Chapter 12:

Approaches to Continuing Professional Development for Open Education Practices in Africa

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Introduction

The COVID-19 pandemic, which started in 2019, has brought the importance of professional development on effective teaching and learning for university academics into sharp relief. As has been reported in numerous publications during 2020 and 2021, universities found themselves having to close their campuses and were unable to teach their students face-to-face. Universities in Africa resorted to various strategies to do this, from complete closure of their institution, with no teaching taking place, through emergency remote teaching (ERT) with some form of online teaching, to fully implemented e-learning (Koninckx, Fatondji, and Burgos 2021). Whatever form the teaching has taken, academics have found that traditional lecturing has not been effective when implementing ERT or online teaching. Those who are experienced in adult pedagogies have been expressing the inadequacies of the lecture mode for many years (for example, Jones 2007; Khan 1997), and the realities of the new forms of teaching required have brought such shortcomings to the fore. Several recent opinion pieces have expressed the need for the professional development of academic staff (here we refer to it as continuing professional development [CPD]), especially with respect to their teaching competence. Mihai (2021) and Harle (2021) stress that CPD needs to be a central strategy within higher educational institutions (HEIs) around the world, supporting academics with digital teaching and communities of practice. Even before the pandemic struck, Haras (2018) was lamenting the low status of CPD in HEIs and proposing that it should be more

1 Several colleagues have worked on the research we conducted and contributed to this chapter in various ways. They include Ephraim Mhlanga, Andrew Moore, Maryla Bialobrzeska, Sheila Drew, Mohini Baijnath, and Jabulani Sithole.

prominent, as it is crucial to the continuing improvement of the institutions and their staff.

This chapter opens with a review of successful and innovative CPD models and approaches used in HEIs around the world. It goes on to examine recent CPD activities created by OER Africa and describes their development, piloting, and deployment, together with the implications the pilot findings have for ODL institutions and research in the field. OER Africa is an initiative of *Saide*, and collaborates with higher education institutions in Africa in the development and use of Open Educational Resources (OER) to enhance teaching and learning.

Review of global CPD initiatives

Darling-Hammond, Hyler, and Gardner (2017: 2), in the context of schooling, defined CPD as 'a structured professional learning that results in changes to teacher knowledge and practices, and improvements in student learning outcomes' (p. 2). In our opinion, this definition is too narrow and in this chapter we extend the definition to include unstructured and ad-hoc CPD, aligned with the ideas put forward in the following paragraphs.

In our experience, CPD in distance education and face-to-face HEIs is severely under-researched. A 2019 report by the European Union (EU) on CPD was informed by a literature review and a series of case studies which identify innovations that can form exemplars for CPD (Inamorato dos Santos et al. 2019b). The report suggests that there are three drivers for the increasing necessity for CPD in higher education—namely, the massification and marketisation of HE, the digitalisation of HE, and the value of professional success for individual academics (Inamorato dos Santos et al. 2019a). However, the same report notes that, despite these drivers, academics rarely participate in CPD practices due to numerous barriers, including the following:

- academics' reluctance to renounce teaching practices with which they are familiar
- the absence of formal requirements or inducements for teaching development in HEIs
- a lack of time for CPD among academics
- HEIs' lack of pedagogical expertise and institutional capacity to develop effective CPD schemes

One study suggests that a lack of time is the key factor (King 2004). It is likely that the barriers are interrelated and stem from the imbalance between teaching and research in institutions with a bias towards the latter. Traditional CPD has tended to focus on lecture-style inputs and is regarded

in the EU report as ineffective because there is often little relationship between the training and academics' classrooms and students. The report therefore focuses on innovative CPD practices that can reduce the barriers listed above. Rather than define the term innovation, the report identifies examples of practices that (the authors maintain) are innovative. These include the following:

- collaboration, and participating in informal and ad-hoc practices where academics can learn from each other rather than during formal presentations
- conferences and events which showcase teaching skills that improve student learning
- staff mobility within and between institutions so that academics can learn from each other

Such ideas are combined with institutional systems and procedures that reinforce the CPD, including formal proof of teaching competency, provision of self-study materials to allow flexible learning, and intra- and interinstitutional partnerships to enable formal and informal networks and collaborations.

