

Draft discussion document:

Opening provision through Open, Distance

and eLearning (ODeL):

towards a new business model for Africa Nazarene University (ANU)

Saide

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# Executive summary

This document responds to discussions held with ANU in November 2015 which indicated the need for the institution to revisit its model/s of provision in light of the changed higher education environment in Kenya and the imminent need to develop a new 5-year strategic plan.

The discussion document explores the opportunities, constraints and implications of the adoption of Open, Distance and eLearning (ODeL) approaches, advocating a systemic approach towards understanding the issues involved.

The discussion document also explores the costing of three common models of ODeL provision based on costing assumptions underpinning a study undertaken in South Africa in 2011. The costing model itself constitutes an Addendum to this report and would need to be modified to inform decision-making at ANU.

The discussion document suggests that in its forward strategic planning ANU should adopt a flexible approach to provision based on ODeL guidelines, activity- and resource-based teaching and learning approaches and appropriate cost-benefit and cost-effectiveness analyses but should implement this transition in a managed and scholarly way so that the institution can learn from the process.

## 1. Purpose

This document responds to discussions with the Vice-Chancellor and Pro-Vice Chancellor of Africa Nazarene University (ANU), as well as other ANU staff, during November 2015. It recognises that the context in which ANU now operates is markedly different from that which prevailed at the time when the institution was first launched and even more recently during the drafting of the current strategic plan that runs to 2017. This document seeks to provide ideas and suggestions which might usefully inform discussions centred on a business model appropriate for the changed higher education context in Kenya and which might in turn influence the development of the next five-year strategic plan for ANU. The document draws upon a series of engagements between ANU and Saide’s OER Africa initiative between 2013 and 2015 and is structured based on two useful earlier reports in other African contexts (du Vivier 2010[[1]](#footnote-1); Mays 2015[[2]](#footnote-2)).

## 2. Background and introduction

As noted by Ooko and Mays (2015)[[3]](#footnote-3) Nyaigotti Chacha (2004) traces the advent of higher education provision in Kenya back to 1922:

Higher education in Kenya can be traced back to 1922 when the then Makerere College in Uganda was established as a small technical college which was then expanded to meet the needs of the three East African countries i.e. Kenya, Uganda and Tanganyika and Zanzibar, as well as Zambia and Malawi. In the 1940s and early 50s it is only this college that was providing university education in East Africa. This lasted until 1956 when the Royal Technical College was established in Nairobi. In 1963, the Royal Technical College became the University College, Nairobi, following the establishment of the University of East Africa with three constituent colleges in Nairobi, Dar es Salaam and Kampala (Makerere). The University of East Africa offered programmes and degrees of the University of London till 1966. In 1970, the University of East Africa was dissolved to create three autonomous universities of Nairobi, Dar es Salaam and Makerere. The University of Nairobi was thus established as the first university in Kenya.[[4]](#footnote-4)

Through a process of establishing additional public universities, supporting double intakes and allowing the establishment of middle level colleges and new private universities, the scale of higher education provision in Kenya began to grow rapidly. By 2003, Ngombe was able to report as follows:

Kenya has 6 public and 13 private universities with an enrollment of about 50,000 students. Roughly 80% are enrolled in public universities, while 20% of the total university student population attends private universities. More than 60,000 students enroll in middle-level colleges. The middle-level colleges cater to a variety of post-secondary career courses leading to certificate, diploma, and higher diploma awards. By 1990, Kenya had about 160 middle-level colleges; by 2000 it is estimated that the country had more than 250 of them.[[5]](#footnote-5)

Ten years later, it was reported that the year 2013 marked a time of significant change for the higher education system in Kenya. Most notably, the Universities Act 2012 was signed into law in January, with the aim of streamlining and improving the management of university affairs. The country’s higher education regulator – the Commission for University Education (CUE) – subsequently published regulations and standards to operationalise the new Act. The final Universities Regulations, 2014 were gazetted on 12th June 2014 and are currently in force (CUE 2014a)[[6]](#footnote-6).

It is noted that as a result of a previous policy to establish a university in every county, there are now more than 60 accredited universities in Kenya so that ANU is now working in a much more competitive environment than previously. Often the newer universities were formerly colleges of various kinds without a strong academic and research basis and this has led to a new set of regulations and guidelines covering issues such as staff-student ratios (typically expected to be around 1:15 per class) and staff qualifications (a PhD and publications is now a minimum requirement for a lecturer position)(CUE 2014b:15).[[7]](#footnote-7)

Against this backdrop of legislative change, the Kenyan higher education system is expected to keep expanding at a rapid pace, thanks to a number of converging factors, including:

* increased capacity in public institutions;
* a growing private sector;
* more government investment in research; and
* diversified student loan programmes (for further information see the full article on ICEF Monitor).[[8]](#footnote-8)

These measures have been taken to try and increase participation in higher education by 10 000 students a year to improve on the low 3% participation rate among 18 to 24 year-olds prevailing towards the end of the first decade of the 21st century.[[9]](#footnote-9)

ANU therefore finds itself operating in a markedly changed higher education landscape, with more role players offering more diverse programmes in more diverse ways. While there will likely always be a demand for some traditional campus-based provision, the high and rising costs involved (of tuition fees, of residence fees and the opportunity cost of not working to generate an income), coupled with the increasing demand for lifelong learning from those already in employment, means that for many higher education institutions the student profile is no longer dominated by 18-24 year olds seeking a campus-based programme of study. Most universities are therefore engaged in exploring ways of offering more flexible forms of provision. However, for sustainable quality flexible provision, it will be necessary to ensure that the models developed for ANU are:

* financially sustainable for the institution and consistent with its vision, mission and core values
* financially sustainable for a changing student demographic and responsive to their needs
* financially sustainable and rewarding for staff.

## 3. Need for ODeL in Kenya: opportunities, constraints and implications

With many countries recognizing that to participate effectively in a global knowledge economy participation rates need to rise significantly (South Africa’s new target is 25%**[[10]](#footnote-10)**; Singapore’s is 40%**[[11]](#footnote-11)**), it is not surprising that Kenya, like many other countries, has begun to explore the possibilities of open and distance learning, as attested by the following recent government gazette notification:

**GAZETTE NOTICE NO. 398[[12]](#footnote-12)**

**THE MINISTRY EDUCATION, SCIENCE AND TECHNOLOGY  
ESTABLISHMENT OF THE TASKFORCE ON OPEN UNIVERSITY**

IT IS notified for the information of the general public that the Cabinet Secretary for Education, Science and Technology has, for the purpose of improving access to university education, established a Task Force on the establishment of a National Open University to offer university programmes through distance and e-learning mode …

… The Terms of Reference of the Task Force are to-

(a)      To review and harmonize expectations and objectives of the Open University as outlined in various documents including the Sessional Paper No. 1 of 2005 on Education, Training and Research (2005), Report of the Public Universities Inspection Board (2007), the National Strategy for University Education (2008) and the Road Map for Open University (Rumble Report 2008). It will also include the Task Force on the Realignment of the Education Sector to the Constitution of Kenya 2010 (2012), the Task Force on Alignment of Higher Education, Science and Technology sector to the Constitution 2010 (2012), the Sessional Paper No. 14 of 2012 on reforming education and training sector in Kenya and the Universities Act, 2012.

(b)      To review based on the Blue Print Report (2011) for the Open University and the recommendations from CUE existing academic curricula in areas given priority that included pure and applied sciences, business studies, education, humanities and social sciences in both public and private universities with a view to recommend and to develop initial academic programmes for the Open University of Kenya (OUK)

(c)       To review present and emerging delivery modes for ODL, related support technologies and propose ways to integrate those modes (a model) to support delivery of the initial academic programmes for the Open University of Kenya. It will include connectivity, communication portal and website, learning management system (LMS), course management system (CMS) and other learner support systems.

(d)      To review ways to facilitate collaboration and exchange programmes between the envisaged Open University of Kenya and key ODL institutions including local universities and external best practice institutions such as the African Virtual University (AVU), Open University of Tanzania (OUT), UNISA in South Africa, National Open University of Nigeria (NOUN), Open University of Namibia, Open University of Malaysia (OUM), IGNOU in India and the UK-OU in Britain among others.

(e)       To review best practices on operational structures in ODL and propose operational structure for the Open University of Kenya, initial staffing and capacity building.

(f)        Any other task related to the foregoing.

Dated the 9th January, 2014.

JACOB T. KAIMENYI,  
Cabinet Secretary for Education, Science and Technology.

There are already large-scale open universities in Nigeria, South Africa, Tanzania and Zimbabwe and recently the governments of Ghana and Mozambique also committed to establishing open universities. Open universities offer more flexible routes into and through higher education using open distance and elearning (ODeL) methods to free students from the necessity to attend campus-based sessions for extended periods as with traditional contact provision.

However, regulators are not always well-informed regarding the requirements for effective ODeL provision. For example, it was reported that in the past 18 months, ANU’s attention had been focused on working with the Commission for University Education to resolve issues regarding the status of satellite campuses. These satellite campuses have been re-designated as distance learning support centres and may no longer offer full-time classes. This is in line with the following requirements of the Commission for University Education (CUE):

1) A university ODL centre shall be established in facilities owned or leased by the university that meet the standards of physical facilities;

2) A university centre may establish ODL teaching facilities for the purpose of bringing education closer to students, and for providing marketing, recruitment and other student services;

3) The centres shall be used exclusively for ODL purposes. (CUE 2014:15)[[13]](#footnote-13)

It is noted that the CUE *Standards and Guidelines* are otherwise primarily focused on provision of campus-based contact programmes. There is therefore currently a shortage of guidelines to inform more flexible ODeL forms of provision in Kenya and ANU is exploring the possibility of hosting a national forum to begin to address this issue.

In South Africa, where distance education of various kinds has long been a significant part of higher education policy and practice, the Department of Higher Education and Training recently published a *White Paper for Post-School Education and Training* (DHET 2013[[14]](#footnote-14)) which sets out a new vision for post-school education and training provision. The *White Paper* notes the need both to expand access to and improve success in further and higher education and sees opening learning through diverse modes of provision as one of the means towards this end. The *White Paper* specifically envisages:

* A network of high quality providers, sharing learning support centres and investing in professional development to support more diverse modes of provision
* An increased emphasis on quality assurance of programmes offered to improve retention, throughput and the competences of successful graduates
* A systemic drive towards more equitable access to appropriate technology
* Collaborative development of high quality learning resources published under an open licence; and
* More careful consideration of arrangements for cross-border distance education provision to ensure equivalence and recognition, among other issues. (DHET 2013:48-56)

Subsequently, the DHET published a *Policy for the Provision of Distance Education in South African Universities* (RSA 2014[[15]](#footnote-15)) which sets out a challenge for distance education provision in particular as follows:

Distance provision thus needs to rise to the triple challenge of providing greater access (1) (in terms of both numbers and diversity) in ways that offer a reasonable expectation of turning access into success in courses or programmes of proven quality (2) that are also affordable (3). (DHET 2014:6)

The key provisions of the policy are as follows:

1. Providing a system wide definition for what constitutes distance education provision
2. Supporting well-managed growth in quality distance provision, including in institutions other than Unisa
3. Ensuring that distance education provides not only opportunities for access but also a reasonable chance of success
4. Ensuring that distance education provision is funded based on empirical evidence of relative costs of different modes of provision
5. Strengthening capacity to evaluate distance education provision and hence to regulate who can offer accredited distance programmes
6. Promoting the development and use of Open Educational Resources (OER)
7. Creating an enabling environment for appropriate integration of ICT to enhance both contact and distance provision in both universities and other post-schooling institutions. In particular, the DHET will work to ensure that every university student has reasonable access to affordable connectivity. (RSA 2014: 6-7)

These issues might usefully inform the proposed discussions to be led by ANU in Kenya.

The South African policy document notes the increasing use of blended and online learning by many providers but is concerned to retain a clear distinction between what is and is not considered distance education provision in order to address specific quality issues. It therefore stipulates that:

… the term ‘distance education’ therefore refers to provision in which students spend 30% or less of the stated Notional Learning Hours in undergraduate courses at NQF Levels 5 and 6, and 25% or less in courses at NQF Levels 7 and 8 and initial post-graduate courses, in staff-led, face-to-face, campus-based structured learning activities. (RSA 2014: 9)

Although the definition may be contested, it does provide accreditation agencies with a clear idea of what provision should be considered distance education and therefore evaluated accordingly.

Taken together, the two policy documents suggest that:

1. More institutions should offer distance education options if they have the capacity to do so; but that
2. Any move into distance provision should be a conscious one in which the various factors influencing the quality and effectiveness of such provision are carefully thought through in advance.

What then are the key issues that higher education institutions interested in opening provision through open, distance and elearning need to address? They include:

* Clarifying degrees of openness
* Understanding the changing practices of distance provision in a digital era
* Making strategic choices about what to offer through ODeL and then establishing the appropriate policies, procedures and systems to employ ODeL approaches in quality-driven ways.

