and interaction opportunities to respond to the suggestions made by the pilot participants. A major addition was made to the facilitation team: each small team will be supplemented by an e-tutor to bridge the gap between content and student even more.

COTE programme implementation

Proper implementation of a professional development programme for teachers implies that teachers are granted the right to investigate and defend their instructional and intellectual principles (Luneta 2011: 48). The review further revealed that professional development programmes that are disconnected from teachers' actual practice and context and designed with little attention to the needs of teachers are less effective and unpopular to teachers (Blazer 2005; Croft et al. 2010; Crossley et al. 2005; Murray 2010; Steiner 2004). Du Preez and Roux (2008: 84) assert that 'one of the main aims of any professional development programme should be to assist teachers to become extended professionals' who, according to Evans (2002: 124), are teachers that follow their intuition, rationalise, and relate their instructional approaches to the theory of pedagogy.

Attention to building of communities of inquiry/practice (Lave and Wenger,1991) informed the design process of the COTE programme through collaborative work and opportunities for sharing of lived experiences (chats, forums) to also start the development of communities of inquiry for the duration of the six-week programme and beyond. Indeed, as Hargreaves and Fullan (2012) noted, teacher CPD too often focuses on individual development, without giving attention to broader organisational and societal improvements or the development of long-lasting professional capital. The COTE programme wanted to avoid this by allowing for the growth of communities of inquiry to ensure coherence and sustainability as well as the use of 'internal' developers as opposed to outside professional development experts (Bredeson 2003; Loucks-Housley et al. 2003).

Limited marketing on social media and fast word of mouth in January 2022 had an impressive result. A total of 421 people applied and 402 were admitted by February 2022. This quick action by applicants indicates that the COTE programme addresses the need of the Eswatini society for skills in the field of online teaching. The course will be delivered in groups/cohorts of 50. We have deliberately kept the number of participants per cohort low, so that individual attention can be given to the participants. Of note is the diversity of applicants, from PhD-holders to inexperienced (and sometimes unemployed), newly graduated teachers with a Diploma in Education.

Framework for online CPD programme design, development, implementation, and evaluation

A circular framework is useful as it shows the iterative and repetitive nature of the processes involved. Incorporating what was proposed by Liu (2012) regarding politics, culture, and costs at each step of the iteration is useful, because it forces designers, developers, implementers, and evaluators to reflect on their impact. This is the main reason why these three elements have been included around each step of the process in the proposal below too. The case study includes the different phases around the ultimate goal—to train educators in the field of online teaching. While politics, culture, and costs were indirectly taken into account, applying the framework as proposed in the image below will formalise the attention on those elements. The framework needs to be developed further to clearly indicate the interactions.



Figure 2: Proposed CPD Framework

Limitations, recommendations, and conclusion

52 Continuous professional development is essential for upgrading and updating professionals in all domains because the rate of social and educational change is such that traditional pre-service training is inadequate as a basis for long-term professional competence. This is particularly the case for educators' and teachers' CPD. The COVID-19 pandemic highlighted the importance of CPD but also the way in which online learning could potentially make such development readily available to teachers in a flexible and low-cost format. In essence, the pandemic was a catalyser for the development of a Certificate in Online Teaching for Educators (COTE) at the Institute of Distance Education (IDE) of the University of Eswatini. While some universities and teacher training colleges in the Kingdom of Eswatini had started offering blended learning courses, also as part of their initial teacher training programmes (Diploma and BEd levels for both primary and secondary school teachers), the need for online learning and teaching was only seriously felt a few months into the pandemic. In general, the design of CPD programmes must be informed by a thorough needs analysis stemming from teachers' knowledge bases of curricula, instructional, content, and pedagogical knowledge. Although limited information on these types of teacher knowledge was available, the IDE launched a call for applications for the COTE programme which was met with enthusiasm. This showed the need for such a training course. The chapter then articulated the steps undertaken in the design and implementation of the COTE programme. From this an adapted CPD framework was proposed which shows how high-quality CPD programmes can be designed, implemented, and evaluated.

The chapter is limited in that it only talks about what precedes implementation of a CPD programme, namely design and development, together with quality assurance steps through regular evaluation and piloting. Whether the programme is successful or not can only be evaluated after the end of the six-week online programme, and whether the programme will effectively impact online teaching practices can only be verified after months, perhaps even years. Nevertheless, the steps undertaken allowed us to rethink some of the CPD design and development aspects through a framework.