The overall recommendations of the EU report were that HEIs should:

- maintain a unit, endorsed by university management, dedicated to the professional development (for teaching and learning) of their academic staff;
- provide a range of CPD opportunities, as well as personalised support for academic staff;
- find methods of rewarding successful teaching practices;
- ensure that all CPD offered is evaluated to determine its efficacy and provide a better research base for the discipline (Inamorato dos Santos et al. 2019a).

An earlier publication focuses on the approach to CPD of eight world-class universities and includes a review of trends, challenges, and opportunities across five continents (James Jacob, Xiong, and Ye 2015). The authors admit that the term world-class is contentious and a matter of debate: we would suggest that such a term will exclude institutions from most of the developing world. The authors accepted that there is considerable diversity of context across the African continent. They nevertheless highlighted issues such as the inadequacy of qualified academic staff, the aging and exodus of such staff, the effects of the HIV/AIDS epidemic, and a lack of scrutiny in implementing information and communication technology (ICT) for teaching and learning. Their conclusion was that 'African HEIs must make professional development a priority' (James Jacob, Xiong, and Ye 2015: 3) and came up with the following recommendations globally, similar to those of the EU report.

These include the need for support from senior management to enable professional development centres to be set up in institutions, and provide multiple offerings such as self-study materials, podcasts, seminars, courses, and workshops. Such centres need to be led in a consultative and collaborative way, as effective CPD requires relationships to be built and maintained, resulting in meeting the needs of individual academics. The centres also need to be linked to other key services such as the library and ICT. Other recommendations include:

- The development of small communities of practice which allow optimal CPD, based on data-driven decision-making, to be rolled out.
- Technology should be used to support pedagogical ends and contextualised according to the needs of staff and students.
- Rewards structures need to be established to provide incentives for the best academic and professional staff to invest in CPD (James Jacob, Xiong, and Ye 2015).

While not all the recommendations of the two reports will be relevant to developing countries, they provide useful principles to consider when developing CPD offerings for the contexts of African HEIs. The following section describes how the OER Africa initiative conceptualised and developed CPD activities to promote and enable open education practices relevant for sub-Saharan Africa. The activities form one strand of a more innovative approach to CPD, namely self-study materials which allow flexibility in their use, like those described in the recommendations above.

The process of CPD learning pathways development

In 2019–2020, OER Africa developed a series of innovative professional development learning pathways (LPs) for academic staff and librarians in HEIs in Africa. The standalone online LPs consist of short tutorials that engage participants in authentic learning tasks that can be done individually, collaboratively, or in a workshop environment. Academics can engage with the LPs using various devices such as computers, tablets, and smartphones, but require an internet connection. The rationale behind the LPs is that they can be worked on independently based on one's needs and available time; they are intended to be user-friendly and easy to navigate. The LPs are aimed at enabling academics to improve their teaching and learning capacities, using OER, to provide a better-quality learning experience for their students. So far, six LPs have been developed and

published,[2] each of which focuses on relevant, contextualised practical skills and knowledge development concerned with teaching and learning, and to a lesser extent research at higher education level. The development of the LPs was an action research exercise from which the OER Africa team drew lessons of experience for improvement.

The design and development process

The designer of each LP first produced an outline and wrote a storyboard, which was subjected to team review to help streamline the LP and make it small and focused enough for participants to complete within a relatively short time. The predominant methodology that was used for each of the LPs was the 'think, do, reflect' philosophy[3] and Saide learning design[4]. The LPs aimed to:

- work as standalones and provide automated feedback to help participants check their answers to questions in the activities
- be intuitive enough for one to complete them independently without any form of facilitation
- be highly accessible, with minimal barriers to entry (no registration or password required)
- incorporate and adapt existing OER where possible, only creating new resources when necessary
- be modular, encouraging reuse in different contexts and for different purposes, to accommodate varied needs of potential users
- form building blocks for multiple professional development strategies
- be multimedia rich to encourage academic engagement
- be based on design criteria, including ease of navigation, appealing layout, plain language, activity-based pedagogy, and consideration of users' context

Participant engagement with activities was a key design consideration for all the LPs. The activity-based approach was used in developing each one to avoid participants reading text and watching the video clips in the LPs passively. The choice of software to use was also important. Initially the

2 See https://www.oerafrica.org/book/learning-pathways-open-education-online-tutorials

3 See https://www.oerafrica.org/content/open-pedagogy

4 See https://open.saide.ngo/designguide.php

developers started with H5P software[5] but it required quite a high level of technical expertise and experience. Rise software (part of Articulate 360[6]) was used instead and proved to be attractive and very user friendly, and the team thought this was more in keeping with the aim of the project initiative to find a CPD model that could be replicated in African HE intuitions. It is, however, important to note that Rise 360 is not open-source software, and we plan to make open versions available for adaptation.