## 3.1 Organising the provision of ODeL in the context of Kenya

There are a number of higher education institutions in Kenya offering a variety of open and/or distance and/or eLearning programmes but there is currently little national consensus on how these methods might be employed on a more significant scale, in a sustainable and quality way. It is therefore useful to revisit some of the core concepts.

### 3.1.1. Clarifying degrees of openness

#### Open and distance learning

As originally suggested in the South African White Paper of 1995:

Open learning is an approach which combines the principles of learner centredness, lifelong learning, flexibility of learning provision, the removal of barriers to access learning, the recognition for credit of prior learning experience, the provision of learner support, the construction of learning programmes in the expectation that learners can succeed, and the maintenance of rigorous quality assurance over the design of learning materials and support systems. (DoE, White Paper[[16]](#footnote-16), p 34, clause 25)

This understanding can inform practice across the spectrum of contact and distance provision. It should be noted that openness – an approach – is not synonymous with distance or elearning – a range of methods – although distance and elearning provision can be designed in such a way as to open opportunities for learning in more flexible ways.

However, it is also important to understand that there can be no simple single model for openness since many of the core principles are in tension as illustrated below:

* Opening choices about WHAT to study vs ensuring a coherent learning programme.
* Opening choices about WHEN to study vs providing structure and pacing so that underprepared students are offered a reasonable chance of success.
* Opening choices about HOW to study vs the need for integrity of programme design, closing digital divides and the need to develop collaborative competences
* Opening choices about WHERE to study vs need for workplace and practical components
* Opening choices about ASSESSMENT options vs need to ensure recognition / accreditation of learning achievements
* Opening access related to AFFORDABILITY vs ensuring a quality sustainable learning experience.

The openness of provision therefore needs to be considered in relation to particular learning purposes, contexts and target audiences. A one-size fits all model is unlikely to sufficiently responsive to needs.

As noted by Makhanya, Mays and Ryan (2013)[[17]](#footnote-17), a key argument in favour of open distance learning (ODL) approaches is that they can provide access to educational opportunities for those who might otherwise be marginalised by work, ethnic, geographical or other factors, such as physical disability or age -- thus uniting development and social justice concerns. But access is meaningless unless it leads to a reasonable chance of success. And success is meaningless if the programmes offered are not of high quality and/or do not provide access in turn to additional social, work or self-development opportunities.

This argument usefully redirects our attention to what Morrow (2007, 2)[[18]](#footnote-18) sees as a distinction between 'formal' and 'epistemological' access. The former is concerned with how students gain access to the point of becoming registered students (if they choose to do so); while the latter deals with the nature of the teaching they receive once they are registered. Morrow (2007, 18, 20) argues that in the latter case educators should be concerned with how they help students gain access to the kind of knowledge valued at an appropriate level, and within a particular community of learning and practice, by providing systematic learning pathways that guide them from where they are to where they need to be as independent critical thinkers in a particular field. As Freire (1985)[[19]](#footnote-19) notes, reading and study can either be an active and liberating process or a passive and mind-numbing process based on a 'banking' or 'domesticating' ideology: we need to make a conscious choice to teach in ways that liberate and transform our students if we are to truly achieve the vision outlined above. “Open” distance and elearning (ODeL) then is not only about providing access; it is about teaching in ways that invite open, critical engagement; it is about exploring possible alternative new meanings and solutions and not just regurgitating the content of “prescribed” textbooks; but equally, for the investment it makes in education, the State should have a reasonable expectation that graduates will be able to make a positive contribution to society. A key guiding principle should be equivalence of learning experience and outcomes across different modalities.

#### Open educational resources

Open educational resources (OER) can support the process of “opening” learning in at least three different ways:

1. Institutions can utilise OER to ensure that students are exposed to a range of theories, data and research presented in a variety of ways rather than being confined to the perspective of the single textbook that can be afforded.
2. Being able to assure that every student has access to a wealth of resources, in the form of OER, enables educators to change their role from that of content providers to engaged co-learners and co-researchers – exploring and justifying possible solutions to problems rather than simply regurgitating content.
3. Open licensing that encourages engagement with multiple sources and the sharing thereof can enable more collaborative learning and teaching processes in which the emerging artefacts of the process are shared openly and fed back into the learning process. This is aligned with more open educational practices generally (Mays 2014[[20]](#footnote-20))

#### Open educational practices

Ehlers (2011)[[21]](#footnote-21) suggests that Open Educational Practices (OEP) 'are defined as practices which support the (re)use and production of OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path'. In the developmental context, this involves a commitment to educational practices that are accessible, transparent and accountable; that foster collaborative and flexible approaches to learning and teaching; and that are specifically geared towards providing meaningful access to quality educational opportunities also for the poor and marginalised in society (Makhanya, Mays and Ryan 2013). It implies finding a balance between sufficient competition to drive innovation and excellence in certain areas and sufficient collaboration to avoid unnecessary duplication of effort. Where there is need for large scale provision of programmes that meet national priorities such as the training of school principals, the development of foundational programmes for underprepared school-leavers, or the training of mentors to support expanded provision of Adult Education and Training, for example – it makes more sense to work together on the design of programmes, the development of materials, and the implementation, review and revision of such programmes. This in turn requires an openness on the part of institutions towards sharing intellectual property, expertise and resources.

So we can see open, distance and elearning, open educational resources and open educational practices as complementary aspects of opening provision all of which may have implications for the ways in which higher education institutions traditionally work. ICT can support all three of these areas of endeavor.

### 3.1.2 Understanding the changing practices of distance provision in a digital era

#### Concept of distance education

Distance education is concerned with methods for mediating a curriculum without necessarily requiring learners and teachers to be in the same place at the same time. Until recently, distance education students in Southern Africa rarely, if ever, had the opportunity to engage directly with their teachers or peers as contact sessions were often few and far between. Much distance provision has been in reality print-based correspondence with contact sessions reaching only a proportion of registered students and often simply providing potted summaries of the study materials. ICT can be used to foster greater engagement and interaction but this calls for a conscious design decision with consequences for how such programmes are resourced.

Whereas e- and online-learning opportunities may be offered both to campus-based and remote students, distance education is premised on a very diverse and geographically distributed student body, a high level of independent learning and decentralised support for students who may never attend the central campus. So, online provision and distance provision cannot be conflated: though the former can be designed specifically to meet the needs of the latter. However, designing a programme for a target audience who can be assumed to have access to computer labs or a wifi network on a central campus raises different requirements from the design of a programme for distributed students who may not have that access. Even if registration requirements stipulate that students must have specific ICT devices and specific levels of connectivity, there is need to think about how distributed students can gain access to technical support (for example an online support centre; a call centre) and back-up support for when technical systems are down.

Even where registration requirements are clear and a technical support structure is in place, the design of the learning programme itself usually makes certain assumptions about what students already know or can do: designing a programme for local students studying on a flexible study basis, or students distributed across a province, or students distributed across a whole country or region, or students anywhere in the world, raises important design questions about what examples to use; what resources to refer to; the type of language that might be appropriate; how a large and distributed student population might be divided into smaller groups for collaborative assignments (perhaps deliberately pairing students from different environments); and what learning styles and strategies might be appropriate (perhaps a greater range of options for a more diverse range of participants). So when Evans and Pauling (2010)[[22]](#footnote-22) rightfully question whether the notion of “distance education” is still relevant, we would argue that it remains useful at the programme design stage to think about where prospective students will likely be located. We believe that “geographic distance” can still exacerbate “transactional distance” (Moore 1993, 1996)[[23]](#footnote-23) even in an online environment and activities and support strategies need to be designed accordingly.

Distance education can thus be construed as a collection of methods (including but not limited to online) for the provision of structured learning as well as a mode of delivery that avoids the need for learners to discover the curriculum by attending classes frequently and for long periods.

Whilst distance education, and increasingly distance online learning, is gaining prominence in higher education, many challenges are faced in terms of enhancing the quality of delivery.

The prominent quality assurer in higher education, David Woodhouse (2009)[[24]](#footnote-24) identifies key characteristics of distance education that often pose quality challenges to providers:

* more stakeholders or sites involved in the creation & delivery of a course or programme;
* longer chains of communication;
* often larger scale;
* more separate activities and roles to be coordinated;
* greater administrative needs (such as record keeping);
* more delegation of assessment in competency testing;
* achieving consistency of practice over a distributed organisation or a collaboratively-delivered programme or course;
* a different interpretation of what constitutes 'teaching' (for example, in the separation of roles in providing learning content and support);
* a more careful and deliberate process of planning and development of courses and systems than is common for conventional delivery;
* greater issues of credibility;
* complications are raised by a transition from a largely correspondence-based ODL programme to an increasingly on-line system;
* QA processes that are accepted as integral to the ODL programme can provide models for the assessment of quality in campus-based programmes.

In understanding mode of delivery, consideration needs to be given not only to the extent of temporal or spatial separation of teacher and learner, but also the extent to which digital technology is used to support the teaching and learning in a programme. The flexibility of the temporal dimension in technology-supported teaching and learning arguably potentially provides a great pedagogical strength. Interaction can either be synchronous (at the same time) or asynchronous (with delays). The asynchronous nature of many of the communication and collaboration technologies currently available often allows learners to reflect and contribute more meaningfully in an online dialogue, thus developing and improving their critical thinking skills. However, mechanisms need to be found to encourage and facilitate the greater engagement that the technology allows otherwise only a small proportion of staff and students will likely make use of these added affordances. So when designing or transforming a course for online delivery, the presence of the learning pathway becomes more important than ever and needs to be carefully designed and implemented, so that the navigation framework for the course is entirely clear.

#### People considerations

When embarking on a new mode of delivery for a particular course, there are a number of additional elements to be considered in order to promote the success of an online/blended programme.

**Learners:** computer literacy skills should be ascertained and any remediation deemed necessary should be undertaken prior to their engagement with the online course. Of primary importance is the verification that each learner has reasonable access to the online environment. This would include provision for their device that is to be used to access their course, as well as regular internet access at a reasonable cost. They should also be provided with a brief orientation to their online environment that would include a training session in order for them to explore the features and functions of the software with which they are expected to engage, and importantly, an orientation to the pedagogical purpose within their course.

**Lecturers/Tutors:** should be equipped with the skills to facilitate the course online in a manner that supports and engages the learner in the changed environment.

**Extended support team:** it should be made explicitly clear to lecturers/tutors and learners who is available to support them, when those people are available, and what kind of support can be expected from them, and how they should be contacted. This information should be embedded in the start-up information for each programme. In order to achieve this, good inclusive relationships should be developed within the institution between academic and support staff in their quest to provide an effective online teaching and learning environment.

### 3.1.3 Making strategic choices

Key questions that institutions need to address therefore include:

* How will institutional vision and mission inform ODeL practice and expansion?
* Which programmes in the PQM best lend themselves to ODeL provision?
* What is/are the best model/s for provision of a particular programme to a particular target audience learning and working in particular contexts?
* How do these choices advance the causes of equity, access, redress and social justice?

In addition, the following are typical challenges experienced when a traditionally contact-based institution introduces flexible and distance provision alongside its contact-based teaching. Being aware of these kinds of challenges up front, may help to forestall them:

1. Curricula designed for inexperienced 18-24 years olds may not be appropriate for mature, working students; and *vice versa*
2. Overload of staff: DE students fitted in rather than offered equivalent quality; work done by staff only for extra pay
3. Workloads that do not make provision for materials development and updating, discussion classes and online fora, management of a decentralised team; research prioritised over teaching
4. Inappropriate cross-subsidisation including contributions to overheads for services not availed to DE students
5. Slow contracting and payment of part-time staff; additional workload allowances/travel expenses
6. Trying to limit access to DE learning resources: rather develop learning resources for use by ALL students
7. Internal disruptions affecting external students e.g. rescheduling of contact sessions, examinations, practicals/work integrated learning (WIL)
8. Tutors who already have full-time jobs; tendency to restrict availability, provide superficial assessment and feedback
9. Making time for appropriate staff development and quality assurance and providing access to support staff (and support students).

Most institutions new to ODeL provision will require support in the process of exploring these questions and acting upon the answers.

