ARTICLE

DESIGNING AND DEVELOPING PROGRAMMES IN OPEN, DISTANCE AND E-LEARNING

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ABSTRACT

This paper flows from a pre-conference workshop developed and facilitated by the author for the National Association of Distance Education and Open Learning in South Africa (Nadeosa) conference 2017. The paper and workshop explore the nature of programmes generally and the particular challenges of designing programmes for open, distance and e-learning (ODeL), in particular drawing upon the author's work for Saide, the University of Pretoria and a DEd study in progress exploring the mainstreaming of Open Educational Resources in curriculum practices. Approaching the issue from a non-determinist, interpretivist and transactional perspective, and drawing upon a number of metatheoretical perspectives, but most strongly hermeneutics and systems theory, it is argued that while there is no one right way to develop a programme for an ODeL context, there are a number of questions and perspectives that are likely to provide useful lenses. This argument favours curriculum as an evolving and consultative process rather than a discrete and technical event.

Keywords: programme; design and development; open learning; distance education; e-learning

UNISA university of south africa

Progressio
Volume 38 | Number 2 | 2016 pp. 132–150
https://upjournals.co.za/index.php/Progressio

https://dio.org10/10.25159/0256-8853/1025
Print ISSN 0256-8853

INTRODUCTION

In 2014, the Department of Higher Education and Training gazetted South Africa's first national distance education policy (DHET 2014) and in the same year, the Council on Higher Education published a good practice guide for distance education in a digital era (CHE 2014). These two documents reflect a growing integration of digital technologies in the provision of higher education that has begun to result in a blurring of boundaries between different modes of provision that could potentially obscure some of the quality issues peculiar to distance education provision (Glennie and Mays 2013). While it seems clear that technology has the potential to overcome some of the weaknesses of older models of distance education provision, particularly the limited opportunity for interaction in the correspondence model, it seems equally clear that opting to use technology to create more interactive and open-ended learning experiences requires conscious choices in the design phase that institutions will not necessarily make (Bates and Sangrá 2011). In fact, once institutions realise the cost involved in greater interaction in an online environment, perhaps greater interaction than even in a typical traditional contact programme, institutions may be even less inclined to invest in the design and development of programmes that make full use of both the information and communication affordances of technology, or at least will likely seek to automate as much as possible (Rumble 1997, 2004; Kanuka and Brooks 2010; Hülsman 2016). This paper, and the workshop on which it is based, then seeks to explore ways in which it might be possible to design and develop programmes that are more open through making judicious use of e-learning possibilities that are also affordable and sustainable for institutions as well as students.

KEY QUESTIONS

In light of the context outlined above, this discussion explores the following questions:

- What are the similarities and differences between ODeL and non-ODeL programmes?
- How do we reconcile the need to design a coherent programme for accreditation (whole qualifications) and the notions of personal learning environments and emergent learning (programmes based on a shopping basket of unit standards) in a sustainable way?

A consideration of existing policy and quality guidelines (CHE 2004b, 2014, Welch and Reed 2005, CoL 2005, 2009) suggests that all institutions, regardless of mode of provision, should engage with questions like the following:

1. What is the programme?
2. Why is the programme needed?

3. How does the programme align with institutional vision and mission?
4. What are the intended exit level learning outcomes?
5. What are the modules/courses that make up the programme?
6. How is the programme designed for coherence and fitness for purpose?
7. How does the programme fit into a learning and/or career pathway?
8. What is the mix of teaching and learning strategies and why is this considered optimal for the purpose and target audience?
9. What is the assessment strategy and why is this considered optimal for the purpose and target audience?
10. Which learning and teaching support services are available to staff and students?
11. What is the enrolment plan from year one to suggested optimum?
12. Who is involved in offering the programme (roles/ qualifications /experience/ number/ time)?

Questions 5 and 6 need to be considered together if we are to address the concerns raised by national review processes about the lack of coherence of many programmes being offered (CHE 2004a, 2007, 2010, 2013a, 2015) while questions 11 and 12 clearly relate to issues of affordability and sustainability.

In addition to the general questions that apply to all modes of provision, the following additional questions (and there may well be more that it would be useful to ask) logically arise from migration to a distance mode of provision:

1. What is the strategy for ensuring access to quality learning resources?
2. What is the strategy for decentralised learning support?
3. What is the strategy for decentralised assessment?
4. What is the strategy to ensure equivalent quality of provision across diverse learning contexts (including cross border where applicable)?