Developmental testing and critical review

To ensure rigour in design and development, each completed draft LP was subjected to review in two ways. Developmental testing involved identifying typical users who went through LPs to provide feedback that was used to improve the design. Individuals were chosen pragmatically, based on their willingness to participate, their availability to go through LPs of their choice, and provide feedback within stipulated timelines. This was followed by critical review in which individuals with expertise in learning design were asked to review one learning pathway in its entirety. They were particularly asked for their opinions on specific aspects like structure, content, concepts, skills, gaps, and pedagogy used in the LPs.

Piloting of the CPD learning pathways

Like the development process, the piloting of learning pathways was intended as an action research exercise from which we systematically drew lessons from experience for CPD development and for the field. To ensure project success and distilling of learnings, a formative evaluation process was built into the LP project implementation process. The evaluation methodology is underpinned by improvement science, which includes the plan, do, study, and act (PDSA) cycle (Health Foundation 2011). The PDSA cycle assists in clarifying the aim and the envisaged outcomes or changes that have been effected through the implementation of the LP approach to CPD in African universities.

Since the project intervention is a professional development initiative, the evaluation framework was also informed by Guskey's levels of CPD impact evaluation (Porritt 2012). These are: participants'

5 See https://h5p.org

6 See https://articulate.com/360

reactions, participants' learning, organisational support and change, participants' use of new knowledge and skills, and student learning outcomes. In developing the evaluation framework, we chose to limit ourselves to the first four levels due to the limited project implementation time frame. A longer period would be needed to evaluate whether the LPs resulted in improved performance by students taught by academics who participated in the pilot.

Identification of pilot institutions and participants

Seventy-eight academic librarians and university academics from eight universities were identified through the African Library and Information Associations and Institutions (AfLIA) and the Association of African Universities (AAU). Academics are potential users of the learning pathways and were identified as participants in CPD when the project was conceptualised. Academic librarians are another key group for CPD: they need to be able to explain OER and Open Access (OA) to all users of libraries, mainly academic staff and students. In three of the universities, pilot participants were recruited from distance education units within the institutions. Some pilot institutions only focused on one LP while others worked through more than one. However, data collected in the endline[7] survey was limited, suggesting that not all those who planned to complete more than one pathway, actually did so.

Administration of the pilots

The following three LPs were piloted:

1. finding open content
2. adapting open content
3. publish open access

7 We use the terms baseline and endline for the pre- and post-pilot surveys respectively

Table 1: Total academic staff who participated in the pilots*

Institutions	Finding Open Content	Adapting Open Content	Publish Open Access
Universities in Botswana, Eswatini, Ghana, Namibia, Nigeria, and Uganda	52	51	42

*Although we received participant lists from the universities, it is not clear that all participants actually completed all the learning pathways listed here. See Table 2.

Before participants engaged with the LP, they were introduced to the resource through a video-conferencing meeting (using Zoom). The developer explained the purpose of the pilot and the process involved, demonstrated navigation, and asked participants to complete the baseline survey before engaging with the LP. The baseline survey gathered information on the participants' levels of pre-existing knowledge, skills, and competencies related to the particular LP. After the initial Zoom meeting and completing the baseline survey, participants were given at least one week to go through the LP individually. The participants then completed a user-experience survey and joined a Zoom feedback meeting.