As observed by Mays (2015)[[25]](#footnote-25), ODeL provision is often associated strongly with systems thinking. Systems thinking can be traced back at least as far as the ancient Greeks and Aristotle’s famous dictum that “The whole is greater than the sum of its parts”. Treml (1994:266)[[26]](#footnote-26) notes that it was not until the 16th and 17th centuries and the need to find some way of working with an explosion in knowledge production and dissemination that systems thinking moved from the philosophers to become adopted by all scientific disciplines. Treml (ibid.) argues that it was not until the 1930s, however, that it became possible to talk about a body of systems theory. Treml identifies the following four main roots of modern systems thinking:

##### Table 1: Roots of systems theory (Treml 1994: 267)

|  |  |  |  |
| --- | --- | --- | --- |
| *Type of system* | *Examples* | *Name* | *Main representatives* |
| Natural | Organisms | Theory of systems | Bertalanffy |
| Artificial | Machines | Systems engineering | Churchman |
| Formal | Calculus | Cybernetics | Wiener |
| Social | Human beings | Systems theory | Parsons |

Letseka (1995: 286-7)[[27]](#footnote-27) cites Bertalanffy (1901-1972) directly to explain why general systems theory has become such an important way of thinking in the modern world:

[m]odern science is characterised by its ever increasing specialisation. This has been necessitated by the enormous amount of data and the complexity of techniques and theoretical structures within every field. Unfortunately, this specialisation has led to a breakdown of science as an integrated realm: the physicist, the biologist, the psychologist, and the social scientist, are so to speak, encapsulated in a private universe, and it is difficult to get word from one cocoon to the other ...

As a consequence it is not sufficient to study isolated parts and processes since the essential problems are the organising relations that result from dynamic interaction of those parts.

Systems thinking became pervasive in management literature from about the 1950s and by the 1970s, management theory was talking about ‘open systems’ interacting with the wider environment.

Within education, Pettigrew and Akhurst (1999)[[28]](#footnote-28) point to the seminal influence of Uri Bronfenbrenner whose various works from the 1970s to the 1990s help us to understand, in an ecosystemic way, the impact of the social environment on the quality and nature of learning achievement at four levels:

1. *Microsystem*: immediate family and home environment which can have a direct impact on learning

2. *Mesosystem*: system elements which are one step removed from the learner but can have a direct impact on learning, for example immediate neighbourhood, church, learning centre etc.

3. *Exosystem*: the third environmental layer consists of settings that the learner may not experience directly but which might nevertheless impact on the learner’s achievement, for example spouse’s place of work, friends of other family members, governmental and non-governmental organisations working in the area

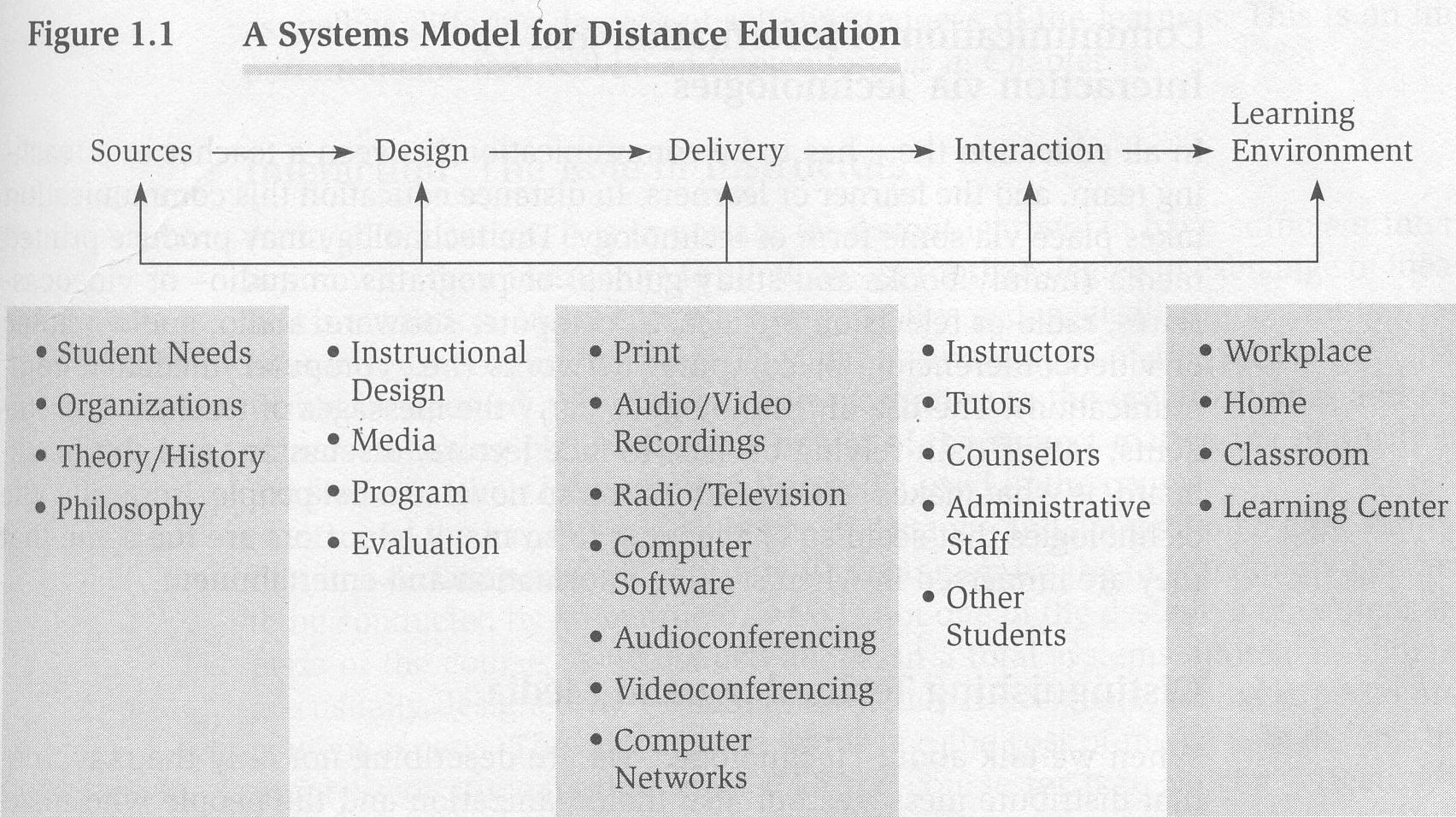
4. *Macrosystem*: the cultural or socio-political context consisting of dominant beliefs, values, customs, laws and resources of a particular culture.

It is important to spend some time thinking about this because distance education interventions have often been characterised by very low retention and throughput rates often related to institutions’ inability to address the individual needs of learners. High stop-out and drop-out rates in distance education are often associated with family, workplace, financial and other militating environmental factors which traditionally institutions have not seen as being their concern to address. This speaks fundamentally to the vision and mission of the institution and how this shapes the kind of choices they make. Holmberg (1995)[[29]](#footnote-29) suggests that at a fundamental level, the way in which distance education institutions organise themselves systemically can reveal a student-, programme- or institutional- bias.

Moore and Kearsley (1996:5)[[30]](#footnote-30), who pioneered the formalisation of systems thinking for distance provision, define a distance education system as follows:

A distance education system consists of all the component process that make up distance education, including learning, teaching, communication, design, and management, and even such less obvious components as history and institutional philosophy. Within each of these broadly named components are subsystems ... While we may choose to study each of these systems separately, we must also try to understand their inter-relationships.

They illustrate the inter-related nature of these sub-systems as follows (Moore and Kearsley 1996:, 9, 15):



##### Figure 1: A systems view of distance provision

Their more recent publication (Moore and Kearsley 2012)[[31]](#footnote-31) focuses on a systems view for online provision but follows a similar logic:

* 1. A systems model; adapted from p14

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Management | | | | |
| * Needs assessment * Prioritizing | Resources   * Allocation * Administration | Personnel   * Recruitment * Training | Control   * Monitoring * Evaluation | Policy |
| Content sources   * Organization * Individual * Dual mode * Single mode * Consortia   Manages content experts  Does needs assessment  Decides what to teach | Programme/ course design  Course team   * Content specialists * Instructional designer * Graphic designer * Wen producer * Audio/video producers * Editor * Evaluator * Course team manager | Delivery  Media  •Text •Images  •Sound •Artifacts  Technology  Recorded  Print/online  Audio: CD/tape/online  Video: CD/tape/online  Interactive  Audio conference  Video conference  Satellite/cable  Desktop  Computer/Internet/  WWW | Interaction   * Instructors * Counselors * Administrative staff * Librarians * Help desk * Learning content/site coordinators * Other students | Learning environment   * Workplace * Home * Classroom * Learning centre * Traveling |

* 1. Inputs and outputs (adapted from p19)

|  |  |
| --- | --- |
| Inputs | Outputs |
| * Student characteristics including ability to study at a distance * Instructor competence in distance teaching * Understanding of administrative staff about distance learners * Quality of course design skills * Quality of course production * Financial investment in course design and production * Technology chosen for the course * Accessibility of support services * Frequency and quality of evaluation data | * Student satisfaction ratings * Student achievement scores * Student completion rates * Total enrolments * Quality assessments * Accreditation results * Tuition and other revenue * Staff reputation and turnover |

##### Figure 2: A systems view of online learning [Source: Moore & Kearsley 2012, p14, p19]

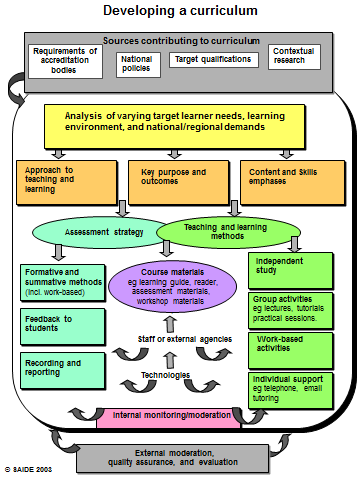
Modelling distance education operations in this way, helps staff to understand their contribution to the whole and the ways in which weaknesses in one area can impact negatively on the achievements of the whole system: for example, late submission of draft learning materials will result in delays in production which in turn result in delays in dispatch/access; if students do not receive/access their learning materials timeously, they cannot meet their assignment deadlines; if students submit assignments late, staff will return marked assignments with feedback late; if students receive feedback on their assignments only after they have written their examinations, they cannot have prepared properly; if they did not prepare properly, they will not pass well; if they do not pass or if they pass with low marks, they will be less motivated to continue with their studies; so late submission of draft learning materials can bring down the whole system.

Of course, and as acknowledged by Moore and Kearsley themselves, the various systems and sub-systems do not relate to one another in quite the neat and linear way implied but in reality are much more messy and much more layered.

DuVivier (2010 as cited earlier) makes use of an adapted form of Rumble’s (1986) simplified model for considering the inter-related nature of the various sub-systems which need to cohere for effective ODeL provision, as discussed below in the context of ANU.

## 3.2 Curriculum sub-system

Before learning resources can be sourced of developed, there is need for a clear set of curriculum design principles. There are many different approaches to curriculum development but all are in some way related to the key dimensions of the popular ADDIE model (Assessment of Needs, Design, Development, Implementation and Evaluation). Saide has developed its own model which incorporates these features as illustrated in Figure 3 below:



##### Figure 3: Saide curriculum and course design model

As discussed with ANU staff in March 2014, it is important to note here that while common issues need to be addressed in all curriculum and course design processes, the actual design that emerges from these discussions will vary with audience and context: a one-size fits all approach is unlikely to work. Younger students coming straight from school are likely to need more scaffolding and support in order to develop both academic literacy and to become more independent learners. Mature learners, already in the workplace, on the other hand may already have developed high level self- and time-management skills, but they also have a host of other commitments and so will most likely respond better to courses packaged in small but meaningful chunks that allow for direct application. The technology skills and access of target students will also effect decisions about what to do and share online.

## 3.3 Materials sub-system

The development or acquisition of learning resources is central to all ODeL provision but the nature of these resources needs to encourage independent learning and be accessible to all students on the programme. Daniel (2011)[[32]](#footnote-32) references a large metastudy by Benard and a team of researchers at Concordia State University which explored 600 studies geared towards improving student performance based on increasing student-lecturer, student-student or student-content engagement. The study concluded that increased student-content interaction was most effective, suggesting the need for the kind of activity-based design approach that Saide/OER Africa has advocated in its engagements with ANU. Resources can then be sourced, adapted or developed to help students engage with meaningful, authentic activities. Many of these resources will be text-based (e.g. textbooks, journal articles, research reports) which might also be printed but an increasing number of resources are also available as audiofiles (e.g. TEDtalks podcasts) and video files (e.g. youTube) or simulations, educational games or even virtual world experiences. If some or all of the learning resources needed for a course are available under an open licence, this can reduce both costs and time for both staff and students (Butcher & Hoosen, 2011).[[33]](#footnote-33) If the licence is at the more open end of the continuum, it then also becomes possible to adapt the resource for a better fit with context and student needs. In contexts of low technology skills, access or bandwidth, it may also be possible to download resources so that students can work with them offline. However, utilizing the potential of OER in this way, requires a shift in mindset towards more open educational practices (Annand 2015)[[34]](#footnote-34).

The following two related issues are also identified by Du Vivier (2010: 19-20)[[35]](#footnote-35).