The approach and examples in this discussion seek to suggest ways to explore some of these questions.

THEORETICAL LENSES

Table 1 below reflects the theoretical lens that informs this discussion.

Table 1: Theoretical lens (Mays 2016)

Ontology	**Determinist**	**X**	**Non-determinist**
Epistemology	Idealist	X	Realist
	Positivist	X	Interpretivist

Educational metatheories	Logical Empiricism Critical rationalism x	Systems theory X Phenomenology x Hermeneutics X Critical theory x	Existentialism/ African philosophy x/ Feminism/ Post modernism x Nihilism
Pedagogical choices	Particular limited uses of behaviourist / associationist theory; learning as purposeful and linked to outcomes statements providing these are open to change; belief in connecting ideas in increasingly complex ways – from concrete to abstract, from known to unknown	Practice informed primarily by cognitive and social constructivist approaches seeking to work towards consensus understandings that allow teams of people to work together towards agreed common goals in communities of learning and practice.	While encouraging groups to work towards consensus understandings and work plans, there is need to create some dissonance to challenge uncritical group think; agree that technology opens new possibilities for learning; believe learning should be activity-based.

The author is firmly non-deterministic in perspective and while accepting the notion of a shared reality susceptible to scientific enquiry, is, as an educationist, more interested in human ideas and interpretations that require iterative meaning-making. For many years, the bulk of the author's work has involved working with teams of institutional representatives in programme design and development and/ or review workshops in extremely diverse cultural and geographical settings. This usually requires finding a sufficient consensus for a team of people to move ahead along a planned and supported development pathway – an interaction that could be considered primarily transactional and pragmatic and draws plurally on a range of theoretical lenses (indicated in the table by large and small crosses to show relative influence), but most strongly in the author's case on hermeneutics and systems theory (Danner 1995, Stanford 2005, Kinsella 2006, Treml 1995, Moore and Kearsley 2012). These involve iterative processes and extensive diagramming as exemplified in the presentation of this paper and the workshop on which it is based. The author also tends to believe that no one learning theory adequately addresses the wide range of learning needs and contexts encountered, although the author's dominant approach is constructivist (Moll et al. 2001). In helping development teams to think through the decisions to be made in the programme design process, it has proved useful at the outset to suggest to programme developers that they consider a range of learning possibilities on a fitness for purpose basis rather than focus on only one, as illustrated in Figure 1 next page.

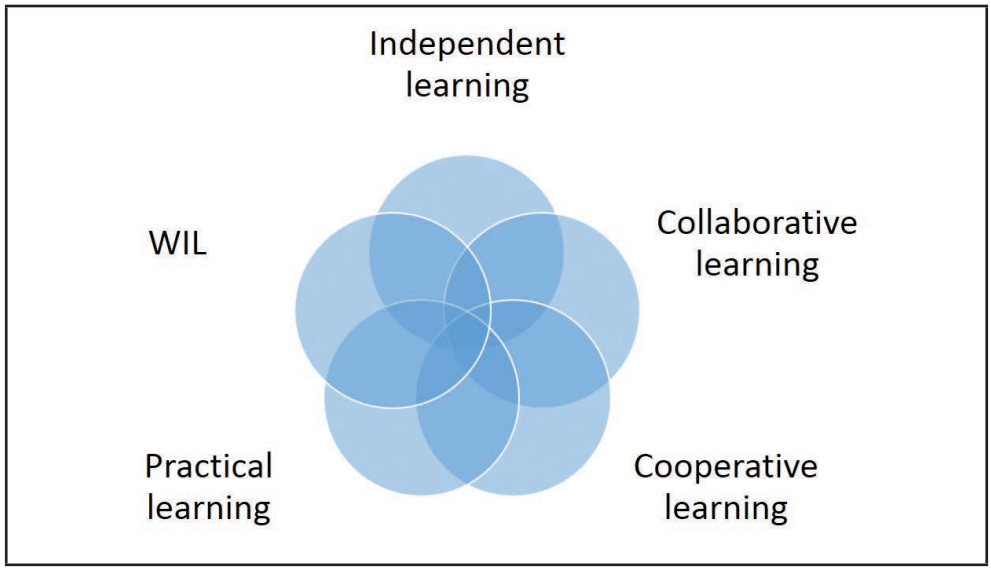

Figure 1: A range of learning possibilities (Mays 2016)

It is suggested that some things can be learned independently from well-scaffolded materials but that these emergent understandings are likely to be deepened if they can be complemented with one or more other approaches: for example collaborative learning in which students work together on the development of common projects, artefacts or solutions to a problem. In other instances, we might adopt cooperative learning in which students work largely on independent projects. However, these students do have opportunities to give one another feedback and to share ideas. In yet other contexts, we need to make provision for practical learning in a laboratory and/or workshop and work-integrated learning in a workplace – for example, teaching practice for teachers, clinical placements for medical staff and veterinarians, work experience for younger learners still thinking about their future plans.