Given that not all participants managed to complete the LP(s) within a week, they were allowed to engage with them for 2–3 months. After this extended period they completed an endline survey, which had similar items as the baseline but with the sequence shuffled. The purpose of this survey was to facilitate collection of data on what participants had learnt over the extended period and the extent to which Guskey's levels 1 to 4 had been achieved. The respondent data is shown in Table 2. Space constraints do not allow us to report on all the items in the survey or the qualitative comments made by participants in free choice sections or the Zoom feedback sessions. [Note for editor: a link to the full report will be provided in the final version of this chapter]

Table 2: Respondent data

Learning Pathway	Baseline	Endline	Paired t-test	Statistically significant
Finding open content	51	18	n = 14 T = 2.96 p = 0.011 D = 0.79	Yes
Adapting open content	39	16	n = 11 T = 0.69 p = 0.504 d = 0.21	No
Publish open access	35	13	n = 10 T = 3.54 p = 0.006 d = 1.12	Yes
Total	125	47		

Limitations

Given the variation in the number of baseline respondents compared with the number of participants that completed the pilot and the endline survey, group percentage analysis was done to ensure that the analysis of the data was comparable. This was clearly a shortcoming, so we also conducted paired t-tests for the same individuals who completed both surveys. A paired t-test is an inferential test used to determine the difference between two variables for the same individual, in this case the baseline and endline surveys and shows whether the findings are statistically significant.

Participation in the pilot was voluntary, which resulted in institutions opting to do different LPs. As highlighted above, some chose to do all three whilst others chose to do only one. Also, not

everyone who completed the baseline survey for a particular LP completed the endline survey for the same LP.

The other limitation of the study is that the piloting group was a mixture of academics and librarians working in universities. We did not separate these two groups in our analysis of the results as we were informed that most librarians were academics in their own right with broadly similar kinds of qualifications.

Findings

Finding open content

The aim of the Finding Open Content Learning Pathway is to equip academic staff with necessary skills to search for open content, familiarise themselves with the various Creative Commons licenses, and to be able to evaluate the usefulness of OER for their purposes. Fifty-one respondents completed the baseline and eighteen completed the endline survey. Sections of the surveys covered awareness and understanding of Creative Commons licenses, searching for OER, evaluating OER, and participants' prior engagement with and proficiency in using OER. Here we provide findings for three of the sections: awareness of, searching for, and evaluating OER.

Table 3: OER awareness

Respondents who:	Baseline n=49	Endline N=18
	%	%
Have not heard of OER	18	0
Are aware of OER	79	94
Have searched for OER	65	89
Have evaluated OER	44	83

Searching for OER

Participants were introduced to the use of various search engines like Google Advanced Search, YouTube Creative Commons filter, and Creative Commons Search to provide them with enhanced capacity to undertake OER searches. In the survey, participants were asked to identify the main advantage of using filter search tools within a platform like YouTube. Only 54.2 per cent were able to identify the correct advantage in the baseline survey, while nearly 90 per cent did so in the endline survey, demonstrating a significant gain in knowledge and underscoring the potential for academic staff to carry out more effective OER searches in the future. In a related question, academic staff were required to indicate which of the advanced search tools they had used before and after the pilot. Table 4 shows comparative results.

Table 4: Tools used to search for open content

	Baseline n=51	**Endline n=18**
	%	**%**
Google Advanced Search	78	94
YouTube	26	72
CC Search	18	61
Google Scholar	94	83
Other	16	11

The results in Table 4 show a significant increase in the use of YouTube, Creative Commons search tools, and Google Advanced Search in the endline survey. In the baseline survey, 26.5 per cent of respondents reported that they had a favourite educational content repository they preferred their students to use. In the endline survey, this figure had increased to 33 per cent.

Evaluating the suitability of content found online

One of the most important skills needed in using OER is the ability to evaluate content to ensure that it is fit for purpose and that it will enhance learning. The academic staff were asked to provide information on how they evaluate the suitability of educational content that they find online. Results of the baseline and endline surveys are reported in Table 5.

Table 5: Evaluating content found online

Evaluation method	Baseline n=49	Endline N=18
	%	%
Own discretion	82	59
Consult friend	43	53
Use specific criteria	37	53
Other	6	0

Table 5 shows an increased use of defined criteria and reduced use of one's own discretion for evaluation of OER suitability in the endline data. This suggests that academic staff adopted a more objective approach of applying the OER evaluation criteria discussed in the LP. This is further evidenced by responses given in the endline survey, which highlighted the use of criteria for evaluating OER that were provided in the LP.