### 3.3.1 The importance of scale

Ideally, the Materials Sub-System should be the responsibility of a centralised unit, [such as IODL]. This is because decentralising the process of materials development is likely to lead to duplication of effort. Consider the way in which e-learning is being adopted by most conventional schools and universities. Typically teachers or lecturers work on their own, in isolation from their peers, to:

* decide what elements to include when designing instruction,
* find existing learning resources and activities or devise new ones,
* prepare their own lecture notes and/or slides,
* select and download assigned readings,
* facilitate online discussion forums or other virtual activities,
* set assignments or other tasks for assessing student progress,
* test student performance.

Daniel (2010, pp. 45-64) critiques this approach because it can never achieve economies of scale. It approximates the cottage industry model of production that was widespread in Great Britain before the Industrial Revolution. He argues that the application of technology opens up the possibility of treating education in a manner analogous to industrial production (Ibid., p. 52), which is characterised by a division of labour. Thus, in order to be cost-efficient, ODeL institutions need to employ specialised staff for:

* instructional design,
* authoring study materials,
* designing resources for publication on paper or in other formats,
* reproducing materials,
* distributing materials.

By adopting a factory model, ODL institutions are able to achieve economies of scale by producing a unified product that can be used over several years by a large number of students. Because people with the special skills required to produce quality study materials tend to be in short supply in most countries, it is essential to build up a critical mass of such staff in a centralised unit or agency.

### 3.3.2 The choice of technology

Deciding on the most appropriate technology or technologies to use for delivering a course to a particular group of learners requires a detailed assessment of several different factors, including:

* Are there significant differences in the **cost of reproducing materials** in different media?
* What are the **costs and constraints** associated with **distributing study materials** in different forms?
* How **flexible and convenient** is the technology to use (e.g. does it require an uninterrupted supply of electricity)?
* How **reliable** is the technology? Can it be maintained and repaired locally?
* Are there any **security** issues associated with the distribution of materials in a particular media (e.g. computer viruses or the theft of equipment)?
* Do particular media facilitate **accessibility** for those with physical impairments?
* Does the medium enhance the **quality of the learning experience** for students?
* Are there **other benefits** that arise from the use of a particular technology (e.g. the acquisition of basic computer skills when resources are available online)?

Ultimately, a decision on the most appropriate technology to adopt for delivering a programme or course will depend upon the characteristics of the target group, the prevailing circumstances in the areas where they live and study and the relative weight given to each of the above factors.

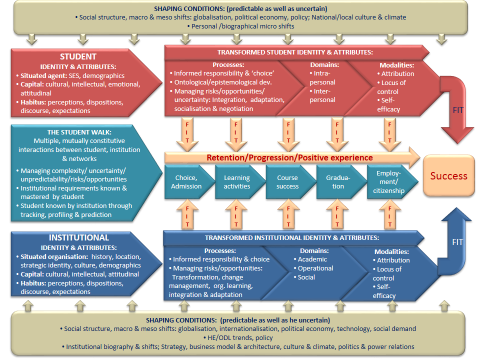
## 3.4 Learner support sub-system

This sub-system comprises all the activities, staff and other resources that are involved in recruiting and registering students, facilitating their learning through the programme (for example, orientation, feedback on assessment, academic, administrative, informational and ICT support) and managing their progress (for example through tutorial support, peer interaction and appropriate use of data analytics).

An important caution here is that learner and learning support should be an integral part of the design and service:

… in the context of open and distance education, teaching (i.e. the production of learning materials) tends to take precedence over learning and student support … by planning learner support as an integral part of a teaching and learning programme, rather than an afterthought which can be excised when times get difficult, institutions can demonstrate a recognition of the link between income generation and learner support. Mills (2003: 102- 104)[[36]](#footnote-36)

As Subotsky and Prinsloo (2011) argue, there are factors outside of the institution which impact on student retention and success; also student needs and aspirations change as they progress through their studies and the capacity and interests of institutions themselves change over time so there is need for learning support to be evolutionary and responsive to maximize the ‘fit’ between student, institutional and contextual factors in enhancing retention and success as illustrated below.



##### Figure 5: Student retention and success model at Unisa (Subotsky and Prinsloo, 2011)[[37]](#footnote-37)

## 3.5 Assessment and certification sub-system

Although providing students with feedback on their progress in achieving the learning outcomes of a programme or course is central to the learning process, a separate sub-system is involved in the formal assessment and certification of each student’s performance and in awarding certificates to recognise their achievements. This process is complicated in an ODeL context focusing on authentic learning because it involves addressing issues such as the following:

* Ensuring the provision of appropriate and timely feedback on formative assessment for a distributed student body
* Recognising that written examinations may not always be an appropriate summative assessment approach and that in some contexts displays or performances, portfolios, projects or research studies may provide more appropriate evidence of achievement of learning outcomes but may be harder to guarantee authenticity
* Making the necessary arrangements to ensure security and integrity of an assessment system that will likely need to work across different distributed centres and even times/ time zones (for example assessment of workplace-based performance or cross-border online students)
* The possibility of needing to organise decentralised graduation ceremonies.

## 3.6 Logistical sub-system

The curriculum, materials, learner support and assessment and certification sub-systems are supported by other units which procure and manage resources for the institution. This comprises units such as senior management, marketing, finances, human resources, grounds and buildings maintenance and information and communications technology (ICT) all of which are essential to the smooth running of the institution and towards the costs of which each programme and course needs to contribute.

## 3.7 Managing a national ODeL footprint

The high upfront costs of designing quality ODeL programmes and materials and putting in place appropriate decentralised support and assessment systems need to be amortised over relatively large student numbers. This usually means that institutions moving into ODeL provision have an increasingly national rather than county footprint. This brings with it challenges regarding differences in issues such as home language, accommodation of cultural diversity, variety of examples and experiences, decentralized support and assessment, decentralized management of practicals and work integrated learning where appropriate, but also need for greater awareness of what other institutions are doing and what facilities they have. On the one hand, extreme competition for highly lucrative courses may mean that the institution is unable to attract sufficient numbers of students to cover the initial cost of investment; on the other hand, an institution may be able to enter into agreements to hire the facilities of other institutions at certain times thus becoming able to offer a wider suite of programmes than would otherwise be possible without significant infrastructure development e.g. making use of laboratories, workshops and classrooms of contact institutions when these institutions are in recess.

## 3.8 Managing cross-border provision

A logical extension of moving into ODeL provision is to consider also the registration of students outside of the country’s borders. This adds further complexity to the issues involved in moving from a county to a national footprint including issues of different timezones, beliefs and practices, legal and policy frameworks etc.

In its recent distance education policy document, the South African government takes the following position that might also serve as a guiding framework for Kenya generally and ANU in particular:

6.1 The need for regulation

6.1.1 The DHET has taken the view that university education is a public good whose provision in South Africa by foreign institutions or companies must be regulated in accordance with South African law to ensure that acceptable standards are maintained, students are protected and the democratic transformation of South African university education is sustained. Inter-governmental agreements designed to curb fraudulent or inferior distance university education at source are the best available safeguard since they commit signatory states to ensure that providers of cross-border education meet acceptable criteria and are subjected to suitable quality assurance supervision in their home countries.

6.2 Code of conduct for South African providers

6.2.1 South African providers offering cross-border services must uphold standards at least as rigorous as they are required to observe at home. This includes making adequate provision for practicals and work integrated learning where appropriate. This does not preclude the value of sharing South African developed OER with other countries – especially where these are released under an open licence that permits adaptation. (RSA 2014)[[38]](#footnote-38)

At an international level, Unesco (2005)[[39]](#footnote-39) provides some policy guidelines to inform the design of programmes intended to be offered across borders while CoL’s Virtual University for Small States of the Commonwealth initiative (see <https://www.col.org/programmes/vussc/virtual-university-small-states-commonwealth-vussc>) provides insights into issues and practices enabled by a commitment to Open Principles, Distance and eLearning methods and Open Educational Practices and Resources.

## 4. Sustainable ODeL provision

This section of the report offers a variety of perspectives on costing and funding ODeL provision.

## 4.1 Perspective 1

As duVivier (2010: 38-9)[[40]](#footnote-40) observes, while the use of ODeL methods holds out the potential of reducing the unit costs of providing quality education, savings can only be fully realised by exercising strict financial control. Where open institutions have their origins in civil or public service structures, there is a tendency to adopt budgeting approaches wherein expenditure is only indirectly related to the number of learners enrolled for studies. Traditional models and norms for staffing in the public service are frequently used in drawing up post structures and staff establishments for such bodies. In addition, narrowly defined job descriptions and lack of flexibility in hiring and firing can lead to overstaffing and relatively low levels of productivity. Continuing to prop up such ODeL [or campus-based] units through incremental increases in their core funding without reference to outputs can stifle future development. For this reason, ANU should adopt a policy of filling only key managerial, technical and administrative posts through permanent appointments, while making the maximum use of temporary and contract workers in other positions.

A cost-benefit analysis is particularly important when evaluating proposals for the introduction of new teaching and learning technologies, which can consume considerable financial resources without producing any savings or improvement in the quality of service available to students. Technology can only help to reduce costs when it:

* reduces the workload of existing staff;
* substitutes for some other element of production (for example, when digital resources delivered on a DVD substitute for the cost of printing paper booklets)
* displaces costs from the institution to students (for example, where students are required to purchase their own e-book reader or comparable device in order to use electronic textbooks).

Expenditure can also be reduced by:

* registering more students for a particular course,
* prolonging the life of existing study materials,
* limiting the scope of course offerings to those subjects where large enrolments can be guaranteed,
* minimising interactions between tutors and students (Rumble, 2009, pp. 58-61).

## 4.2 Perspective 2

The following observation on the costing assumptions for ODL provision in the South African context is taken from a study undertaken for Nadeosa, Mays (2011)[[41]](#footnote-41).

The South African Higher Education Act of 1997 established academic programmes as the cost unit for Higher Education. In response to the advent of a National Qualifications Framework in South Africa, Higher Education Institutions opted to focus on whole qualifications rather than on unit standards as the basis of their academic programmes in order to ensure coherence (Luckett 2003). However, subsequent investigations by the CHE (CHE 2004, 2007, 2010) have indicated that not only are many programmes not coherently designed but also that in many cases they are under-resourced in terms of staffing, which militates against the quality not only of design, but also of development and ‘delivery’. These concerns apply to higher education provision in South Africa generally but are of particular concern within the open and distance learning (ODL) community in which it is not possible to address curriculum shortfalls at short notice with ad hoc interventions. ODL practitioners often need to make informed curriculum decisions two to three years in advance of recruiting students. This report proceeds from the premise that adequate investment in appropriate curriculum design in which content and outcomes, assessment and student support are planned for in an integrated way and in which the carrying capacity of programmes and courses is taken due cognisance of from the outset are essential to ODL delivering on its potential.

Although ODL provision is premised on a high degree of independent learning, staffing is usually still the single biggest cost item in institutional budgets. A distinction can usefully be made between permanent centralised staff (academic and professional and usually relatively small) and decentralised, often part-time/ contract staff (usually relatively large). At the University of South Africa (Unisa), for example, personnel costs amounted to 59,10% and 61,72% as a percentage of total expenditure in 2008 and 2007 respectively (Unisa 2008a: 55) with academic staff costs amounting to 37% and other personnel amounting to 63% of a total personnel bill of R1 531 295 000 (Unisa 2008a: 63). Unisa’s total staff complement (permanent and temporary) amounted to 10 223 in 2006. Just under 60% of these (6 114) were temporary and just over 40% (4 109) were permanent (Unisa 2008b: 17); this resulted in a **full time equivalent staff to student ratio of 1: 73,83** (Unisa 2008b: 18) with a **variation of between 1: 147 to 1: 48 between different colleges**. Clearly, therefore, a consideration of the kinds of staff needed and the ways in which they use their time is fundamental to the bottom-line finances of the institution and its long-term sustainability.

Staffing needs and costs vary considerably between models of provision: in a print-based, contact supported mode of delivery we can rely upon local tutors to mediate the curriculum in response to contextual realities. In an on-line model of delivery, the learning pathways need to allow for a wider diversity of responses and contexts – consequently decentralised tutor and venue-related costs may be smaller but initial development and ongoing on-line review and support costs will usually be higher. The degree of interaction designed into the model for delivery will also have a profound impact on staff needs and costs and for sustainability a balance needs to be found between teaching costs, income generated and student pass rates and throughput.

Insung (in McIntosh 2005) reports on a Quality Assurance Survey of Mega Universities. The survey, conducted between May and early June 2004, was sent out to the presidents (or vice-chancellors) and/or the heads of QA units in 11 mega universities in different regions:

* Allama Tqbal Open University (ATOU, Pakistan)
* Anadolu University (Anadolu, Turkey)
* China Central Radio and TV University (CCRTVU, China)
* Indira Gandhi National Open University (IGNOU, India)
* Universitas Terbuka (UT, Indonesia)
* Korea National Open University (KNOU, Korea)
* Payame Noor University (Tran)
* Sukhothai Thammathirat Open University (STOU, Thailand)
* Open University (OU, UK)
* University of South Africa (South Africa)
* Shanghi TV University (SHTVU, China).

