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DESIGNING FOR VIBRANT AND ROBUST COMMUNITIES OF PRACTICE IN BLENDED LEARNING ENVIRONMENTS

ABSTRACT

This paper provides insight into the thinking that informed the design of a programme delivered in blended learning mode with the explicit intent to establish a learning environment conducive to the development of vibrant and robust communities of practices (CoPs). Within the higher education context, the explicit articulation of learning design principles as derived from theory is not often offered for dissemination and are regarded as implicit to programme development. This paper begins by exploring the association between CoPs and learning design; considers various approaches to blended learning; offers a blended learning programme as an exemplar for interrogation and then presents learning design principles that informed the development of vibrant and robust CoPs within the blended learning programme. Placing CoPs central to the design of the blended learning programme afforded students an authentic learning experience with an opportunity to make design decisions explicit, thereby contributing to the overall impact of the programme in the education sector. Four emerging learning design principles that underpin the design decisions in this programme are offered for interrogation: provide opportunities to model professional behaviour; develop social foundations from which to build the CoP; sustain guided and self-regulated learning; and realign and reinforce the course objectives. Drawing from the knowledge gained in their vibrant and robust CoPs, institutional leaders – as students in this programme – embraced new models of professional development to bring sustainable change at schools in all districts across South Africa.

Keywords: *Learning design principles; communities of practice; teacher professional development; blended learning; learning environments; learning design decisions*



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1. INTRODUCTION

The case examined in this paper is a blended learning programme for professional development of teacher centre managers: *Managing and Leading with Digital Technologies*, where the aim was for these managers (as students in this programme) to learn how to better support teachers in schools in the use of appropriate digital technologies and to enhance teaching and learning in the classroom. The programme aimed to deliver a contextually relevant course to enable education officials to lead and manage

change and complexity by harnessing the potential of digital technologies. It also aimed to provide education officials with a university-accredited qualification that can contribute towards their individual lifelong learning pathways and continued professional development. The design of the short learning programme (SLP) purposively created opportunities for participants to interact with one another and with faculty members within a vibrant and robust CoP. The design also served to accommodate both a geographically dispersed student cohort, and individuals with challenging work schedules. Learning design principles supporting the development of a vibrant and robust CoP is central to the authenticity of the actual programme.

The reason for focusing on the design rather than having an emphasis on the findings, is that the role of design is often underplayed in academic reporting. In this respect, particular consideration is given to the design principles derived from theory that underpin the establishment of vibrant and robust communities of practice in this blended learning programme.

2. LEARNING DESIGN MEETS COMMUNITIES OF PRACTICE

Communities of practice as a concept was first introduced by Lave and Wenger (1990), in their seminal work "Situated Learning," to position legitimate peripheral participation within communities with differing levels of competency. This type of apprenticeship, in the form of peripheral participation is seen as an appropriate mechanism of induction into a community of practice with a strong emphasis on cultivating a learning culture amongst participants to aid the development of mastery within a specific domain (Bradbury & Middlemiss, 2015). Being the novice or the apprentice in any given situation reinforces a position of vulnerability and, thus, navigating your way in this social setting is ultimately driven by the value proposition of belonging to a specific CoP (Lave, 2009). Impression management subsequently becomes important for new members as they establish new connections and navigate new interpersonal relationships within the CoP. First impressions are often lasting, and novice members tend to be more reticent in their initial engagements. They recognise that their initial interactions influence the group's perceptions of the value they can bring to the CoP. Therefore, they carefully craft their image and adjust their interpersonal interactions accordingly.

In order to grow a CoP and maintain its relevancy, it is essential to recognise how members of a community can form structures to empower each other through collective participation in order to accelerate new members through the induction phase, lessening associated audience anxiety, and encouraging risk-taking and knowledge sharing (Lubke & Counts, 2007; Cowan & Mervyn, 2014). Baker and Beames (2016) assert that learning with others is a social process where individuals collectively engage to share learning and expertise from various cultural and historical contexts. It is because of these diverse backgrounds that sharing among members denotes a level of acceptance that allows the individual to position themselves within a social space (Wenger-Trayner, Fenton-O'Creevy, Hutchinson, Kubiak & Wenger-Trayner, 2014).