The t-test results indicate that the average between the baseline and endline tests is statistically significant with a large effect size, suggesting that the LP had a positive effect on participant learning.

Adapting open content

The aim of the Adapting Open Content learning pathway is to equip academic staff with the knowledge and skills that are necessary for adapting OER to suit particular contexts. Sections of the surveys covered understanding adaptation and the licenses that permit adaptation and repurposing, attribution, considerations involving revising and remixing, understanding the 5Rs, and understanding what changing a resource entails. Here we provide findings for two of the sections: understanding attribution and understanding the 5Rs.

Participants were asked questions that required them to show their understanding of what adapting OER involved. The survey also required them to show whether they understood why it is necessary for them to adapt OER. Table 6 shows survey results of these two questions in the baseline and the endline survey.

Table 6: Understanding adaptation of OER

Questions	Baseline %	Endline %
Able to identify a process that does not involve adapting an OER (4 options provided)	54	75
Provide correct response to: Why is it necessary to be able to adapt a resource?	85	94

Table 6 shows that the academic staff started out with a good understanding of what OER adaptation entails and why it is important, but that there was an increased understanding of the rationale for adapting OER after completing the LP, as evidenced in the endline responses.

Understanding the 5Rs (Remix, Retain, Redistribute, Revise, and Reuse)

Respondents were asked to match each of the terms with the correct description given in a matrix (Table 7):

Table 7: Comparison of correct understandings of 5Rs

	Baseline %	Endline %
Remix	87	100
Retain	90	88
Redistribute	67	81
Revise	74	69
Reuse	23	81

Results in Table 7 show increased understandings of what Remix, Redistribute, and Reuse mean in the endline compared to the baseline survey. It is not clear why understandings of Retain and Revise show lower percentages in the end line compared to the baseline data.

The t-test results indicate that the average between the baseline and endline tests is not statistically significant and has a small effect size, providing no evidence that the LP had a positive effect on participant learning. However, open-ended questions in the endline survey suggest that at least some of the participants not only learnt, but also applied their learning.

Publish open access

The main purpose of this LP is to impart information and knowledge on open access publishing, the practice of making research outputs and data freely and widely accessible to as many people as possible, and without various licensing restrictions. Thirty-five participants responded to the baseline compared with thirteen who responded to the endline survey. Sections of the surveys covered open access licensing conditions, types of open access, how to identify reputable journals for publishing (including avoiding predatory journals), and the advantages and disadvantages of OA. Here we provide findings for the understanding of open access licensing conditions and the ability to identify reputable journals.

Basic understanding of Open Access Publishing licensing conditions

Table 8 shows that, at the baseline, most respondents could identify the open access publishing symbol and understood that there was no payment involved in using open access articles. However, only just over 50 per cent in the endline survey were able to distinguish between traditional and open access publishing in respect of rights related to content adaptation. The results of the endline survey do, however, reflect an improvement in the respondents' understanding of the licensing conditions.

Table 8: Basic understanding of Open Access Publishing licensing conditions

Questions	Baseline %	Endline %
Do end users pay to access Open Access articles?	97	100
Identification of the symbol that indicates open access	93	100
Ability to distinguish between traditional and open access publishing in respect of rights related to content adaptation	32	54

Identifying reputable open access journals and publishers

The baseline survey indicated that most participants were able to identify factors that are important to consider when choosing a reputable open access journal or publisher. However, the endline results reflect a positive increase in the respondent's ability to identify key factors to take into consideration (Table 9).

Questions	Baseline %	Endline %
Ability to identify factors to select a reputable open access journal	83	100
Ability to identify factors to select a reputable open access publisher	74	92

Table 9: Ability to identify reputable open access journals and publishers

The increased knowledge of how to identify reputable open access articles and publishers highlighted in the endline results is important in ensuring that they do not work with disreputable publishers. Respondents were asked to give reasons why they would not publish in predatory journals. Responses to both the baseline and endline survey mirror each other quite closely.

The t-test results indicate that the average between the baseline and endline tests is statistically significant with a large effect size, suggesting that the LP had a positive effect on participant learning.