Table 2 indicates the diverse range of student: staff ratios.

##### Table 2: Profiles of the Nine Mega Universities Participating in the Survey (p.81)

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  | **NUMBER OF ACADEMIC STAFF** | | **NUMBER OF** |
| **INSTITUTION** | **YEAR OF** | **NUMBER OF** |  |  | **ADMINISTRATIVE** |
| **ESTABLlSHMENT** | **DE STUDENTS** | **FULL-TIME** | **PART-TIME** | **STAFF** |
| **AIOU (Pakistan)** | **1974** | **456,126** | **145** | **23, 000** | **1,426** |
| **Anadolu (Turkey)** | **1958** | **884,081** | **1,729** | ***653 (tutors)*** | **1,763** |
| ***(1982 named Anadolu)*** | ***300 (Iecturers)*** |
| **CCRTVU (China)** | **1979** | **2,300,000** | **52,600** | **3 I ,500** | **16,500** |
| **IGNOU (India)** | **1985** | **1,013,63** | **339** | **35** | **1,337** |
| **KNOU (Korea)** | **1972** | **196,402** | **271** | ***108*** | **546** |
|  |  |  |  |  | **1,434** |
|  |  |  |  | **7,995** | ***(Academic-related staff)*** |
| **OU(UK)** | **1969** | **203,744** | **1,169** |  | **2,139** |
|  |  |  |  |  | ***(Secretarial. clerical,*** |
|  |  |  |  |  | ***And technical staff)*** |
| **SHTVU (China)** | **1960** | **101,218** | ***Not Given*** | ***Not Given*** | ***Not Given*** |
| **STOU (Thailand)** | **1978** | **181,372** | **375** | ***Not Given*** | **904** |
| **UT (Indonesia)** | **1984** | **222,068** | **762** | ***3,600*** | **730** |

We note in Table 2 the extremely different statistics for CCRTVU and IGNOU, for example. Clearly the two institutions operate on completely different models.

Hülsmann (c.2004:56) observes for COL:

The profile of ODL has undergone a substantial diversification which affects core features of ODL such as cost-structure. Which model fits your context depends on the local infrastructure and market size. The new models of ODL do not necessarily challenge established working models (e.g. the mega-universities) but provide alternative strategies. Where student numbers are smaller or quick customisation is required, e-learning formats may offer a post-Fordist alternative, which given the right conditions and infrastructure, may be cost efficient.

The division of labour within a Fordist institution is substituted by a division of labour between smaller post-Fordist institutions, which bring together partners of technological competence, academic credibility (certification) and funding. Partners may come from different regions in the world and may represent a mix of private and public partners (PPP).

In a 2007 report for the World Bank, Banks et al., provided insight into the diverse scenarios for costing teacher education provision through ODL in Sub-Saharan Africa noting the following key policy lessons:

In considering the different programs, it has been found necessary to return time and again to the balance between effectiveness and efficiency and the competing demands of quality, access and cost. The following key policy issues emerged:

* A program can be more cost-effective and easier to administer by integrating the content of traditionally short courses into larger courses.
* The length of training also impacts significantly on costs. An assumption that one year of full-time education must equate to two years part-time should be contested, and accreditation of prior learning – especially for unqualified or under-qualified working teachers – should be the norm.
* The smaller the courses, the greater the overall assessment costs are likely to be and how assessment is staffed can become constraints to program expansion and effectiveness.
* The costs associated with upskilling in the use of new technologies manifest themselves in a number of ways. There is the straightforward cost associated with the introduction of new technology, but a more hidden cost is the expensive use of academic staff to re-key and amend ODL learning resources. The potential of ICTs to increase access to and quality of ODL will only be effectively harnessed where appropriate costing models are considered and used at the start of planning their introduction and implementation.
* To give an accurate cost-benefit analysis of ODL methods for training teachers, it is necessary to be clear who is enrolled on a program, who is taking a study break, who has withdrawn and who has graduated. Keeping track of students’ progress, tutor-marked assignments and associated school placements requires a sophisticated database.
* Great diversity of trainee support models can be seen. The link between trainee achievement and the cost-effective use of resources, and the balance of fixed to variable costs within the proposed trainee support model, need careful exploration at the planning stage.
* Excessive staff workloads in the development and presentation phases raise serious sustainability and growth issues in the longer term. Addressing these issues at the start of planning the program may well result in significant changes in program design that can benefit both students and institutions. (Banks et al. 2007, x, xi)

In many cases the motivation for offering a new ODeL programme is made by staff who may have a limited financial management and/or ODeL background. Often this results in institutions rushing into ODeL provision without a well-thought through rationale, model or business plan.

With respect to comparative costing, Latchem (2010: 84) notes Rumble’s (2008) caution

… against using analyses in one jurisdiction to draw inferences about costs in another. Distance and technology-based training are generally said to have higher fixed costs (e.g., central administration, production facility, course development and delivery costs) and lower variable costs (student-related costs incurred as the training is delivered). But, for example, staffing costs may be much lower and technology provision and access costs much higher in developing countries than in developed countries. So, as Rosenberg (2001) observes, costing online training needs to take careful account of all the development, maintenance and delivery costs, the lifespan of the training programmes, the number of learners served, the costs to the learners and the opportunity costs (the value of the next best alternative foregone as a consequence of the training providers and the participants undertaking one activity rather than another).

Thompson (2010: 144) also observes:

Various methods of budgeting leading to a cost-benefit analysis for ODL programmes have been researched (see, for example: Rumble 1997; Moran and Rumble 2004; and Jung 2005). Most researchers end up concluding that making comparisons between programme offerings using different modes of delivery, or between similar programmes offered in different countries, is complicated if not impossible. Simple differences such as wages, currency valuations and technology costs can skew these comparisons. It is also difficult to be all-encompassing in ensuring every cost is measured. As identified by Moran and Rumble (2004), many costs are hidden or not considered directly related to the ODL programme. So, in the end, one is left feeling that demonstrating cost-effectiveness using a cost-benefit analysis on its own in an ODL programme … is not an easy proposition.

More recently, cost-effectiveness has taken into consideration both the inputs and the outputs as a measure of cost-effectiveness. Cost-effective has been defined in terms of both a cost-benefit analysis and a cost-effective analysis (Peterson 1986).

## 4.3 Perspective 3

Issues related to understanding and measuring staff and student time in ODL provision have recurred regularly in the ODL literature and obviously have a direct bearing on costing assumptions. With more contact institutions making use of blended forms of face-to-face with ODeL provision, work allocation and student credit models based on contact time on campus are increasingly unhelpful for planning and monitoring. In 2015, the journal *Distance Education* provided a focused set of discussions on this issue which are summarized below.

Whitelock, Thorpe and Galley (2015)[[42]](#footnote-42) observe that while contact provision has traditionally based course credit weightings on a combination of actual contact hours and assumptions about self-study time (e.g. 30 weeks of 36 to 37 hours study a week of which maybe 15 hours comprises lectures, tutorials and practicals), distance provision has tended to link credit weightings to estimates of study time (e.g. 1 credit as equivalent to 10 notional learning hours). However, both approaches tend to be based on estimates only and

Ultimately, demonstrated achievement of learning outcomes is the key determinant of study success, not number of study hours spent. However, in the context of part-time and online or distance study, managing study time has often been perceived by students as a key factor in their ability to complete the course (ibid, 163).

Estimating probable study time is difficult but it should be obvious that it takes less time to read a short simple text than to read a long complex text and a distinction needs to be made between course-directed time (i.e. time estimated activities set within the course) and individual student preparation time (e.g. organizing space, time and computer; catch-up and refresher time). Open-ended discussions can also lead to a lot of additional unplanned reading if additional resources arise from the discussions themselves and are shared by students with one another. One of the advantages of an LMS is that it allows us to collect some data on actual time on task for individual students and across student cohorts. Three recent interventions that may benefit student learning and effective use of time include:

* Use of the OpenEssayist application by students prior to submission of written assignments can initially add to their workload but as they develop a better understanding of their own thinking and how best to present their arguments, they may use time more productively in the longer-term
* Use of the Open Mentor application by tutor-markers to help them provide the kind of timeous and constructive feedback that helps students to improve from one assignment to another
* An integrated learning design approach which:

engages faculties in workshops where they discuss their design ideas and use a set of tools and resources that enable a student-activity-based approach to the development of courses … The activity planner captures both the types of activity engage in to learn and the amount of time they spend (ibid. 171-172)

Kennedy, Laurillard, Horan and Charlton (2015)[[43]](#footnote-43) posit that the single most important resource for effective teaching and learning is time – academic staff time to prepare and present and student time to learn and produce outputs that are evidence of achievement of learning outcomes. They further suggest that a learning experience should involve all of the following six kinds of activities: acquisition (read, write, listen), inquiry, practice, production, discussion and collaboration. The Course Resource Appraisal Model (CRAM) they developed then works on the basis of time estimates for staff preparation and presentation time to offer the necessary learning pathway and activities and hence leads to a report on the direct staffing costs of a particular offering. Simultaneously estimating the learning time for each activity from the student perspective helps to ensure that the credit weightings of different courses are aligned. It should be noted that the CRAM model focuses on the costs associated with designing and delivering a particular course and does not take account of the costs of running the institution as a whole. (A draft version of the tool can be downloaded from <http://web.lkldev.ioe.ac.uk/cram/index.html>).

Haggerty (2015)[[44]](#footnote-44) observes that most academics are employed on the basis of their disciplinary qualifications and research outputs rather than their teaching abilities and suggests that the lack of a clear pedagogic framework will militate against efficient use of online learning facilities. The study notes the lack of common models for measuring staff workload particularly for comparing face-to-face and online provision, contradictory findings where such studies have been done (usually on a small scale), a reluctance on the part of academics to be “measured” which militates against empirical time studies and through engagement with academics notes the important role of professional development in three areas – philosophy and pedagogy of education, appropriately timed training for use of institutional LMS and related applications and need for “time-to-play”. She advocates the use of a LATARE framework to help guide decision-making as follows:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| L | A | T | A | R | E |
| Learning outcomes | Assessment | Topics | Activities | Resources | Evaluation |
| The learning outcomes are the accredited component of the course and are the basis for all other components of the course. | How learning outcomes will be measured. The number of assessments, whether they are formative or summative, type of assessments, due dates and weightings. | Topics that the course will cover; clearly differentiating between what is need-to-know and what is nice-to-know. Avoid additive curriculum. | The teaching/learning activities that will be included throughout the course to facilitate learning. | What web links, research links, literature content, etc. need to be developed and made available within the learning environment? Also consider service support requirements e.g. library, learning support | How effective was the teaching and learning and what changes would be recommended? |

Gregory and Lodge (2015)[[45]](#footnote-45) observe that institutional work allocation models typically do not make provision for the personal professional development required in reskilling to make effective use of technology enhanced learning strategies and that traditional contact hours and points-based models also do not take cognizance of the fact that in a flexible learning environment engagement with students often takes place outside of normal office hours. They posit that the nature of the TEL activity and the experience of the academic staff member will impact on the additional workload associated with various stages of TEL use and various forms of TEL activity which can be plotted in the form of a matrix:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Nature of TEL activity | Professional development | | | Preparation time | | | Implementation time | | | Review/reflection | | |
|  | N | I | E | N | I | E | N | I | E | N | I | E |
| Instructional video resource |  |  |  |  |  |  |  |  |  |  |  |  |
| Moderated blog |  |  |  |  |  |  |  |  |  |  |  |  |
| Formative online quiz |  |  |  |  |  |  |  |  |  |  |  |  |
| Non-moderated wiki |  |  |  |  |  |  |  |  |  |  |  |  |
| Podcast assessment tool |  |  |  |  |  |  |  |  |  |  |  |  |
| Virtual classroom (e.g. Collaborate) |  |  |  |  |  |  |  |  |  |  |  |  |
| Instant response tools |  |  |  |  |  |  |  |  |  |  |  |  |

As a general rule, a novice will require more time than an intermediate or an experienced user and video resources require much more upfront development time than is typical in for example preparing a traditional lecture.

Kuiper, Solomonides and Hardy (2015)[[46]](#footnote-46) explored effective practices in offering compressed courses which are expected to have comparable learning outcomes to their full-semester counterparts and provide an opportunity for students either to retake failed units or to acquire credits for their programmes of study in accelerated time. They conclude based on their study that the following strategies seem useful in aiding students to make effective use of the time available for study:

* Taking into account the nature and diversity of the cohort and their particular needs when designing the unit
* Encouraging commitment at the commencement of the unit
* Motivating the students through structuring the unit for clarity in design and presentation
* Incorporating a well-sequenced assessment, including the need for swift feedback
* Using learning technologies effectively for synchronous and asynchronous interaction and to motivate students to learn
* Developing and maintaining a strategy for communicating with students.