Another aspect to consider when growing a CoP is the dimension of time in the formation and maturation process. Novice members initially spend a period simply lurking and observing. These lurkers are "legitimate peripheral members" and usually require the affirmation of more experienced members before they fully commit to the CoP. Novices need time to grow into experts as they become enculturated into a CoP in that "you become a person out of a whole series of experiences over time" (Farnsworth, Kleanthous, & Wenger-Trayner, 2016:11). Time also allows for a sense of belonging to be cultivated when members commit to each other and realign expectations to remain relevant. This sense of belonging is not about acquiring

knowledge and skills that can help you in a process of critical decisions making, but more about finding a sense of social belonging and using the acquired knowledge as members transition through various levels of mastery, thereby strengthening social cohesion even further (Wenger-Trayner *et al.*, 2014). Furthermore, findings of a number of studies seem to indicate that social and emotional connectedness need to be actively encouraged and fostered, especially in a blend of learning environments (Bower, Dalgarno, Kennedy, Lee & Kenney, 2015).

Wenger (1998) views CoPs as being made up of three distinct components:

- a *domain* where members share the same interests and are committed to the domain. Knowledge shared in the domain is dynamic and can be both explicit and tacit as well as social and individual. The domain therefore gives a group its identity and distinguishes it from an informal club of friends (Nistor, Daxecker, Stanciu & Diekamp, 2015);
- a *community* with members who interact and actively share information with each other, and where participation and affirmation become a negotiated experience in knowledge construction. The quality of the relationships among members tends to reinforce the social cohesion in the community (Farnsworth *et al.*, 2016);
- a *practice orientated environment* with members as practitioners developing a shared repertoire of resources that include helpful tools to archive and curate information. Practice implies knowledge of, and engagement with, a domain to advance knowledge construction (Mentis *et al.*, 2016). Practice implies doing, and not just dreaming about the idea. A strong CoP develops practices that allow members to work together in creating insights and enforces collective practice towards problem solving (Holland, 2018).

In a collaborative learning space, decisions are informed by the knowledge, skills and attitudes of participants as well as their reasons for cooperating. As such, CoPs have become a popular mechanism to scaffold professional development among practitioners. Both the concept of CoPs and the enactment thereof create value when used to explore, contest and refine ideas – both collectively and individually. CoPs are also useful as a knowledge management tool in collaborative communities (Blackmore, Foster, Collins & Ison, 2017).

In terms of professional development, the advantages of participating in a CoP, apart from peer-modelling where participants share resources through curation, include refinement of their beliefs and ideas. Members collectively refine ideas and make joint decisions regarding the scope and relevance of their community. In addition, if participants in a CoP derive value from shared experiences, they are more likely to adopt and advocate models of teaching and learning strategies in which discussion and sharing of ideas are central. The value of a CoP is that multiple perspectives and experiences collectively shape the nature of the collaboration and knowledge sharing as members transition through various levels of mastery.

3. APPROACHES TO BLENDED LEARNING AS A MODE OF PROGRAMME DELIVERY

Blended learning can be described as hybrid learning, flexible learning or even mixed-mode learning; it accommodates synchronous and asynchronous communication as well as formal and informal forms of learning. Blended learning addresses the need to provide a variety of coherent measures at the pedagogical, organisational and technical levels to assist students to achieve intended learning outcomes.

The blend will vary depending on the nature of the discipline, the profile and context of the students, type of learning material, level of interaction required, fidelity and technological solutions available to complement the face-to-face teaching and learning environment. The main tenet of blended learning is to fully exploit the affordances of learning technologies to accommodate and allow different ways for students to engage with curriculum and lecturers whilst demonstrating their learning. With the rapid expansion of blended learning offerings in higher education, there is a growing interest in how CoPs can further support and sustain learning beyond course boundaries (Halverson, Graham, Spring, Drysdale & Henrie, 2014).