COHERENCE, STRUCTURE AND EMERGENCE: POSSIBLE APPROACHES DERIVED FROM POLICY AND LITERATURE

There would seem to be a tension inherent in the very nature of a discussion on programme coherence between programme design and development processes following a Tylerian design-down process and more organic reconceptualist approaches, enabled by a connected world and supportive of emergent learning (van den Berg 2014).

Ways to address this tension include:

- Increasingly open programme structures
- Activity-based approaches
- Emphasis on personalised formative feedup, feedback and feedforward

Increasingly open programme structures

Inherent in the notion of a programme as conceptualised by SAQA (2005) is the notion of three interrelated components – fundamental learning geared towards supporting student success in the programme generally through development of, for example, cross-cutting academic literacy skills; core learning that speaks to the kind of disciplinary learning that is highly portable across different cognate programmes and contexts; and elective learning that opens up individual choices, for example, a Foundation Phase elective in a teacher pre-service programme. It is not difficult to see the possibility of adding a further optional dimension of a more open-ended and less structured nature – that makes use of the affordances of technology to engage students more actively than simply providing a set of recommended additional readers. This is illustrated in Figure 2 below.

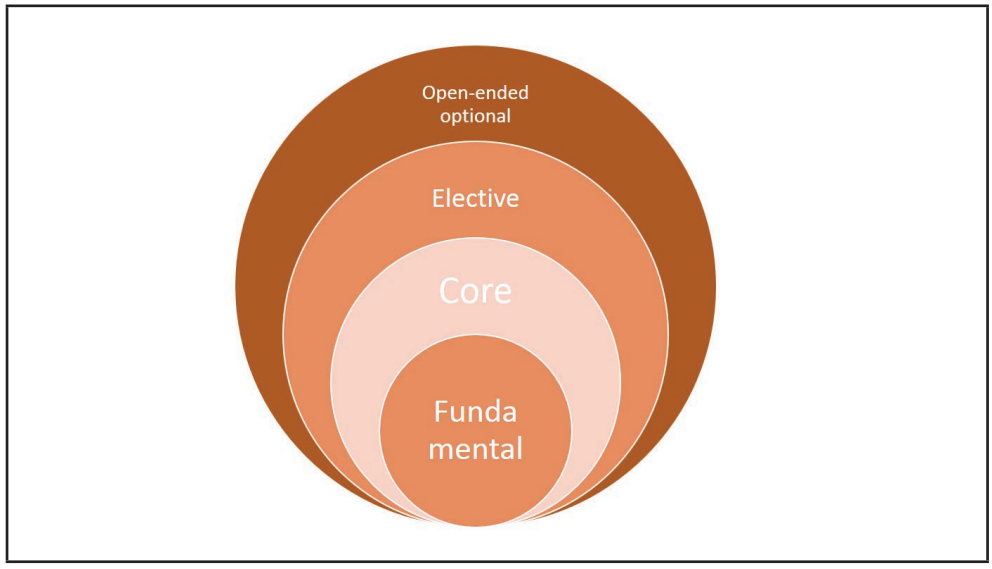

Figure 2: Designing in an open-ended programme component (Mays 2016)

Inherent in the programme design in the model in Figure 2 is a deliberate strategy to give effect to the progression embedded in the NQF level descriptors (SAQA 2012) towards increasing student autonomy. It is the author's experience that a deliberate learning pathway needs to be created towards this end which requires a

team investment in a coherent programme design process. Without a conscious and deliberate follow-up on using academic literacy skills developed in a fundamental model within a subsequent core module, for example, transference of those skills is not likely to occur. Without an explicit attempt to shift the locus of responsibility for further and deeper learning onto the students in the form of scaffolded learning pathways, we are unlikely to see a shift from dependent to independent and emergent learning. An activity-based approach to design can help create such pathways.