Gous and Roberts (2015)[[47]](#footnote-47) used a metcognitive framework and a case study methodology to explore the views on time and workload created by technology innovation in an ODL environment. Their study suggests that academics are often not critically aware of their time usage and may well spend more time in non-core activities such as reading emails and attending meetings of a general nature than they think. Their study further suggests that academic staff may be more likely to invest time in reskilling to use technology to work more effectively and efficiently in their research practices than their teaching practices because it is research output and not quality teaching that is typically rewarded by the university system.

Mœglin and Vidal (2015)[[48]](#footnote-48) on the basis of their review of the recent history of publications in the French literature on distance education conclude that the move into distance provision does not necessarily involve added strain on teachers, students and administrative staff but this will depend on contexts and strategies employed. They identify three key factors likely to affect impact on workload:

* The degree of neo- or post-Taylorist orientation (greater constraint and fragmentation in order to better monitor and control vs greater flexibility and openness to improvisation)
* The increasing spread of “entrepreneurial logic” in service provision
* The increasingly active role of students in the learning process which may see a sea-change like that which has happened in the recorded music sector of which the growing number of MOOCs may be the harbinger.

In the next section, we discuss a comparison made in broad terms between correspondence and face-to-face teaching, then multimedia courses, distributed e-learning and virtual seminars in terms of fixed and variable costs and the implications for responsiveness, and economies of scale. The report points to the value of working with interactive spreadsheets with benchmark figures on costs to inform decision-making.

## 4.4 Costing courses

The costing case studies and models provided below are based on work originally undertaken by Saide as part of a larger study into distance education for the South African Council on Higher Education (CHE 2004)[[49]](#footnote-49). As reported by Mays (2005)[[50]](#footnote-50), the comparative costings were based on an Access database designed by Neil Butcher and utilized and analysed by Tony Mays. The database was subsequently developed into an Excel spreadsheet, as part of work undertaken for Nadeosa (Mays 2011), which forms a separate addendum to this report. Given the complexity involved, the resourcing and costing models that follow work from a set of **baseline assumptions**. It will be important at the start of any resourcing and costing exercise for programme managers/ programme management teams to interrogate these assumptions and adjust appropriately for their own contexts of practice. It should be noted that the models presented facilitate scenario planning at the start of a process of considering the introduction of a (new) ODeL programme. More detailed budgets will need to be drawn up thereafter informed by the overall model of delivery adopted and in such cases it would then probably be worthwhile to have a more intensive engagement with an institution that follows the overall model that appears most suitable e.g. a dedicated ODL approach (Unisa); a dual mode approach with separate contact/ODL systems and possibly involving a public/private partnership (North West University); a dual mode approach with integrated contact/ODL systems (University of Pretoria). In addition, consideration needs to be given to how income will be generated. In South Africa, for example, programme income for a public institution will usually comprise three elements: student fees (paid in full up front; in instalments; or on a per module enrolment basis); input subsidy (paid about two years after evidence of active student participation has been supplied to the Department of Higher Education and Training); output subsidy (paid about two years after evidence of successful graduation has been supplied to the Department of Higher Education and Training). However, for a private provider the development, presentation and review costs need to be recouped from student fees only over a period of time. Thus a more sophisticated costing model will need to track over a period of several years expected enrolment patterns, expected active participation patterns and the associated costs for any particular period (e.g. how many of the registered students are likely to write assignments and examinations in any particular semester for example) and a staggered income stream in order to manage the institutional cashflow responsibly. In addition, provision needs to be made for cycles of curriculum renewal and teach-out periods which may entail a) making provision for servicing two versions of a programme simultaneously and b) teaching out a programme for which no additional income can be expected.

This discussion explores three different common models:

* Model A – print-based and contact supported
* Model B – resource-based and web-supported
* Model C – web-dependent mix of on- and off-line teaching and support.

For the purposes of this discussion, a fairly simple curriculum model is assumed.

The design assumptions of these models are articulated in the tables that follow.

|  |  |
| --- | --- |
| **Model A – Print-based and contact-supported** | |
| **Description and target audience** | * Print-based course materials are provided and paper-based assessment is standard. * Some additional audio-video as well as text-based materials are supplied on a CDRom (digital library). * Mixes on-site and completely distant students as face-to-face contact sessions are offered in centres with large enough numbers for a tutor: on a faculty: learner ratio of 1:30; smaller centres are linked by, for example, video-conference. * Interactive telecommunications technologies extend a classroom-based course from one location to a group of students at one or more other locations. * The faculty staff and institution control the pace and place of instruction. * This model of delivery is probably most appropriate for school-level and immediate post-school students as well as adults returning to study after a long break as these kinds of students will often need to develop/ regain their independent learning and academic literacy competences. This model of delivery is also suited for programmes aimed at professional development in fields premised on direct human interaction such as teaching, social work and guidance and counselling. |
| **Characteristics** | * Class sessions involve synchronous communication; students and faculty are required to be in a particular place at a particular time (probably at least three times in a teaching cycle) in person or by video-conference. * Number of sites varies from two (point-to-point) to five or more (point-to-multipoint); the greater the number of sites, the greater the complexity -- technically, logistically, and perceptually and the harder to ensure comparability of the learning experience. * Students may enroll at sites more convenient to their homes or work locations than the main campus. * Institutions are able to serve small numbers of students in each location. * The nature of the contact experience mimics that of the classroom for both the teacher and the student. |
| **Faculty staff role/experience** | * Faculty typically do not change their role significantly from the one they assume in the traditional classroom; however, the use of technology does require adaptability in the manner of presentation. * Faculty generally find it necessary to reduce the amount of material presented to allow additional time for relational tasks and management of the technology; increased familiarity with the technology and the environment mitigates this to some extent. * Faculty usually find it necessary to increase the amount of planning time for each class; advance planning and preparation increases presenter self-confidence, reduces unnecessary stress, and enables faculty to conduct classes with ease. |
| **Student’s experience on-site** | * Because the faculty member is physically present in the space, on-site students generally have an experience similar to that of the traditional classroom. * May be less tolerant of technological problems and challenges than distant students, because they are unlikely to perceive a personal benefit resulting from the use of technology. * May resent having to "share" their class with other sites. |
| **Students' experience off-site** | * Tend to feel somewhat isolated and cut off from the "real" class unless the faculty member makes a concerted effort to include them. * Often form a close working group with students at the same location. * Usually find the mediated experience (even two-way video) to be different from face-to-face communication because the mediation affects perception and communication in some obvious and many subtle ways. * Will make allowances for problems with the technology if they perceive a personal benefit (access to instruction otherwise unavailable; site close to home or work). |
| **Technologies Supporting Class Sessions** | In centres too small for face-to-face tutoring:   * two-way interactive video (compressed or full-motion) -or- * one-way video with two-way audio -or- * audioconferencing -or- * audiographic conferencing |
| **Technologies Supporting Out-of-Class Communication** | * telephone/ mobile phone * mail * fax * computer (for e-mail and conferencing; access to library and other on-line resources; submission of assignments) |
| **Opportunities for Interaction** | * All students have opportunity for verbal interaction during class with teacher and each other; on-site students have visual interaction with teacher and other students in class; off-site students may have opportunity for visual interaction with teacher and other students; depending upon technology used. * On-site students can interact with teacher before and after class. * Out-of-class interaction by telephone; by computer conferencing or email, voice-mail, or other means if available. |
| **Support Services Needed** | * Access to technical support at each location; fully trained technician/trouble-shooter at origination site. * Site assistant at each location to handle logistics and materials distribution/collection. * Access to networked computer and/or direct internet link-up, fax machine, telephone, and photocopier. |

|  |  |
| --- | --- |
| **Model B – resource-based and web supported** | |
| **Description** | * This model frees students from having to be in a particular place at a particular time. * Students are provided a variety of text- and ,multi-media-based materials on a DVD/CDRom - including a course guide and detailed syllabus, and access to a faculty member who provides guidance, answers questions, and evaluates their work; a typical tutor: student ratio is 1: 150. * Contact between the individual student, other students and the tutor is achieved by one or a combination of the following technologies: electronic mail, an asynchronous online forum, telephone, voice-mail, computer conferencing and regular mail. * Since there are no direct face-to-face contact sessions, this model of delivery is probably best suited for students who have successfully studied through distance learning in the past and/or whose work or other life commitments/challenges prevent them from attending contact sessions. The model is appropriate for programmes of an academic nature that do not require immediate practical application in context or which support work integrated learning experiences that are managed separately from the more academic side of the programme. |
| **Characteristics** | * There are no class sessions; students study independently, following the detailed guidelines in the materials supplied. * Students may interact with the teacher and, in some cases, with other students. * Presentation of course content is through text- or multi-media on a DVD/CDRom, all of which students can review at a place and time of their own choosing. * Course materials are used over a period of several years, and generally are the result of a structured development process that involves learning designers, content experts, and media specialists; not specific to a particular teacher. |
| **Faculty staff role/experience** | * Faculty members structure and facilitate the learning experience, but share control of the process with the student to a great extent. * Must become familiar with the content in the materials prior to the beginning of the teaching cycle to develop the detailed syllabus and, if appropriate, plan for effective use of the interactive technologies such as computer conferencing and voice-mail. * Module coordinators or tutors support students one-on-one on demand as and if requested; engage with the whole class periodically through an online discussion forum; faculty member is more available to facilitate individual student's learning because of freedom from preparing and delivering content for regular class sessions. * The 24 hours of pro-active contact support spread over 3 days during the course of the programme is likely to be split into smaller more open-ended engagements through structured discussion themes on a forum. |
| **Student’s experience on-site** | There is no on-site experience. |
| **Students' Experience off-site** | As for Model A.   * Students do not attend class, which gives them ultimate flexibility in structuring their time; they are responsible for organizing their work and time to meet course requirements and deadlines. * Students must be highly motivated; they need good organizational and time management skills, the ability to communicate in writing, initiative, and a commitment to high standards of achievement. |
| **Technologies Supporting Class Sessions** | * None, since there are no class sessions. |
| **Technologies Supporting Out-of-Class Communication** | * mail * telephone / mobile phone * voice-mail * computer (for access to library and other on-line resources, e-mail, conferencing, discussion forum and the submission of assignments) |
| **Opportunities for Interaction** | * Teachers provide information in the materials about how and when students can contact them; there is typically wide variation in the amount of student-initiated communication with the teacher. * Teachers provide detailed comments on students' written assignments. * When voice-mail and/or computer conferencing is available, teachers provide a structure for interactive discussions by posing topics or providing some other stimulus for discussion. |
| **Support Services Needed** | * Significant administrative structure is crucial to support both the students and the teachers. * A system for proctoring exams that retains some measure of flexibility for students but meets institutional needs for exam security. * A robust and responsive support system to manage whole class and smaller (150 students) discussion fora. |

|  |  |
| --- | --- |
| **Model C – web-dependent** | |
| **Description** | * This model requires that students have sustained access to the internet and the ability to be “on-line” for extended periods and to download resources for extended engagement off-line; the presentation of resources is activity-based with multiple hyperlinks to resources and websites available on the internet; students are required to engage in on-line activities - sometimes synchronously with the teacher and other students. * The etutor: student ratio is 1:15 as it is difficult to manage meaningful synchronous online interaction with larger numbers. (Although MOOCs work with very large numbers these tend to focus on informal CPD rather than formal learning programmes that are assessed.) * This model assumes a high degree of ICT competence on the part of both students and staff. Training and orientation is critical and the ICT needs of the programme need to be clearly communicated in marketing materials and confirmed prior to registration. This model suits itself to programmes premised on high degrees of individualized learning provision; students are likely to challenge faculty assumptions and provide counter-examples and arguments they have found on the internet. The teachers therefore need to be committed to socio-constructivist and possibly socio-critical pedagogy. Lower student-teacher ratios and the highly individualized learning pathways make this model more suitable for advanced courses for which higher fees can be charged. |
| **Characteristics** | * Presentation of course content is entirely on-line, although some core resources may be downloaded for students to review at a place and time of their own choosing, either individually or in groups. * Course materials (for content presentation) are used for more than one semester; often specific to the particular teacher (e.g., a podcast of a teacher's public lecture). * Synchronous online sessions are for students to discuss and clarify concepts and engage in problem-solving activities, group work, simulations, and other applied learning exercises. |
| **Academic staff role/experience** | * Faculty member structures and facilitates the learning experience, but shares control of the process with the student and supporting tutors to a great extent. * Role change encourages faculty to focus on the learning process rather than on the provision of content and to take advantage of the available media including OERs. * Must become familiar with the content in the core materials and plan for effective use of the interactive sessions, which draw upon these resources but must be able to engage with alternative, even competing ideas and resources that emanate from the students themselves. * Collaboratively identifies additional resources to support student learning. * Tutors students on-line one-on-one as needed and in small groups occasionally; faculty member is more available to facilitate individual student's learning because of freedom from preparing and delivering content for regular class sessions. |
| **Student’s experience on-site** | * There are no on-site experiences. |
| **Students' Experience off-site** | * With fewer scheduled synchronous sessions, students gain flexibility. * The periodic synchronous interaction in small groups and a number of on-line discussion fora help students to structure their work, but the format requires greater discipline and maturity on the part of students than one with more frequent and more structured sessions. * Interactive focus of group sessions can serve to diminish perceived disadvantages of students who are not in the same location as the teacher; relative anonymity may allow for more open engagement. |
| **Technologies Supporting Class Sessions** | * Multiply interactive video, audio and text e.g. elluminate, with blogs, wikis, fora integrated into e.g. a ning site located in a moodle or sakai-based learning management platform. |
| **Technologies Supporting Out-of-Class Communication** | * Internet enabled computer (for access to library and other on-line resources, e- mail, conferencing, and for submission of assignments). * Mobile phone. * Robust technical support for web-based learning and teaching management system. * Call centre for technical, administrative and academic referrals. |
| **Opportunities for Interaction** | * All asynchronous and synchronous activities are designed for interaction with teacher and other students; they are frequently problem-solving sessions, because the time does not have to be devoted to lecture or other means of presenting content. * Individual interaction between students and faculty member on an as-needed basis by sms, e-mail, or voice-mail. |
| **Support Services Needed** | * Fully trained web-manager/technician/trouble-shooter at origination site. |