Higher education institutions, making the transition from the more traditional face-to-face mode of delivery to include more elements of open and distance learning, find it a major challenge when confronted with the myriad of choices in terms of pedagogy, technology and disciplinary expectations. In traditional face-to-face environments, educators tend to focus more on traditional teaching patterns, such as the “teach, practice, apply” mode (Toetenel & Rienties, 2016). In blended and online learning approaches, more consideration is given to create technology mediated learning experiences. Alammery, Sheard and Carbone (2014:443) identified three distinct processes when designing blended learning courses based on the level of changes required in existing offerings:

1. Low-impact blend: adding extra activities to an existing course
2. Medium-impact blend: replacing activities in an existing course
3. High-impact blend: building the blended course from scratch

In the low-impact approach, most course designers simply add technology-mediated instances to their existing course materials without eliminating existing activities. Their choices are limited due to their inexperience and lack of knowledge about appropriate technologies and their associated pedagogical affordances. In the medium-impact blend, courses are redesigned to replace face-to-face offerings with online activities. Designers make a concerted effort to re-conceptualise learning activities and target key areas that might work better in the online medium. This approach requires long-term planning and is iterative in nature with constant refining of the offering. The high-impact approach, which is the most difficult to apply, requires significant investment of seasoned designers with high levels of technological and pedagogical confidence and can be described as a full redesign, total redesign or a radical change. Such a radical approach is most suitable for new course offerings or courses that require revisiting course objectives with a stronger focus on the participants' needs. The lead time for development, in this case, is up to three times longer than for courses developed in the traditional format.

4. LEARNING DESIGN AND BLENDED LEARNING

Conole (2012) described learning design as a process whereby teachers or designers plan learning instances to reach desired learning outcomes whilst matching specific pedagogical approaches with the most suitable technological tools and services available in a specific educational space. The following cases present various learning design and pedagogical principles that informed the design of programmes offered in both online and blended modes of delivery.

Bower, Dalgarno, Kennedy, Lee and Kenney (2015) analysed seven cases involving blended synchronous learning in university settings. Key findings from the seven cases highlight

the need to design for active learning and to select and utilise appropriate technological tools to meet student communicative needs. Boelens, De Wever and Voet (2017) identified four additional challenges in the design of blended learning environments and point to the learning processes, incorporating flexibility, stimulating interaction and fostering an affective climate. They find that more can be done to cede control of the blend back to students as active participants. Furthermore, planning for social interaction to pre-empt a lack of engagement in the learning process allows students to bond with each other, furthering emotional engagement. Promoting a positive learning environment and recognising the importance of student self-motivation addresses the tension between incorporating student control and facilitating and structuring students' learning processes.

In their study of three blended learning courses at a higher education institution Lai, Lam and Lim (2016) derived learning design principles that emphasise student autonomy, interaction and feedback, awareness of student diversity and the consolidation principle. Consolidation uses different types of activities for students to think again, so that their knowledge can be consolidated. In their expansive literature review covering instructional design approaches within blended and online learning environments, Scott, Ribeiro, Burns, Danyluk and Bodnaresko (2017) articulate the need to shift the focus away from any particular technology and to rather focus on specific pedagogical designs that are more likely to be effective in relation to the material being studied. They suggest linking technologies to productive pedagogical strategies in order to enhance learning and to provide iterative feedback loops to further online interactions. In their study on the effectiveness of blended learning environments from a student perspective, Kintu, Zhu and Kagambe (2017) identified learning design features such as the quality of technology tools, the nature of support provided and student self-regulation as predictors of student engagement and interaction in programmes offered in an online and blended learning mode of delivery.

In a recent study, Smith, Hayes and Shea (2017:224) critically examined online and blended learning research published between 2000 and 2014, for ways in which higher education and professional development spaces use Wenger's CoP as a theoretical framework. They attest to finding only 17 research studies meeting their selection criteria of online and blended learning with a community focus bounded by time limits as well as predetermined communal goals and outcomes. Their study generated recommendations worthy of consideration when deriving learning design principles for similar online/blended learning spaces. These recommendations are:

- include more sophisticated ways of gauging the progress of CoP formation;
- consider how time impacts on the establishment of a CoP and the process of professional identity development;
- encourage modes of thinking and acting to assist individuals to participate meaningfully within virtual spaces;
- use mediating tools to support intellectual engagement; and
- Apply CoP theory to inform the design and execution of online/blended learning.