Activity-based approaches

There is now an extensive literature on the concept of activity theory building on the work of Vygotsky, Leont'ev, Luria, and others starting in the 1920s, and more recently analysed and refined by theorists like Engeström. However, largely independent of this body of theory, distance educators have long advocated activity-based approaches as a way of encouraging student engagement with content (CoL 2005, for example, which draws on much earlier work by Rowntree and others). In the author's own case a practical example from the UKOU (Sherratt, Fletcher and Northedge 1992) has had, and continues to have, a profound impact on practice. The development of meaningful and authentic learning activities is usually the single greatest challenge for disciplinary experts with limited or no pedagogical background. The author has found that using a somewhat mechanistic typology of developing a sequence of introductory, developmental and consolidating/applying activities geared towards a particular outcome can be useful. These different types of activities can be explained (and in practice illustrated with practical examples) as follows:

At the start of a new unit of learning, and **before** giving expert opinions and definitions, it is often a good idea to include an introductory activity that:

- Checks whether our assumptions about prior learning and experience are correct
- Surfaces prior learning and experience that will be useful
- Awakens interest in the topic to be explored
- Confirms that teachers are interested in the students' own opinions and experiences
- Helps students to see the need for further learning

The following kinds of activities might then be useful:

- A revision knowledge-based activity
- A cartoon or other visual resource for comment
- A case study, scenario or newspaper article
- A reflection on experience and practice (Mays 2016)

During the course of the learning process, we need to keep students actively engaged with the content through the inclusion of regular (at least every three pages/screens) developmental activities and feedback. Such activities and feedback:

- Help students self-assess whether they are on the right track
- Surface gaps in prior learning and experience that need to be addressed
- Maintain interest in the topic being explored
- Confirm that teachers are still interested in the students' own opinions and experiences
- Help students to make connections between ideas and between theory and practice
- Help students to see the need for further learning

The following kinds of activities might then be useful:

- A knowledge-based practice activity
- A cartoon or other visual resource for critical analysis
- A more complex case study, scenario or newspaper article
- An opportunity to put learning into practice and then to reflect upon it (Mays 2016)

At the end of a significant unit of learning, students need an opportunity to consolidate and apply what they have learned. Such activities and feedback:

- Help students self-assess whether they are on the right track
- Provide opportunities to summarise key learnings
- Maintain interest in the topic being explored
- Confirm that teachers are still interested in the students' own opinions and experiences
- Help students make connections between ideas from different parts of the unit and module and programme, and between theory and practice
- Help students to see the need for further learning
- Provide a self-assessment opportunity for the complex application tasks required for formal formative and summative assessment

The following kinds of activities might then be useful:

- A knowledge-based practice activity
- A cartoon or other visual resource for critical analysis
- A more complex case study, scenario or newspaper article
- An opportunity to put learning into practice and then to reflect upon it

- A summarising activity such as a mind map or cloze exercise (Mays 2016)

Usually, an activity needs to be built around some kind of learning resource and hence the author's abiding interest in and engagement with Open Educational Resources (OER) (see for example www.oerafrica.org). Wiley (2016) opines that OER are open not only in terms of being free but also ideally granting the rights to retain, reuse, revise, remix and redistribute. This means we can get more students actively learning by doing things with resources, including doing things that were not possible before, such as:

- Remixing/adapting resources
- Recontextualising an open textbook
- Responding to diverse needs by using diverse media, language or examples

An example of a more open-ended extension activity like that illustrated in the outer circle of Figure 2, might then be that having completed a structured programme in curriculum design and development, students take an existing openly licensed guide or textbook on the issue and re-contextualise it for their own context by replacing overseas examples with local examples and/or translating the resource into a local language. The importance of investing staff time in the design and development of activities like this, as opposed to for example, trying to create more opportunities for student-teacher engagement, is supported by a recent meta-study undertaken by Concordia State University (Bernard, Abrami and Borokhovski 2009).

In another contemporary meta-study (Hattie 2009), the author reviewed more than 800 quantitative meta-studies, involving more than 50,000 separate quantitative studies, on learner achievement in schools and concluded that various kinds of appropriate teacher response to individual learning was the single biggest teacher-oriented factor in learner achievement, which leads to the third part of the discussion identified earlier.

Feedup, feedback and feedforward

Hattie (2009, 187) identifies three important ways in which teachers can respond to student learning in a positive way: feedup – making explicit the links between the students' learning and the desired goals or learning outcomes (including celebrating, we would hope, the achievement of worthwhile goals or outcomes that were not anticipated); feedback – focusing on helping the student to reflect on how far and well they have progressed on their learning journey to date; and feedforward – providing guidelines on where to go next and how that might be accomplished. Such responses are enabled in a digital environment through provision of self- and peer-assessment rubrics and through effective use of learning analytics.