User experience survey

A user experience survey was administered at the end of the pilot. Data from this survey and data collected at the post-pilot feedback workshop focused on aspects such as user friendliness and whether the participants found it easy to navigate through LPs. In total, 91 pilot participants responded to the user experience survey. Of this group, the majority were academic librarians. Findings in relation to the following three questions are presented below.

Is the design of the LPs coherent and does it allow easy navigation by staff with minimum technological skills?

Approximately 90 per cent of respondents stated that design of the LPs was good, user friendly, and easy to navigate. Participants found the language easy to understand and indicated that they did not encounter any technical challenges in going through the LP. A few respondents reported experiencing some challenges in navigating through the LPs. These included complexity (no details provided), music licensing (a minor point in the context of the LPs), and navigation ('the software does not save your position once it is closed').

How do participants react to the LP in terms of their usefulness and relevance for their needs?

Most academic staff (over 90 per cent) reported that they found all three LPs useful. In the Find Open Content LP, information on the different types of licenses, the filtering search tools, examples of universities that have open content repositories, as well as information on OER content databases, were all reported to be of great value to the academic staff. For Adapt Open Content, respondents indicated that they found the short video clips very informative and helpful to understand the concepts. The also indicated that there are enough hints to guide the learner, and that the language

choice and examples are user-friendly. Respondents who had engaged with the Publish Open Access LP reported feeling more confident about publishing in OA journals because this was underpinned by the new knowledge acquired regarding the benefits of doing so.

What are the potential barriers to implementing this approach to professional development on a large scale?

While the overall response to the LPs was very positive, respondents did raise challenges regarding implementation of an online, flexible, individual approach to CPD. The following issues were highlighted as likely to be potential barriers to implementing online LP tutorials as a professional development strategy. These include:

- poor connectivity in some universities
- high data costs—respondents commented on the fact that the videos in the LPs required the use of a lot of data
- lack of suitable personal digital devices is a barrier for some academic staff
- lack of dedicated time to engage with the LPs due to other commitments in the university
- lack of incentives to motivate academic staff to engage with this form of CPD where staff use their own time and do the LPs of their own accord

Discussion

The results of the baseline and endline surveys reflect that pilot participants' engagement with the three OER LPs mostly resulted in positive learning experiences. The results demonstrate increased knowledge and skills in most items listed. Two of the LPs—Finding Open Content and Publish Open Access—showed statistically significant change between the baseline and endline tests, which suggests that learning did indeed occur. Conversely, the t-test for Adapting Open Content did not show such a result, and, although there were positive changes in many of the items, we cannot state that this was the result of the participants completing the LP.

The findings from the user experience survey and feedback from the post-pilot Zoom discussion sessions regarding the efficacy of the design and ease of using the LPs and the relevance of the

content reflect very high levels of user satisfaction and very positive results related to the relevance. The surveys and discussion also provide evidence of change in the academic staff's practice, which is part of Guskey's level 2 (learning) and even level 4 (use of new knowledge and skills) (Porritt 2012). Many academic staff reported on ways in which they were able to implement their new knowledge and skills related to finding and using OER both for teaching and for research, thus underscoring the positive value of the LPs in building the capacity of academic staff to strengthen the quality of their teaching.

Responses highlighted some barriers to using the LPs. Key amongst these being issues of connectivity, access to digital devices, and the high cost of data. This highlights the digital divide in sub-Saharan Africa even among university lecturers. Given the issues related to connectivity and data costs, it may be an option to design an application that would allow the participants to download the LP content and work offline. While this option may initially be more expensive to implement, it may promote greater access and thus be more cost effective in the long run. Another issue raised as a potential barrier by academic staff was the lack of dedicated time in which to engage with continuing professional development. The subtext of the responses seemed to suggest that it was somehow easier to take time out to attend a face-to-face professional development workshop, than it was to engage in an individual, independent online professional development course. The comments by respondents imply that there was no recognition nor acknowledgement of this sort of CPD as it occurred in a personal space (and was therefore 'unseen') as opposed to the workshop context, which could easily be seen and one's participation in CPD witnessed 'by the powers that be'. This is an area which needs researching, as it clearly remains a barrier for university academics and librarians to access CPD willingly.