It is evident from these various case studies that online and blended modes of delivery presuppose careful learning design to accommodate for various aspects related to student agency. This includes creating a positive learning environment supported by appropriate pedagogical strategies that are mediated by sound technological tools to assist in the

consolidation of new knowledge. Careful consideration should also be given to manage the student's affective disposition through positive social interactions that increase social cohesion in a programme. Therefore, the explicit articulation of appropriate learning design principles to underpin the establishment of vibrant CoPs programme delivered in a blended mode is essential to ensure the relevance and longevity of such CoPs.

5. BLENDED LEARNING PROGRAMME CONTEXT

This short learning programme (SLP) targeted 166 DBE Managers of District Teacher Development Centres (DTDCs) and Provincial Teacher Development Institutes (PDTIs), which are collectively called Teacher Centres. eLearning Specialist Trainers who serve on the DBE's National Core ICT Training Team (NCITT) in all Provincial Education Departments (PEDs) were also included. These Teacher Centre Managers and eLearning specialists are embedded within each district in South Africa and have a mandate to capacitate the professional development of teachers in providing appropriate and contextual in-service training opportunities and to implement the DBE's Action Plan to 2019 in a response to the priorities, targets and programmes articulated in the National Development Plan 2030.

The purpose of this SLP was to enable education officials in the DBE and Provincial Education Departments (PEDs) to effectively harness the potential of digital technologies in support of their management and leadership roles. Disparate qualifications of existing Teacher Centre Managers ranging from technical, managerial to educational qualifications resulted in differing approaches to problem solving. The distinct lack of coherence between past training instances with little articulation to formal accredited training programmes for progression also emerged as a stumbling block to sustained professional development. As such, a dedicated learning programme that integrates self-management with appropriate leadership and management tools in ways that harnesses the potential of ICTs was designed, developed and delivered as a continuing professional development opportunity. The programme was designed to fully exploit the affordances of digital technologies in a blended learning space supported by the availability of tutors on a 1:10 ratio to address concerns of high attrition rates endemic to online learning. The programme was delivered over a period of eight months combining an initial four-day face-to-face component followed by a prolonged online phase.

Participants who complete this accredited NQF level 8 SLP are equipped to strengthen the education sector in South Africa, particularly the DBE and PEDs, by contributing towards effective leadership and management of education in the design and implementation of teacher development initiatives in each district of South Africa. The practical ICT skills they acquire during this course, and the deepening of their theoretical understanding, will allow them to identify and address various tensions in their own ICT work activity systems. They can also be equipped to establish vibrant subject-specific professional learning communities (PLCs) in their districts. These DBE-mandated PLCs for teachers, supported and mediated with various ICT tools and services, will further build capacity in each school. Furthermore, they can expand their own pedagogical repertoire, modelling appropriate and subject-specific ICT use in the various teachers training instances they are required to host in their districts.

According to Alammery *et al.* (2014), a course designed to capacitate educational officials can be considered as a high-impact blend. In response to this, this new programme demonstrated radical change as compared to traditional offerings by allowing for flexibility in

terms of the choice of pedagogy, as well as the selection of tools and services for the delivery of the programme.

The overall programme design is immersed in principles of authentic learning (Herrington & Reeves, 2017) with a strong emphasis on:

- managing and leading change through self-management;
- policy and institutional contexts with reference to teacher development and digital technologies;
- driving optimal use of education resources and digital technologies;
- innovative digital tools for collaboration and knowledge creation;
- making data-driven decisions as educational intervention; and
- competencies and attitudes necessary for lifelong learning.

There are several desired learning outcomes for the SLP, the most important of which is the formation of a CoP. The overall aim is to get a sustainable model for teacher support for the use of technology for teaching and learning. Therefore, we began with the ICT managers as change agents within each of their districts. Their establishment of a CoP is crucial to moving/working with teachers in their regions. Once they have had a lived experience and can acknowledge the benefits of being a member of an active CoP, they are more likely to establish similar CoPs with the teachers in their districts. Teachers in turn can then develop their own PLCs in their own learning areas.