A useful example of up-front investment in the design and development of coherent structured programmes that allow also for personalised feedback and learning pathways is extremely well-illustrated by the Khan Academy and its use of learning analytics and gaming theory. Towards the end of 2013, the Khan Academy added extensive back-end functionality to its website. It is now possible for students and their teacher to agree to enter into a coaching relationship. The coach then has access to the students' online performance including time on task in general, time spent on particular concepts and attempts towards mastery and then is able to provide individualised suggestions to students for what to do next in addition to, or instead of, the learning pathway generated automatically by the system and for which students earn digital badges for various achievements. During 2014, the author used the Khan Academy maths resources quite successfully to support more than 200 young people through a guided process towards successfully completing an industry-required entry level numeracy examination which had previously been a barrier to access various entry-level jobs that were available. Stanford University is making similar use of learning analytics in their undergraduate science and maths programmes (Thille 2015) and seems to be enjoying similar success in improving student retention and success.

The three strategies suggested above, however, need to be part of a broader curriculum design process.

A SAIDE-INSPIRED DESIGN APPROACH

There are a number of programme design models in use and many seem informed by or similar to the ADDIE model that was designed and developed originally for the U.S Army by the Centre for Educational Technology at Florida State University. The ADDIE model comprises five steps that need to be completed in sequence – Analyse, Design, Develop, Implement and Evaluate. The evaluation stage might well result in a new process – so the process should be seen as cyclical rather than linear. While agreeing with all the elements of the ADDIE model, the author's own approach to programme design and development is informed by the Saide model illustrated in Figure 3.

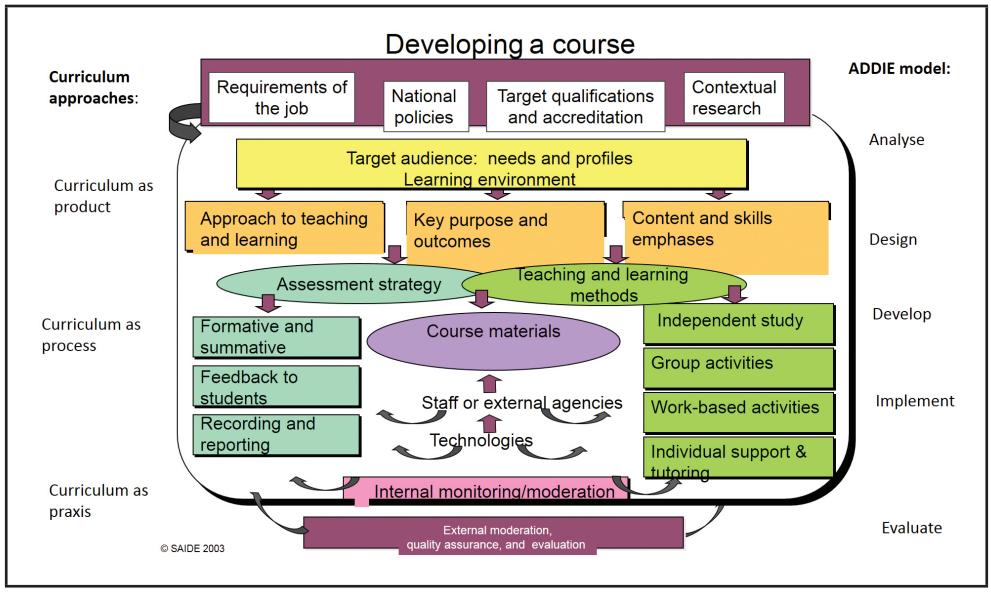

Figure 3: Saide design model

The author is inclined to agree with Morrow (2007) that teaching involves a process of seeking to organise systematic learning and this inevitably means identifying and deciding on some worthwhile and intentional educational goals upfront – preferably also involving other affected stakeholders in the process – and even when the goal is to nurture the development of a completely autonomous lifelong learner capable of surpassing the teacher. There is then an element of curriculum as product in this approach – but it is important to see the plan that emerges as a guide rather than as a blueprint. The middle layer of the diagram foregrounds that learning involves a process and multiple role-players – the curriculum as plan is mediated in practice. No matter how detailed the guidelines for practice, no two classes, learners or teachers ever encounter the learning in quite the same way – so there is always an element of the curriculum evolving in practice. Related to this last point, the context, the learners and the teachers are all constantly changing, so we need to see programme design as an ongoing process rather than a single event – using what we learn from our students, our own experience, our tutors and markers, our external assessors, the employers of our graduates and others about what works, what does not work and what needs to change – thus closing the praxis feedback loop into continuous improvement (Moll et al. 2001, Mays 2014, van den Berg 2014).