To mitigate this barrier, an enabling institutional policy environment needs to be created. Academic staff prefer to have continuing professional development linked to institutional human resource policy. Currently, there is recognition of publication output but not necessarily continuous professional development of staff, especially when done privately. This practice tends to encourage staff to do research and publish at the expense of other important undertakings, like CPD. The AfLIA group stressed the need to have independent CPD linked to promotion and remuneration policies of the university. This, coupled with management support, are likely to be positive factors in making the approach exemplified in the OER LP tutorial method successful.

In line with Guskey's (2000) framework highlighted in the evaluation framework above, the results of the piloting show that participants reacted positively to all three LPs. They found the LPs appealing in terms of their design, relevance, and appropriateness as CPD resources. New techniques and

skills that participants learnt by going through the LPs include appropriate identification of types of licenses under which various resources are published, how the resources should be used, searching for resources relevant for their disciplines, and how to adapt and integrate OER meaningfully in their courses. Those who engaged with the Publish Open Access LP seemed to have gained greater appreciation of the value of publishing using open access. At the same time, they gained good understanding of the disadvantages of using predatory publishers. Respondents highlighted that, in a predatory journal, the lack of peer-reviews impacted negatively on the value and credibility of the research. Further issues raised included concerns regarding professional reputational damage and the possibility of compromising promotional opportunities. Participants showed nuanced understanding of deceptive publishing in the endline survey which may result from engaging with the LP. It is also worth noting that two respondents to the baseline survey explicitly stated that they did not know what predatory publishing was all about.

In their post-pilot feedback, some indicated that they had started thinking of how they would use the LPs and the knowledge they gained therein. Some mentioned improving their courses on the basis of knowledge gained about searching for and integrating OER. Others mentioned using the knowledge gained to select the most suitable OA journals for the library. Knowledge gained by going through Publish Open Access was going to be used to enhance the respondent's Information Literacy course. This suggests that Guskey's level 4 was achieved by at least some participants.

Guskey's impact level 3 refers to changes that occur in the organisation to support CPD initiatives. Although the piloting period was too short and the participating groups too small to influence such organisational changes, participants were already identifying enabling conditions that should prevail in their institutions for the piloted approach to take root. These changes mainly relate to human resource policies and align with the recommendations of recent research (Inamorato dos Santos et al. 2019a; James Jacob, Xiong, and Ye 2015).

It is important to reflect on what implications the findings of the research might have for both ODL institutions and research in the field of ODL. First, future CPD cannot be 'business as usual' in HEIs; there is a need for quality innovative professional development for staff in ways that they can access. One of the findings from the literature was that there are several barriers to academic staff engaging in CPD, including a lack of time, the absence of inducements, and reluctance to depart from existing practices (Inamorato dos Santos et al. 2019b). We identified the former two barriers in our survey and discussions, and staff in ODL institutions are likely to suffer from the same barriers as in face-to-face universities. Part of the rationale for creating the LPs was to provide short, easily completed online CPD activities which participants could learn from. Our findings suggest

that we were at least partly successful in doing so. However, it is clear that institutions need to take teaching development seriously and provide both time for staff to engage in it, as well as possible extrinsic motivation to do so. In the longer term, intrinsic factors would be as, or more, important, and institutions and the field need to create conditions for effective CPD to thrive. Institutions also need to consider clear strategies for their CPD which take into account the barriers their staff face and how new models of CPD can be implemented.

It is clear from the literature review conducted that the field of professional development is substantially under-researched. Studies have focused mostly on traditional face-to-face institutions, but the gap between them and ODL institutions continues to lessen, highlighting an increasing need for research into the effectiveness of CPD in higher education across the board. A number of potential studies for the African continent emanate from the research: an analysis of motivating factors for staff involvement in CPD, a survey of CPD practices, a multi-institution study to determine the effectiveness of innovative CPD practices, and a study of the impact of CPD on academics' career development and institutional culture. To make a difference to teaching and learning across the continent, we recommend that institutions adopt CPD models that can address large numbers of staff at a time. Short, flexible, online engagements such as the OER Africa learning pathways are one way to achieve this but incorporated into a more substantial CPD model or strategy. To enable Guskey's impact levels 4 and even 5 (student learning outcomes), substantially greater efforts need to be taken to improve teaching and learning in all HEIs: face-to-face, distance, and hybrid.

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