Whereas some of these centres are in very poor under-resourced areas, others are situated in more established areas with more access to resources that result in a robust knowledge exchange amongst participants with the associated transference of ICT and leadership skills. As such, forming CoPs across socio-economic boundaries amongst district officials and teacher centre managers ensures a rich exchange of ideas that can result in appropriate and contextual measures to be implemented in their respective communities. Furthermore, the strategic selection of participants ensures that a larger number of officials are skilled; it ensures a better possibility for sustainability and implementation of skills learnt. In turn, these skilled officials can use their centres to serve the needs of their education communities more directly. In addition, due to the under-representation of women in the specific domain of ICT in Education, a conscious effort was made in the development of resource materials to promote positive female role models in the selection of relevant cases.

6. COMMUNITIES OF PRACTICE IN CONTEXT

The applied learning design principles pertaining to the development of CoPs within the scope of this programme, their theoretical underpinnings and enactment thereof, are presented in Figure 1.

The blended nature of the SLP is visually presented in Figure 1. The SLP recognises the importance of CoPs in the successful delivery of the blended learning programme. The blended mode of delivery was designed to start with a short face-to-face period followed by a protracted online phase. Due to the affective nature of the face-to-face phase, participants could first establish personal connections and then deepen these relations during the online phase of the programme. The face-to-face environment was designed to have opportunities for managers to get to know each member on a personal level; it allowed them to build

strong social foundations that could potentially sustain their self-directed learning and later online collaboration. Face-to-face encounters were characterised by high energy levels that motivated, inspired confidence and nurtured professional behaviour that continued into the online phase. Managing first impressions was important during the face-to-face encounters as levels of competencies were revealed and participants positioned themselves within their new CoPs. Social belonging was also actively fostered as participants had time to explore social and emotional connectedness during the face-to-face encounters. These connections proved to be valuable as they strengthened the social cohesion within the CoPs that were then sustained during the prolonged online phase. Trust also developed with time as initial levels of acceptance established during the face-to-face phase were confirmed, and new competencies revealed, during the online period.