The framework proposed above needs to be developed further, in particular when it comes to ensuring post-delivery effectiveness and sustainability of the COTE programme. As noted by CPD experts, online teacher CPD courses may fail to create communities beyond the duration of those courses (Douglas-Faraci 2010). In a few months' time it will be possible to analyse data from the implementation of the COTE programme (by the end of June 2022 there will have been at least

four cohorts of COTE graduates) and determine whether Conrad's (2005) research findings can be confirmed—namely, that, having spent a considerable period of time online, learners' perceptions of community and online learning shift away from technical considerations toward affective considerations such as relationships, interconnectedness, and familiarisation among community members, an ideal basis for further growth and development in our view.

References

- Barab, S.A., MaKinster, J.G., and Scheckler, R. 2006. Designing system dualities: Characterizing an online professional development community. In: *Designing for virtual communities in the service of learning*, edited by S.A. Barab, R. Kling, and J. Gray. Cambridge, MA: Cambridge University Press. pp. 53–90.
- Barbour, M.K., LaBonte, R., Hodges, C.B., Moore, S., Lockee, B.B., Trust, T., Bond, M.A., Hill, P., and Kelly, K. 2020. *Understanding pandemic pedagogy: Differences between emergency remote, remote, and online teaching*. State of the Nation: K-12 e-Learning in Canada. Available at: <https://www.researchgate.net/publication/347535715>
- Blank, R.K., and De las Alas, N. 2009. *Effects of teacher professional development on gains in student achievement: How meta-analysis provides scientific evidence useful to education leaders*. The Council of Chief State School Officers. Available at: <https://files.eric.ed.gov/fulltext/ED514190.pdf>
- Bowen, G.A. 2009. Document Analysis as a Qualitative Research Method. *Qualitative Research Journal*, 9(2): 27–40.
- Brenneman, K., Lange, A., and Nayfeld, I. 2019. Integrating STEM into preschool education; designing a professional development model in diverse settings. *Early Childhood Education Journal*, 47(1): 15–28.
- Chetty, R., Friedman, J.N., and Rockoff, J.E. 2014. Measuring the impacts of teachers I: Evaluating bias in teacher value-added estimates. *American Economic Review*, 104(9): 2593–2632.
- Conrad, D. 2005. Building and maintaining community in cohort-based online learning. *Journal of Distance Education*, 20(1): 1–20.
- Cordingley, P., Higgins, S., Greany, T., Buckler, N., Coles-Jordan, D., Crisp, B., Saunders, L., and Coe, R. 2015. *Developing great teaching: Lessons from the international reviews into effective professional development*. Teacher Development Trust. Available at: <https://durham-repository>.

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worktribe.com/output/1631202/developing-great-teaching-lessons-from-the-international-reviews-into-effective-professional-development

Darling-Hammond, L., Hyler, M.E., and Gardner, M. 2017. *Effective teacher professional development*. Available at: https://learningpolicyinstitute.org/sites/default/files/product-files/Effective_Teacher_Professional_Development_REPORT.pdf

Dede, C., Jass Ketelhut, D., Whitehouse, P., Breit, L., and McCloskey, E.M. 2009. A research agenda for online teacher professional development. *Journal of teacher education*, 60(1): 8–19.

Desimone, L.M. 2009. Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3): 181–199.

Dlamini, R. and Ndzinisa, N. 2020. Universities trailing behind: unquestioned epistemological foundations constraining the transition to online instructional delivery and learning. *South African Journal of Higher Education*, 34(6): 52–64.

Douglas-Faraci, D. 2010. A correlational study of six professional development domains in e-learning teacher professional development. *MERLOT Journal of Online Learning and Teaching*, 6(4): 754–766.

Dunst, C.J., Bruder, M.B., and Hamby, D.W. 2015. Metasynthesis of in-service professional development research: Features associated with positive educator and student outcomes. *Educational Research and Reviews*, 10(12): 1731–1744.

Ferreira-Meyers, K., Biswalo, P., Maduna, S., Ngcobo, L., and Dlamini-Zwane, N. 2020. Selected case studies from Eswatini: dealing with the COVID-19 pandemic in the education sectors. In: *Digital 2020 Conference proceedings*, edited by U.G. Singh and C.S. Nair. pp. 255–276. Available at: DOI:10.13140/RG.2.2.24757.70888

Golby, M. and Viant, R. 2007. Means and ends in professional development. *Teacher Development*, 11(2): 237–243.

Gregory, J. and Salmon, G. 2013. Professional development for online university teaching. *Distance education*, 34(3): 256–270.

Hartshorne, R.E., Baumgartner, R., Kaplan-Rakowski, R., Mouza, C., and Ferdig, R.A. 2020. Special Issue Editorial: Preservice and in-service professional development during the COVID-19 Pandemic. *Journal of Technology and Teacher Education*, 28(2): 137–147.