Saide has developed various guidelines and templates to support such a process which are freely available as indicated by figure 2.4.

Figure 2.4: Overview of Saide design guide

Having outlined a theoretical approach grounded in policy, literature and experience, the last part of the paper explores how this understanding is affecting current practice at the University of Pretoria (UP).

A UP-BASED EXAMPLE

The University of Pretoria is a contact-based and research-focused university. However, the Faculty of Education has for some years sought to reach a wider population of students through the provision of in-service professional development through its Unit for Distance Education as illustrated in Figure 2.5 below.

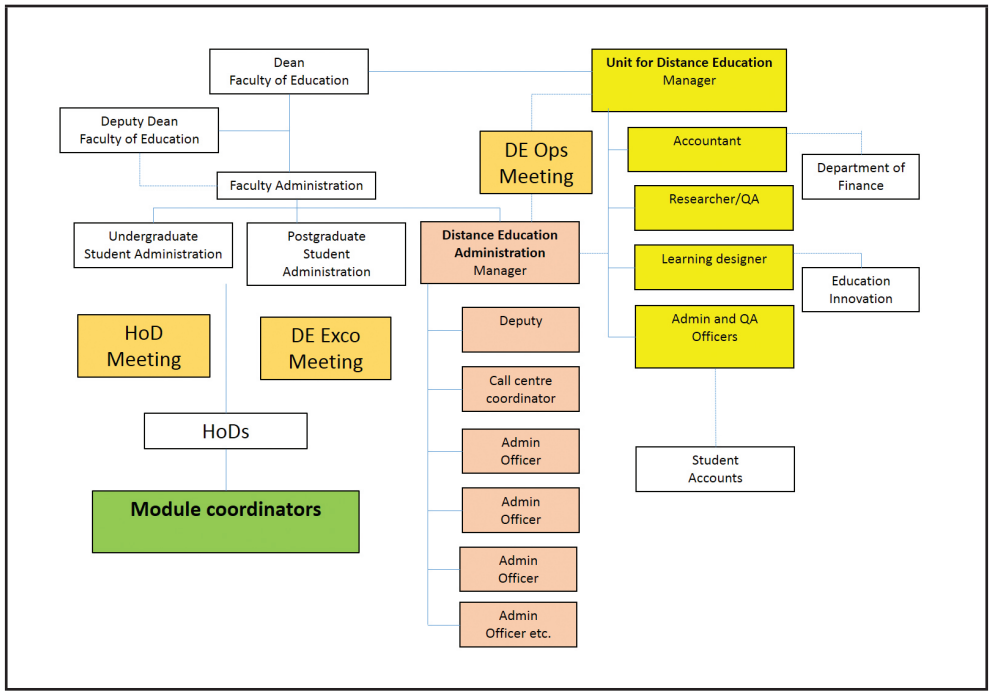

Figure 2.5: Overview of UP UDE (Mays 2016)

As can be seen from the organogram in Figure 2.5, distance education provision at the University of Pretoria rests on three key legs:

- The curriculum is designed, developed and quality-assured by the full-time academics in the faculty.
- A dedicated team of admin staff manages all distance education enquiries and processes, including the call centre and the processing of assignments.
- The Unit for Distance Education then provides strategic direction with regard to distance provision, manages the distance budget – including contracting and paying the part-time support staff – reconfigures the academic programme and materials for distance provision and manages relationships with the various partners involved in ensuring provision of a supportive quality service.

In line with new policy requirements (CHE 2013b, DHET 2015), the university is phasing out its current ACE and BEd Hons programmes and from October 2016 will introduce a new programme, a BEd Hons in Teacher Education and Professional Development (TEPD). In line with the new policy requirements, the new programme includes a supervised research component, and in line with the institution's strategic direction, and DHET policy, the new programme assumes a certain level of ICT readiness and will move from an internet-supported to an internet-dependent position

in the grid of provision set out in the 2014 distance education policy document (DHET 2014).

An important consideration in the design of the new distance programme has been to ensure equivalence across the two modes of provision through which the programme is offered, as illustrated in Table 2 below.