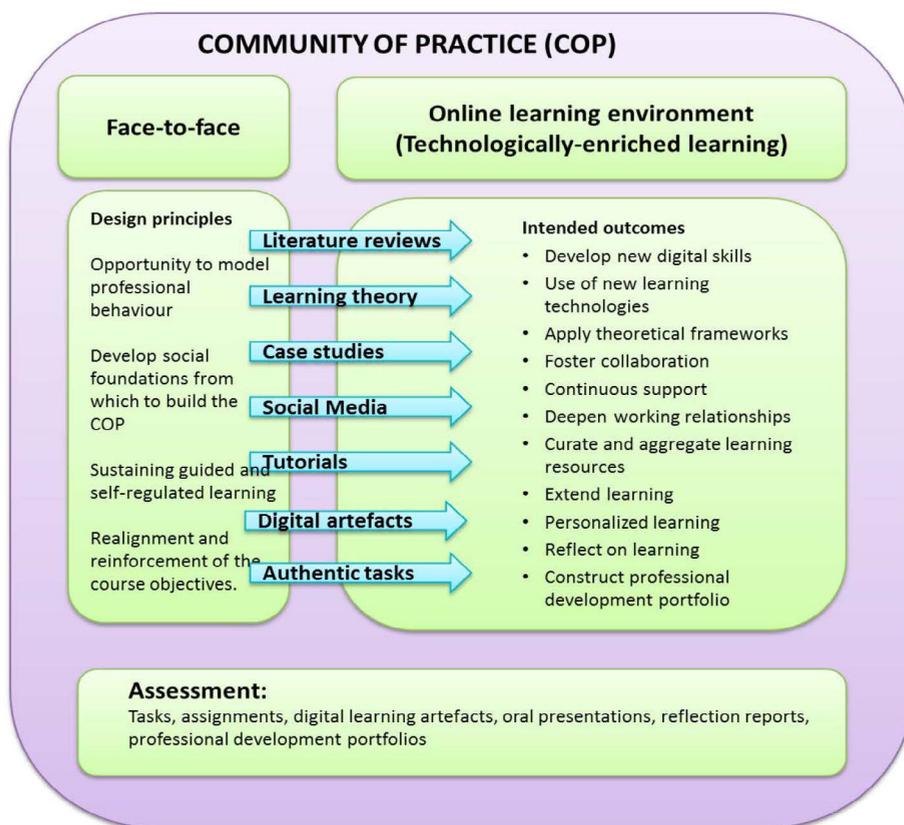


Figure 1: Emergence of CoP design principles

Face-to-face encounters allowed for the realignment and reinforcement of the course objectives. The online environment allowed for students to further foster and build their CoPs through collaboration and knowledge sharing – they experienced technology-enriched learning. This necessitated the development of a digital skills set that grew as they became more confident in their ability to develop, curate and aggregate information. Their learning was enriched and was extended beyond the environment of their own context. Usually members of a CoP can assist one another through teamwork in the completion of tasks of increasing

complexity. Support is typically provided by a member of the CoP as they continue to learn with, and from, one another. Students are exposed to exemplary pedagogical practices as modelled by their facilitators who enact practices underpinned by sound learning theory.

Using appropriate pedagogical strategies such as the use of relevant digital artefacts; authentic tasks; timeous tutorials; various social media services and literature reviews, fosters greater collaboration and allows students to deepen working relationships within their CoPs. This design is consistent with the views of Henri and Pudelko (2003), that a CoP starts out as a goal orientated community of interest and with time takes on a more formal character. Meeting in a face-to-face environment allows the more formal online interactions to be guided by rules adopted by members negotiated in the face-to-face environment, thereby ensuring a level of coherence and meaningful engagement.

7. PROGRAMME LEARNING DESIGN PRINCIPLES

The design principles informing the face-to-face component, derived from literature and enacted in the online component, included the following: provide the opportunity to model professional behaviour; develop social foundations from which to build the CoP; sustain guided and self-regulated learning and realign and reinforce the course objectives.

7.1. Provide opportunity to model professional behaviour

Practical complexity and levels of theorising and abstraction increased as participants progressed through the programme. This is in line with Boei, Dengerink, Geursen, Kools, Koster, Lunenberg and Willemse (2015) who found that changes in professional behaviour that deepen reflection are informed by solid theoretical thinking. The programme did not foster rote learning, rather, it fostered deep and meaningful learning – learning that is “rich with connection-making” needed for “insight and for the lively and flexible use of knowledge” (Perkins, 1991:6). Participants were expected to use the tools of their trade which included the connected digital devices supplied to them by their various PEDs in order to complete the programme successfully.

Activities and assignments were designed for participants to demonstrate proficiency substantiated with evidence of implementation captured in online portfolios. Eventual success was dependent on demonstrating technical, academic, contextual and practical competencies thereby allowing students to feel more confident to serve their own teacher communities in their respective districts. They had multiple opportunities to test their own teacher development learning solutions within their own CoPs before deploying these to the teachers in their districts. They, thereby, modelled professional behaviour in recognising the value of constructive feedback as they refined their teaching and learning solutions. Providing and accepting feedback both allow students to first model professional behaviour within their own CoP that can then be replicated at a later stage when working with teachers from their own districts.

7.2 Develop social foundations from which to build CoP

Cultivating a social presence, including the degree of awareness of others, is positively linked to learning outcomes (Akcaoglu & Lee, 2016). Social interactions during face-to-face sessions that extend to online spaces, where exchanges are mediated through social media and other forms of online communications, provide comfort where emotional connections can form between students. One of the aims of this programme was for ICT centre managers to first form firm connections with their peers within the programme before they replicated the

same model with the teachers in their districts. Forming connections between individuals is dependent on their social and professional status and perceived levels of expertise. Feeling comfortable with another person, trusting their intentions and judging their willingness to share contribute greatly to social cohesion within a group. The social presence of individuals regarded as experts sets the tone for engagements within a CoP. Experts in the group carry the responsibility of seeing novices through their induction phase in a new CoP thereby ensuring the mutual appreciation for the interpersonal aspects of that integration.