### 4.4.1 Planning issues common to all models

A number of issues with staffing implications need to be addressed regardless of the model of ODeL provision that is adopted. In the description of the following planning issues reference is made to organisational aspects and terminology specifically related to universities, but these planning issues have to be considered by any provider of ODeL programmes.

### 4.4.2 Logistical Support

When setting up a system for distributing materials, it is critical that all students are treated equally. Students must have the materials they need to complete assignments, to participate in group or class sessions (Model A) or in online activities (in Models B and C), and to benefit from teacher feedback. Students who are not at the origination location should not be disadvantaged.

This support may be achieved with one or a combination of the following: online resources that can be accessed online or downloaded, courier, overnight delivery (DHL, Express Mail), priority mail, electronic file transfer, bulk sms and fax. With a long lead time, regular mail service may be an alternative – even in Models B and C it may be useful to provide core resources on a CD/DVD in order to reduce the time needed online. Students should always keep a copy of any significant assignments they complete, such as papers or projects, so they should be encouraged increasingly to submit digital versions.

If faculty choose to give venue-bound written examinations, students will need access to an invigilated secure examination site. Invigilators may be provided by the originating institution, or by the receiving site. Invigilators will need to check student photo IDs to verify the identity of the test-taker and monitor the process to ensure that the same conditions apply in all locations. For some courses, a purely online assessment might be envisaged. Unique pass words, digital affirmations of honesty and automated time limits could make it possible to provide assessment opportunities to suit individual student needs and preferences.

In some cases, the student may be given the opportunity to propose an invigilator for institutional approval. This requires especially careful institutional guidelines and checks.

Security of examinations is an issue from the time each examination paper leaves the teacher's hands/computer until the scripts are delivered back to the teacher for grading. Before and after the examinations are administered, they should be handled only by authorized personnel and stored in a locked desk or cabinet or in password protected secure server. It may be prudent to make copies of completed examination scripts before they are sent back to the teacher for grading. This need is obviated where the summative assessment is managed on-line.

Faculty (especially part-time tutors) may incur expenses directly related to their distance education activities. These might include long-distance charges (landline telephone, mobile and computer/modem), postage, and mileage for travel to off-campus locations. The institutional policy on reimbursement for such expenses should be clearly stated and procedures should be set up to facilitate the reimbursement. Provision of online assessments would obviate many of these requirements but security of the assessment process online will nonetheless need to be planned for.

Staffing requirements suggested by these needs include: academics, administrators, production, dispatch, stock controllers, assignment and examination (or examination equivalent staff), ICT staff – for systems, programmes and hardware development, maintenance and review.

### 4.4.3 Student support

Students who do not come to the campus need access to off-campus, decentralised support services. Student contact with trained academic advisors is crucial because both the students and the credit-granting institution need to be confident that information given to students is appropriate and accurate. Advising can be accomplished by telephone, e-mail, in online discussion fora and/or by providing periodic on-site advising at off-campus locations.

There must be easily accessible, authoritative sources of information about non-academic matters. Students should be informed as to whom to contact about specific types of questions or concerns. This may be accomplished through printed materials that are written specifically for distance education students or provided online and/or mediated via a call centre or website. In reality an institution will probably need to make allowance for all these modes of provision.

Faculty members typically have office hours during which time they deal with questions and concerns of individual students. A mechanism must be identified so that off-campus students can easily contact a faculty member. Teachers might provide students with their telephone number and hours during which they can be reached or with their Internet or e-mail address for individual, private discussions. In cases where there are class sessions, faculty might designate a period of time before or after class, or during the break, to use the telecommunications technology to discuss more general issues and concerns with off-site students. For online courses, an appropriate balance of synchronous and asynchronous activities needs to be planned.

Much of the planning for traditional course delivery assumes easy access to campus-based resources such as library holdings, science laboratories, and computer software and hardware. In distance education, it is essential that faculty and administrators work together to think creatively about how to accomplish the educational objectives when students may not have ready access to all the campus-based resources. Solutions to particular problems may involve altered assignments, inter-institutional resource-sharing, special services at off-campus sites, and greater use of computer technologies and networks.

Staffing requirements suggested by these requirements include technologically aware academics, contact- and online tutors, and technical support staff at the centre and at any decentralised sites of delivery.

### 4.4.4 Faculty support

The institution must determine what training the faculty will be provided on 1) the particular model of distance education they will be involved in and 2) the technologies they will be using. Faculty are likely to be more confident and effective if they understand what they are being asked to do, and why. They need to know the capabilities of the technologies available to them so that they can use these tools effectively to meet their instructional objectives.

Orientation and training should be scheduled well in advance of the beginning of the teaching cycle to give faculty sufficient time to redesign, modify, or adapt their course and assignments specifically for new delivery modes.

Traditional higher education institutions have few built-in incentives to encourage faculty to focus on quality teaching activities. The traditional reward structure, with its emphasis on research and publication, may actually discourage faculty who might otherwise be interested. Institutions should establish some faculty incentives that recognize the additional time faculty may spend in planning and teaching an effective distance education course.

To adapt their courses to new modes of delivery, faculty may benefit from having access to a variety of resources. Types of support might include instructional design, video production, graphics production, access to authoring tools, and other computer-based resources. The recruitment and selection of good distance education faculty is critical to the success of the programmes offered. Faculty who volunteer to participate in new modes of delivery are usually more successful and experience greater satisfaction than those who are assigned to participate. However, there are not always volunteers willing to teach the needed subjects. Using experienced and successful distance education faculty to recruit others is generally more effective.

Over time it may be possible to identify several personal characteristics that are most conducive to faculty success in each model of distance education.

This implies the need for learning design and production staff to support subject expert academic staff; and a sub-section of HR (with a corresponding budget) devoted to the induction and ongoing professional development of staff – possibly through some form of developmental and performance appraisal system.

### 4.4.5 Evaluation

Mechanisms must be put in place to ensure the quality of provision e.g. use of critical readers of materials, moderators for assessment, tracking of at-risk students, feedback from students, tutors and employers . Information about personal characteristics of successful teachers should be factored into future planning and hiring decisions. Information about effective instructional strategies should be included in faculty training and support materials.

The technical systems and administrative support systems should be evaluated by the students, the faculty, and, if appropriate, the technical support staff. In designing the evaluation instruments, every effort should be made to separate issues related to the technical and administrative systems from those related to individual faculty performance; faculty evaluation typically rests with academic units, whereas systems evaluation is the purview of non-academic units.

Evaluation of the faculty orientation and training process should be done each time the sessions are offered and the results should be factored into the ongoing refinement of the sessions and materials.

This implies the need for staff with expertise in assessment, evaluation, Recognition of Prior Learning (RPL) and Work Integrated Learning (WIL) as well as with systems thinking.

### 4.4.6 Laboratory/Practical/Work-Integrated Experiences

One of the most challenging aspects of distance education is to provide geographically dispersed students with experiences that are equivalent to those of other students in fully equipped laboratories/ clinics or workplaces. A critical initial step is for faculty to determine how crucial a hands-on experience in a laboratory setting, for example, is in ensuring that students achieve the desired learning. For example, it is possible to design activities that teach students the skills of close observation without conducting lab-based experiments. When alternative activities to lab experiences are not suitable, one or more of the following solutions might be appropriate.

Some institutions develop lab kits that contain the special equipment and supplies students need to complete one or more lab experiences and written directions that outline the assignments and list the other materials students will need to complete the assignments. For example, the University of Maine sends out a kit containing a foetal pig for dissection.

Another option is to conduct lab experiments at one location on an interactive video network or online. Students at all sites actively participate by conferring on the steps to be followed, and by observing, interpreting data, and suggesting follow-up activities. We can then digitally video the experiments and edit them, using graphics to pose questions of the viewer as the experiment progresses: What do you think will happen next? Why did such-and-such happen? Which of the following explanations are consistent with the data?

Off-the-shelf computer simulations are increasingly available. Depending on the cost and the hardware requirements, students might either purchase simulations as part of their instructional materials or travel -- either alone or in groups -- to a library or off-campus location to work with computer simulations.

Students are sometimes required to travel to a central location with laboratory facilities to complete an intensive lab module over several days or weeks. Similarly, they might travel to decentralized locations -- study centres or regional campuses -- to do lab assignments over a week or several weekends.

This suggests the need for staff to manage collaborative and logistical arrangements like this.

### 4.4.7 Planning and costing assumptions

As noted in Mays (2005) and ADEA (2005) in planning a particular course, we need to take cognizance of the following factors:

* educational strategies
* assessment types
* other personnel costs
* other costs (e.g. course design, management and administration, course materials, technology etc.)
* course income; and
* overheads.

#### Educational strategies

Here cognizance has to be taken of what teaching interventions are needed to foster interaction and dialogue. This might be facilitated in face-to-face contact sessions or practical or work-integrated learning sessions or on-line in asynchronous interactions for example in discussion fora (where a direct engagement on a staff: student ratio of 1: 150 could well involve a real ratio of 1: 750 since experience suggests that more students will visit the forum and observe than will visit the forum and engage) or synchronously (e.g. through a skype or elluminate session which would probably have a maximum staff: student ratio of 1:15 or as low as 1:3 when working with Deaf learners needing to sign).

#### Assessment types

Formative feedback on assessment is central to teaching through ODL. In all three models that follow, we assume four assessments per module (although some of these might be combined in practice) as follows:

* baseline assessment – a short assignment that explores assumptions about prior learning and experience, expectations and current status of related conceptual knowledge. The first assignment would be due early in the teaching cycle in order to encourage students to get started, will not cover the course content in any detail if at all, and would require minimal time for marking – we estimate 20 minutes per assignment. For courses with high enrolments or which require an online engagement, consideration could be given to the use of multiple choice questions that can be computer marked.
* First major assignment – a longer assignment that covers the core conceptual knowledge of the module. It should reflect the exit level requirements of the programme and hence the summative assessment requirements. Detailed feedback will be required – we estimate a marking time of 0,75 hours per assignment. For courses with high enrolments, consideration should be given to use of software like Clicker to semi-automate the process.
* Second major assignment – a longer assignment that requires an integrated engagement with the content in an authentic context – typical assessment strategies here would be a community or work-place based project, a portfolio, an integrated case study etc. Again, detailed feedback will be required – we estimate a marking time of 1.5 hours per assignment.
* Summative assessment – an integrated final assessment that could take the form of a time- and venue-bound examination (in which case centre administration and invigilation requirements need to be budgeted for), or an extended non-venue bound assignment like the second major assignment or a work-place-based assessment (which raises staffing considerations regarding mentoring and supervision).
* For all of the above, internal and external moderation needs to be considered. We suggest that the second major assignment should be internally moderated and the summative assessment should be externally moderated. A 10% sample should be sufficiently reliable.
* All three institutions engaged with as part of the Nadeosa study make provision for the fact that different kinds of student scripts will require different amounts of time to assess and, where applicable, provide feedback as noted in the preceding points. The costing models provided explore the implications of this assessment being carried out by full-time faculty staff (usually mostly at lecturer or junior lecturer level). However, as student numbers grow, it is usually necessary to outsource an increasing proportion of the marking to part-time tutor-markers. Usually this can be done at a lower per unit cost than the use of faculty time – for example an institution might offer R24 to assess a first assignment/exam script or R64 to assess a portfolio but both costs are likely to be less than the real cost of using the time of a full-time member of staff. However, provision has then to be made for administration, training, monitoring and moderation costs.