Herro, D., Quigley, C., and Jacques, L.A. 2018. Examining technology integration in middle school STEAM units. *Technology, Pedagogy and Education*, 27(4): 485–498.

Hodges, C., Moore, S., Lockee, B., Trust, T., and Bond, A. 2020. The difference between emergency remote teaching and online learning. *Educause Review*, 27 March.

- Hollands, F. and Escueta, M. 2020. How research informs educational technology decision-making in higher education: The role of external research versus internal research. *Educational Technology Research and Development*, 68(1): 163–180.
- Kaur, S. 2021. *Online learning factors that influence the student's learning outcomes*. Available at: http://researcharchive.wintec.ac.nz/7812/2/Sandeep_Kaur_ResearchReport_INFO901.pdf
- Lave, J. and Wenger, E. 1991. *Situated learning: Legitimate peripheral participation*. Cambridge: University Press.
- Liu, K.Y. 2012. A design framework for online teacher professional development communities. *Asia Pacific Education Review*, 13(4): 701–711. Available at: <https://www.learntechlib.org/p/50007/>
- Lo, C.K. 2021. Design principles for effective teacher professional development in integrated STEM education: A systematic review. *Educational Technology & Society*, 24 (4): 136–152.
- Matherson, L. and Windle, T.M. 2017. What do teachers want from their professional development? Four emerging themes. *Delta Kappa Gamma Bulletin*, 83: 28–32.
- Mladenova, T., Kalmukov, Y., and Valova, I. 2020. Covid 19 – a major cause of digital transformation in education or just an evaluation test. *TEM Journal* 9: 1163–1170.
- Mwila, K., Namuchana, M., Lufungulo, E. S., and Chinemerem, O.G. 2022. Teachers' continuous professional development (CPD) in Southern African Development Community (SADC): A review of policies, approaches and implementation strategies in enhancing teacher competences. *International Journal of Education Humanities and Social Science*, 5(1): 104–124. Available at: <https://doi.org/10.54922/ijehss.2022.0349>
- Pitikoe, S., Ferreira-Meyers, K., Bhebhe, S., and Dlamini-Zwane, N. 2021. Who moved my old cheese? Implications of COVID-19 to teaching and learning in Southern Africa. *Journal of Teaching and Learning with Technology*, 10(1): 64–79. Available at: DOI: 10.14434/jotlt.v9i2.31402
- Reimers, F., Schleicher, A., Saavedra, J., and Tuominen, S. 2020. *Supporting the continuation of teaching and learning during the COVID-19 Pandemic*. Available at: <https://www.oecd.org/education/Supporting-the-continuation-of-teaching-and-learning-during-the-COVID-19-pandemic.pdf>
- Shaffer, D.W. 2005. *Epistemography and the participant structures of a professional practicum: A story behind the story of journalism 828*. WCER Working Paper No. 2005-8.
- Sims, S., Fletcher-Wood, H. O'Mara-Eves, A., Cottingham, S., Stansfield, C., Van Herwegen, J., and Anders, J. 2021. *What are the characteristics of teacher professional development that increase pupil achievement? A systematic review and meta-analysis*. London: Education Endowment Foundation. Available at: <https://educationendowmentfoundation.org.uk/education->

evidence/evidence-reviews/teacher-professional-development-characteristics

Singer, J.E., Ross, J.M., and Jackson-Lee, Y. 2016. Professional development for the integration of engineering in high school STEM classrooms. *Journal of Pre-College Engineering Education Research*, 6(1): 30–44.

Smith, T.W. and Strahan, D. 2004. Toward a prototype of expertise in teaching: A descriptive case study. *Journal of teacher education*, 55(4): 357–371.

Sprinthall, N., Reiman, A., and Thies-Sprinthall, L. 1996. Teacher professional development. In: *Handbook of research on teacher education*, edited by J. Sikula, T. Buttery, and E. Guyton. 2nd ed. Macmillan. pp. 666–703.

Timperley, H., Wilson, A., Barrar, H., and Fung, I. 2007. *Teacher professional learning and development: Best evidence synthesis iteration (BES)*. New Zealand Ministry of Education. Available at: http://www.iaoed.org/downloads/EdPractices_18.pdf

Walter, C. and Briggs, J. 2012. *What professional development makes the most difference to teachers*. Oxford University Press.

Williams, T., Singer, J., Krikorian, J., Rakes, C., and Ross, J. 2019. Measuring pedagogy and the integration of engineering design in STEM classrooms. *Journal of Science Education and Technology*, 28(3): 179–194.

Zeichner, K.M. 1983. Alternative paradigms of teacher education. *Journal of Teacher Education*, 34(3): 3–9.