Mills and Ballantyne (2016) believe that a sense of community is necessary for some participants to renegotiate their subject positions especially when confronted with contesting and divergent perspectives. A sense of community is preceded by a sense of belonging and refers to a feeling of connectedness and that one is important or matters to others thus preventing a sense of alienation. Being accepted, respected and valued direct the sense of community and can sufficiently influence human behaviour.

The quality of social connections within a CoP is one of the strongest indicators of a robust CoP and actively contributes to its vibrancy. Strong social connections are forged over time and reinforced with sustained engagements. Higher levels of trust are developed as a CoP matures and as members develop a shared history, especially when they are heavily invested in sustaining the CoP. As a result, teacher centre managers as students in this programme first needed to have an authentic, immersive experience in a CoP before they were able to recreate similar communities elsewhere.

7.3 Sustain guided and self-regulated learning

Nilson (2013) considered self-regulated learning as a multi-dimensional and multi-stage process requiring conscious planning, monitoring and evaluations of one's learning in order to advance lifelong learning skills. Without a desire for self-regulation, CoPs become vulnerable and can lose its momentum. Each student must have the opportunity to fully participate in the practice orientated CoP environment requiring levels of self-awareness, self-regulation and self-monitoring. Students with superior levels of self-regulation can adapt their approach to learning more readily. The ability of a person to determine and regulate their own developmental path through collaboration with others within a CoP is an essential element of self-empowerment and self-regulation. Juxtaposing individual learning needs against that of the CoP allowed members to reach higher levels of self-awareness and trust. Presenting, reflecting and contesting their ideas within the boundaries of their CoP offered opportunity for anyone to become cognisant of their own strengths and weaknesses. This self-regulated learning is a constructive process characterised by instances of group scaffolding whereby reciprocal feedback is used as a mechanism to develop knowledge within the specific domain (Nistor *et al.*, 2015).

CoPs are prone to instances of informal learning as members chart their own course and address commonly shared problems in collectively finding suitable solutions. Even though CoPs are not dependent on any particular medium, combining the advantages of both face-to-face and online interactions in a blended mode of delivery offers unique opportunities for prolonged engagement in the physical, and by extension, the virtual world. This SLP instilled the attitudes, values and competencies necessary for lifelong learning, including dimensions of self-regulated learning, metacognition and emotional and motivational control. The strong theoretical foundations of the programme do not only advance the scholarship of teaching, learning and research, but also, through a combination of guided and self-regulated activities,

creates opportunities to reflect on learning. Students are empowered to practice quality ICT-mediated teaching and learning as they collaboratively learn from, and with, each other. As a result of increased levels of self-regulation, students become agents of transformation and innovation.

7.4 Realign and reinforce the course objectives

The use of ICTs in a changing educational landscape is explored from eco-systemic perspectives. It leads to understanding the dynamic contexts of education that can enable students to make informed decisions about ICT use in education at the policy level, contextualised for the environments in which they work. In this way, student learning becomes meaningful and will have relevance and influence in the shaping of a better future for the communities they serve.

Table 1: Content areas mapped to units, topics, outcomes and assessment criteria

CONTENT AREAS			
Unit	Topic	Outcomes	Assessment criteria
1	Leadership in ICT – driving sustainable change	Display active leadership in education communities and professional development groups as agents of change	Develop and collect evidence of engaging with the wider education community in conceptualising and providing instances of continuous professional development as needed in the districts.
2	Learning Theories	Engaging with learning theories around adult learning (andragogy)	Andragogy and associated with 21 st century skills
3	Appropriate ICT tools and services for lifelong learning	Select and apply appropriate ICT solutions to various educational scenarios	Create a variety of multimedia in the form of various digital learning artefacts and display competence in the planning and management of educational/instructional media facilities and programmes.
4	Communities of Practice as theoretical framework	The Theory of Communities of Practice Engaging with ICT innovation in Education	Communities of Practice as a mechanism to drive change in teacher professional development Learning from research
5	Policy and Practice interchange	Understanding the relevant policies, guidelines and plans and how it impacts my working environment Exhibit knowledge and understanding of complexity of implementing ICT solutions in education	Reflecting on key policy issues highlighted during SWOT analysis in closing the gaps To conceptualise and develop an articulate reflective report: Leading with technology in my district: A contextual implementation