Table 2: Comparison of modes of provision

Contact mode	Distance mode
16 credits =160h/module 64 hours reading, thinking and making notes 32 hours completing and uploading assignments (2/module) 16 hours preparing for summative assessment 10,5 hours contact tutorials (7 x 1,5) 37,5 campus-based, structured peer cooperation and collaboration	16 credits =160h/module 64 hours reading, thinking and making notes 32 hours completing and uploading assignments (2/module) 16 hours preparing for summative assessment 48 hours online self-assessment, peer cooperation and collaboration (16w x <3h) e.g. <0,5 hours intro activity <1 hour quiz or other activity on new content <1,5 hour consolidation discussion/ feedback

In addition to ensuring academic equivalence across different modes of provision, distance learners have access to the following support services:

- Continuous enrolment, including access to Fundi for fees and ICT
- Structured weekly support online (≤ 3 hours mix of on- and off-line): **student-content**, student-student, student-tutor engagement; plus online access to e-library resources
- Printed readers / textbooks for offline work
- 3 short f2f contact sessions: clickUP (UP's LMS) and e-library training before being enrolled for block, content orientation at start of block, consolidation and support for summative assessment towards end of block
- Call centre support including ICT issues related to clickUP
- SMS/email/phone communications.

Distance students take two modules per six-month block October to April or April to October. Since there are eight modules to be completed, the minimum time for completion of the 128-credit BEd Hons TEPD is four blocks or two years. However, students can defer their summative assessment in a block when life circumstances require this of them and so the programme can be completed in a maximum of ten

blocks or five years, although e-tutors and contact session presenters encourage a faster completion for greater coherence.

We are concerned that students should experience the programme as a coherent whole rather than as a shopping basket of isolated modules so the inter-connections between different aspects of the programme are made explicit as illustrated in Figure 2.6.

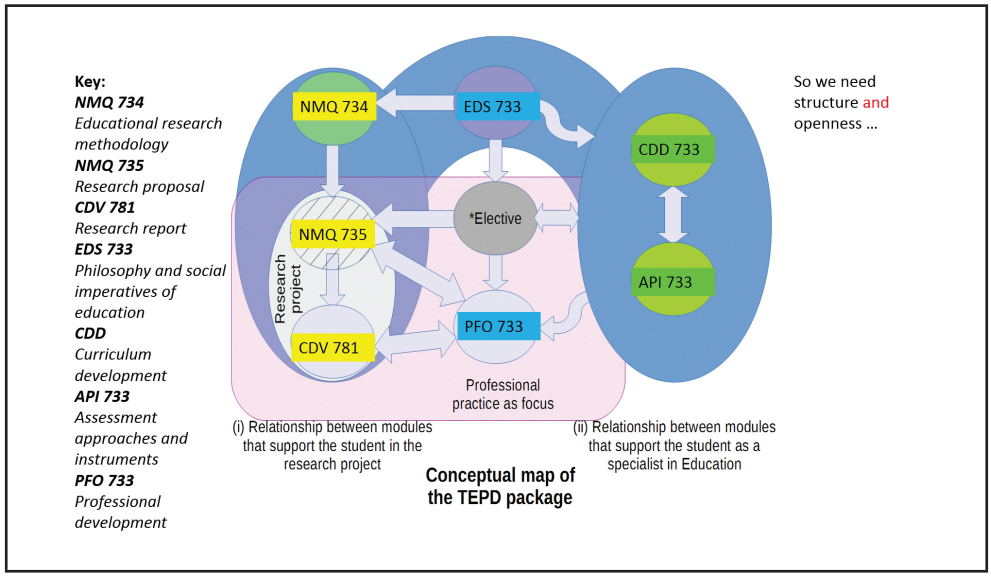

Figure 2.6: The new UP BEd Hons TEPD (Mays 2016)

As can be seen in Figure 2.6, the two main legs of the programme are the research component and the education component, with the other three modules being the glue that holds the whole together. This inter-relationship is spelt out explicitly in each of the constituent modules of the programme. The professional development module which is offered in block 4, then caps the whole programme by emphasising the need for a commitment to research-informed praxis as a key characteristic of being a professional teacher.

As noted previously, the curriculum as plan is only part of the picture. The ways in which learning is mediated and supported have a profound impact on the ways in which the curriculum is experienced and what learners take away from that experience. Based on the kinds of understandings outlined earlier in this paper, the implementation model that underpins the new BEd Hons TEPD programme is illustrated in Figure 2.7.