The teaching and learning strategy is further premised on authentic learning principles. This means that students will encounter learning tasks that have real-life meaning, are ill-defined, are cross-disciplinary, rely on peer collaboration, produce polished products that have value in their own right and where multiple outcomes are possible (Herrington & Reeves, 2017). It also provides for learning about emerging learning technologies as they become available, and students can engage with these tools and apply learning in the authentic contexts in which they practice. Learning tasks meet the criteria for authentic learning, since there is a

strong emphasis on the development of ICT skills, specifically skills in the use of a variety of online ICT tools in contextual settings. Students are required to develop authentic learning artefacts that are polished products that are immediately useable.

The learning design principles were enacted in the units as captured in the assessment criteria as presented in Table 1:

Providing meaningful and authentic learning experiences explicitly connects learning design principles to the establishment and development of robust and vibrant CoPs. These learning design principles pertain not only to the process of growing and sustaining the particular CoP, but also to the range of activities and associated technology choices to support the lifecycle of the CoP (Cambridge, Kaplan & Suter, 2005). The selected topics for the programme are relevant in an emerging and evolving educational landscape. They are sufficiently agile to dynamically influence and enable better learning outcomes for the participants in the programme. The programme is sufficiently responsive to the needs of the developed and developing contexts, to be influential in shaping the future in both contexts. It makes provision for an exploration of a range of pedagogies that are appropriate for the diversity of contexts in which ICT is used for educational purposes.

8. RECOMMENDATIONS FOR FURTHER ACTION

Firstly, we find that there is a pressing need for a deeper articulation of qualifications available in the education space. The attraction of completing this particular NQF level 8 SLP resides in the potential to progress to the full qualification: Postgraduate Diploma in Education — ICT Innovation in Education.

Secondly, the blended mode of delivery played a key part in the success of the programme. Not only did it ensure increased access to a quality programme outside of individual provinces, but also provided a sense of purpose in learning more about learning with digital technologies. Being forced to interact online to complete this programme also ensured the strengthening of individual digital skills as well as improving confidence in using digital technologies for learning. Participants can now assertively model future teacher professional development instances in their own provinces, having had the advantage of a personal lived experience in completing a blended learning course. Going forward, they will receive some assistance in considering aspects of learning design for digital learning when delivering teacher professional development workshops in their own provinces and districts. The next SLP in this series will be designed to focus fully on this aspect.

Thirdly, regarding the importance of supporting emerging CoPs, the timing of the face-to-face phases was critical in allowing students not only to meet their facilitators and tutors, but also for them to get to know each other across provincial boundaries. Where existing provinces did not have well-established CoPs, students organised themselves by forming working groups that later evolved into strong CoPs. Within these CoPs, they were not only personally accountable for their progress but also to each other. A strong camaraderie seemed to develop naturally and grew within provinces. Naturally, more thought needs to go into how to harness and support these CoPs to gain further traction in districts and provinces.

Fourthly, the level of visible support from project partners further strengthened their resolve to complete the programme. Each of the partners provided visible and tangible support for the candidates, thus, underscoring their value within the programme as well as the critical role

they play in the implementation of educational policy. The thrill of meeting the Minister of Basic Education and living up to her challenge of a 100% pass rate provided additional incentive not only to complete, but to also excel in the programme.

Finally, the level of support, provided in the form of online tutors and readily available facilitators, contributed greatly to the high throughput rate. Additional lines of communication in the form of mobile chat groups were established where participants felt safe to make enquiries or request additional support. The amount of digital scaffolding required from tutors and facilitators was not anticipated, nevertheless, it was provided in the form of supporting videos and tutorials in line with the objective of not leaving anyone behind on this journey. More can be done in future by anticipating and addressing support needs early in the course that may arise due to differing levels of familiarity with educational theory as well as differing competencies in using learning technologies.

In conclusion, designing programmes that are offered in a blended learning mode of delivery offer unique opportunities to deeply interrogate the design thinking when creating CoPs as part of the driving mechanism for impact.

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