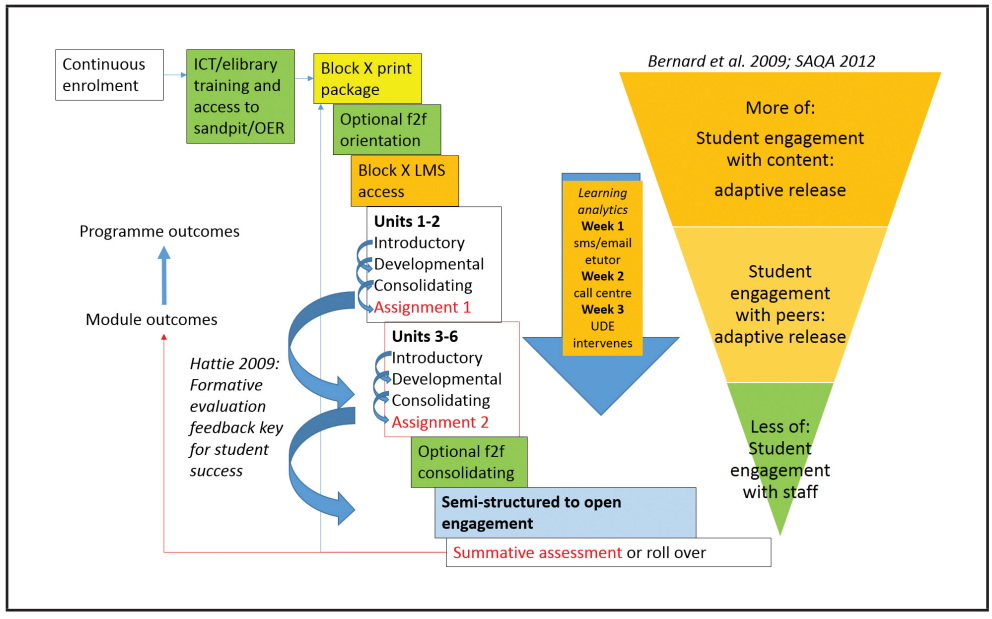

Figure 2.7: UP implementation model for the BEd Hons TEPD through distance education (Mays 2016)

As will be noted from Figure 2.7, there is an explicit agenda in the implementation model to maximise student engagement with content and to de-emphasise student reliance on academic and support staff, which seems in line with what both research (Bernard et al. 2009) and policy (SAQA 2012) suggest. It will then be noted that UP plans to offer decentralised ICT and e-library training at the start of the student's journey, to offer optional additional orientation and consolidation contact sessions during the learning journey, but also to track student engagement and intervene at increasing levels of concern about students potentially at risk as the learning journey unfolds. Realising that students study in diverse contexts, we have opted for a blended model of provision which has print, face-to-face contact and online components. This means that a lot of the work that students need to do can be completed offline but that they will need to participate online at least some of the time (a requirement that was communicated to students during the marketing and registration processes and which they needed to acknowledge). It is hoped that an adaptive release strategy employed in the university's BlackBoard-based LMS, clickUP, will motivate engagement while the Gradebook and Retention centres in the LMS will allow us to track that engagement and intervene pro-actively. Once students have completed the formal structured part of the programme, we are exploring an engagement with Open Educational Resources helping them both to consolidate what they have learned and possibly also to contribute to the creation of new knowledge.

We are currently thinking through how to maximise our learning from this new programme both to constantly improve it and to generate new theory.

CONCLUDING REMARKS

This discussion derives from a workshop developed and facilitated at the Nadeosa conference in 2016, itself deriving from an ongoing engagement between Saide/OER Africa and Africa Nazarene University which is being documented in the form of a doctoral study. It sets out both a theoretical and practical framework for engaging in the design of open, distance and e-learning programmes and ends with an example of how this thinking informs emerging practice at the University of Pretoria.

The paper observes that while there are multiple key questions and quality issues that need to be addressed in programme design and review processes regardless of mode of provision, there are some additional questions and issues that are peculiar to distance provision.

The paper also notes the challenge to try to reconcile the need to design a coherent programme for accreditation and the notions of personal learning environments and emergent learning made possible through growing digitisation and connectivity. Key suggestions made in this regard include:

- Designing **deliberately** from structured to open engagement;
- Adopting **activity- and resource-based** approaches (both authentic and open-ended);
- Encouraging **student engagement** with content, with other students / tutors and with academics on a sliding scale towards increasing autonomy;
- Using **learning analytics** for pro-active support interventions; and
- Increasing use of automated **feedback** and self- and peer-assessment.

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