#### Other personnel costs

For site-based activities there will be costs associated with the management of the centre (which would be covered in overheads) but there might also be costs associated specifically with a particular module or course (e.g. the availability of a lab or IT technician during a contact session).

#### Other costs (e.g. course design, administration, course materials, technology etc.)

Swift (1996 in Butcher and Roberts 2004; CHE 2004, ADEA 2005) has estimated the design time for courses at first year university level as follows:

##### Table 3: Design time assumptions

|  |  |
| --- | --- |
| Time taken to design one notional hour of student learning time | |
| Print | 20-100 hours |
| Audio | 20 – 100 hours |
| Video | 50 – 200 hours |
| Computer-based instruction | 200 – 300 hours |
| Experiments | 200 – 300 hours |

Unisa (2004: 4) note that the staff time required to produce a course of a given number of learning hours cannot be exactly specified. However, they argue that the following ratios of staff hours to learning hours are used as benchmarks in open distance learning (Sparks, 1984; Rumble, 1997):

* Course design preparation (planning the course design process; budgeting for time, money, and staff; preliminary division of roles of course \team participants; determining project management process; establishing quality promotion procedures, etc.): 0.08
* Curriculum design (situation/needs analysis; evaluation of existing content; determining desired outcomes; determining assessment practice; curriculum research; learning design research, etc.): 2.5
* Compiling the study material (materials design; writing comprehensive guides and first tutorial letter; compiling readers; designing an integrated assessment system; typing; revising drafts; proof reading; critical reading of the study material; project team meetings; academic monitoring of standards and outcomes; etc.): 13.0
* Editing (if done by academic department): 0.5
* Translation (if done by academic department): 2.5

Hence a programme will need to budget the following number of staff hours for the development of a module (course weight 0.1; 100 learning hours):

* Course design preparation: 0.08 X 100 = 8 hours
* Curriculum design: 2.50 X 100 = 250 hours
* Compiling of study material: 13.00 X 100 = 1 300 hours
* Editing (if done by academic department): 0.50 X 100 = 50 hours
* Translation (if done by academic department): 2.50 X 100 = 300 hours

Many modules use a prescribed text book and “wrap around” study guide, that is, a guide that contains little subject content, but provides students with a learning structure that assists them in working through the prescribed book. For such modules the number of staff hours allocated to compiling the study material could be halved (650 hours instead of 1 300 hours). A similar cost saving should be possible where OER can be utilized.

The number of staff hours for course units with weights other than 0.1 can be calculated by multiplying the same ratios by the number of learning hours that the course unit represents.

Assuming a five-year review cycle, the 1908 hours per 100 NLH module can be amortised over the review period at 381.6 hours per year. At 19 design and development hours per notional learning hour, we are here looking at the lower end of the scales of investment suggested by Swift. However, research undertaken by Saide for the South African Council on Higher Education (CHE 2004) and the Association for the Development of Education in Africa (ADEA 2005) suggests that institutions in south and southern Africa do NOT typically invest even this amount of time in course design and materials development – partly because in most cases they do not enrol sufficient student numbers to be able to recoup the costs of such an intensive investment. For the purposes of the models that follow, we therefore make the following assumptions:

* For a print-based, schooling level course, we assume a design and development time of 10h per NLH amortised over 5 years.
* For a multi-media web-supported course, we assume a design and development time of 15h per NLH amortised over 5 years.
* For a web-dependent course, we assume a design and development time of 20h per NLH amortised over 5 years.

The Nadeosa report foresees the need to clarify academic staff roles as follows:

* Programme managers – senior academic staff (probably with at least a Masters degree) to provide overall curriculum leadership
* Module coordinators – academic staff (probably with at least an Honours degree) to provide curriculum leadership and teaching at a module level
* Tutors – ideally tutors are able to work in both contact and on-line mode and are also markers; model A assumes that local tutors can be found to obviate the need to send lecturers from the centre to decentralised sites of delivery as this is very costly and limits the number of contact sites that could reasonably be expected to be supported
* Tutor-coordinator/Academic administrator – to manage all arrangements regarding the recruitment and appointment (with HR and Finance) of tutors, their initial induction and training, their ongoing supervision and support, their payment and contract renewals and their role in programme evaluation and renewal. This person needs to understand the needs of the curriculum as well as the logistical requirements of contact sessions, WIL placements, practicals etc. – so this is an academic-administrator position.
* Administrators – the student experience at an ODL institution has cognitive, affective and administrative components – slow assignment turn-around, for example, can have as profound an impact on the total student experience as poorly designed learning resources. The nature of administrative tasks varies from model to model – so in one model administrative assistance might include the handling of physical assignments whereas in another model it might involve support by technicians to ensure the correct routing of digital assignments. For the purposes of this costing exercise we assume 1 administrator devoting 1400h of time specifically to the programme for each multiple of 300 students enrolled (on the assumption that 300 headcount enrolments is equivalent on average to 1800 module enrolments).

We explore the roles of programme manager and module coordinator in a little more detail in Tables 4 and 5 below as this is a staff time commitment that is often neglected.

##### Table 4: Programme managers

| Programme manager – roles and responsibilities | |
| --- | --- |
| **Overall role** | Ensure development, provision and review of appropriate and relevant programmes through appropriate modes of delivery and equitable assessment practices and student support in order to ensure that the needs of the students and community are met. |
| **Specific responsibilities in conjunction with programme team** | * Lead design programmes/courses at all levels ensuring inter-disciplinary and programme coherence * Lead development of curricula for programmes/courses * Co-develop materials for programmes/courses including the writing of study materials and manage and monitor the quality of outsourced processes in this regard * Develop an assessment strategy for the programme that matches assessment criteria with exit level outcomes and provides for an appropriate balance of formative and summative assessment across the programme * Set examination and assessment activities and/or review the quality of those set by others * Assess examinations and assignments or the quality of outsourced marking thereof * Ensure internal and external moderation of materials and assessment * Ensure appropriate staffing of programme including procedures for the selection, orientation, training, monitoring and support of tutors/tutor-markers * Adhere to quality standards and define quality at programme/course level in line with institutional norms * Review and restructure programmes/courses * Conduct lectures, seminars, workshops, etc as needed * Be actively involved in related academic citizenship activities * Track student retention, pass rates and programme throughput * Provide student support and advice * Maintain programme/course relevance and appropriateness * Conduct research related to the programme * Constitute and chair a programme management team. |
| **Time allocation** | 200 – 600+ hours per annum depending on the complexity of programme.  It is suggested that there is need for the programme manager to treat the design, development, delivery and review of a particular programme in a particular cycle as a project and that he/she will require training and support in this regard (Modesto 2009). |

##### Table 5: Module coordinators

| Module coordinator – roles and responsibilities | |
| --- | --- |
| **Overall role** | Ensure development, provision and review of appropriate and relevant curriculum materials at module level through appropriate modes of delivery and equitable assessment practices and student support in order to ensure that the needs of the students and community are met. |
| **Specific responsibilities in conjunction with programme team** | * Design courses/modules at appropriate levels ensuring inter-disciplinary and programme coherence * Develop curricula for courses/modules * Develop materials for courses/modules including the writing of study materials * Develop an assessment strategy for a course/module that matches assessment criteria with exit level outcomes and provides for an appropriate balance of formative and summative assessment in line with the overall programme strategy * Set examination and assessment activities * Assess examination and assignments * Ensure internal and external moderation of materials and assessment * Select, orientate, train, monitor and support the performance of module tutors/tutor-markers * Adhere to quality standards and define quality at course/module level in line with institutional norms * Review and restructure courses/modules * Conduct lectures, seminars, workshops, etc as needed * Be actively involved in related academic citizenship activities * Track student retention, pass rates and throughput at module level * Provide student support * Maintain course/module relevance and appropriateness * Conduct research related to the programme * Participate in relevant programme management teams. |
| **Time allocation** | * Development of new 10 - credit course and course materials: 400 hours (could be shared with a co-developer) * Development of revised course materials on existing materials: pro rata dependent on degree of modification * Maintenance of module: 100 hours + marking.   There is need to close the feedback loop from student and tutor evaluation into programme and materials (re-design) (Unisa 2008b, Sukati 2009). |

For the purposes of the models discussed in this section, we assume that staff are required to work 220 days (1760 hours) a year of which 175 days (1400 hours) will be directed to teaching activities for specific modules and programmes and 45 days (360 hours) will be needed for staff related activities of a more general nature e.g. reviews, open days, professional development etc. or in the case of university academics, research and community engagement. This means that ideally the 175 days devoted to income-generating teaching should generate sufficient income to cover the entire 220 days of work time.

**Addendum 1** to this report comprises an Excel spreadsheet with four inter-related sheets.

**Sheet 1** outlines the assumptions on which the examples in subsequent tables are based.

The assumptions are drawn from the preceding discussion. Note that the emphasis on programme management suggests the need to constitute a core academic team and processes for the development, quality assurance and review of curricula and materials. Tutors at this level are likely to be more directly involved in making curriculum-related decisions and in Models B and C in particular would need to be of the same calibre as the core academic staff. Currently these assumptions are based on illustrative values pertaining to the South African context in 2011 and all of the assumptions would need to be revisited for ANU context in 2016.

Standardisation of programme and module design assumptions will assist greatly with planning and management. The examples that follow assume a study year of 1200 notional learning hours split into 12 100 NLH modules (excluding 20 hours of summative assessment time budgeted separately) and the assumption that the average student will register for 6 modules in each year.

Using the spreadsheet, the following four scenarios were explored:

**Scenario 1:**

* An enrolment of 300 students per module per year
* Students enrolling for on average 6 out of 12 possible modules in a year
* Income of R3000/ module (probably half as fees and half as subsidy).

**Scenario 2:**

* An enrolment of 1000 students per module per year
* Students enrolling for on average 6 out of 12 modules in a year
* Income of R3000/ module (probably half as fees and half as subsidy) .

**Scenario 3:**

* An enrolment of 100 students per module per year
* Students enrolling for on average 6 out of 12 modules in a year
* Income of R3000/module (probably half as fees and half as subsidy).

**Scenario 4:**

* An enrolment of 15000 students per module per year
* Students enrolling for on average 6 out of 12 modules in a year
* Income of R3000/module (probably half as fees and half as subsidy).

It should be noted that all expenditure and income are based on 2011 cost assumptions in South Africa. Assumptions will need to be adjusted for inflation on an annual basis. For the purposes of long-term sustainability, student numbers and fee income need to cover direct costs and overheads over a five-year life cycle. For the purposes of the comparison, we have assumed a 50% throughput rate for all models i.e. 50% of students who initially register for a module successfully complete it.

The following table provides a comparative summary of the findings:

##### Table 6: Comparative summary of models

|  |  |  |  |
| --- | --- | --- | --- |
|  | Model A  print-based and contact support | Model B  Resource-based and web-support | Model C  Web-dependent on-line |
| At an initial R3000 per module and 300 students per module per year over 5 years … | Sustainable at break-even  Tutors needed at various decentralised centres; should be able to cope with contact and remote learners  Core staff should include tutor coordinators | Sustainable and generating a small surplus that could be used for cross-subsidisation  Needs robust web-support  Fewer tutors needed and not tied to geographical locations | Not sustainable. |
| At an initial R3000 per module and 1000 students per module per year over 5 years … | Sustainable and generating a surplus  Tutors needed at various decentralised centres; should be able to cope with contact and remote learners  Core staff should include tutor coordinators | Sustainable and generating a large surplus that could be used for cross-subsidisation  Needs robust web-support  Fewer tutors needed and not tied to geographical locations | Sustainable and generating a small surplus.  Needs robust web-support  Needs more tutors for the same number of students than Models A and B; tutors not tied to geographical locations but must be high level |
| At an initial R3000 per module and 100 students per module per year over 5 years … | Not sustainable | Slightly below break-even point | Not sustainable |
| At an initial R3000 per module and 15000 students per year over 5 years | All three models are theoretically financially viable and make significant surpluses that could be used a) to make a case for reduced fees; b) to improve programme design and implementation to increase throughput; c) to cross-subside other education initiatives.  However, due to the large staff numbers involved, Model B is probably the most practicable, based on the costing assumptions made at the start of the process. | | |

### 4.4.8 Observations

The discussion in this section served to illustrate the need to develop planning models so that the sustainability of provision over a suggested five-year cycle can be explored (remembering that the initial and recurring design and development costs in Years 1, 5, 10 etc. are amortised over the period).

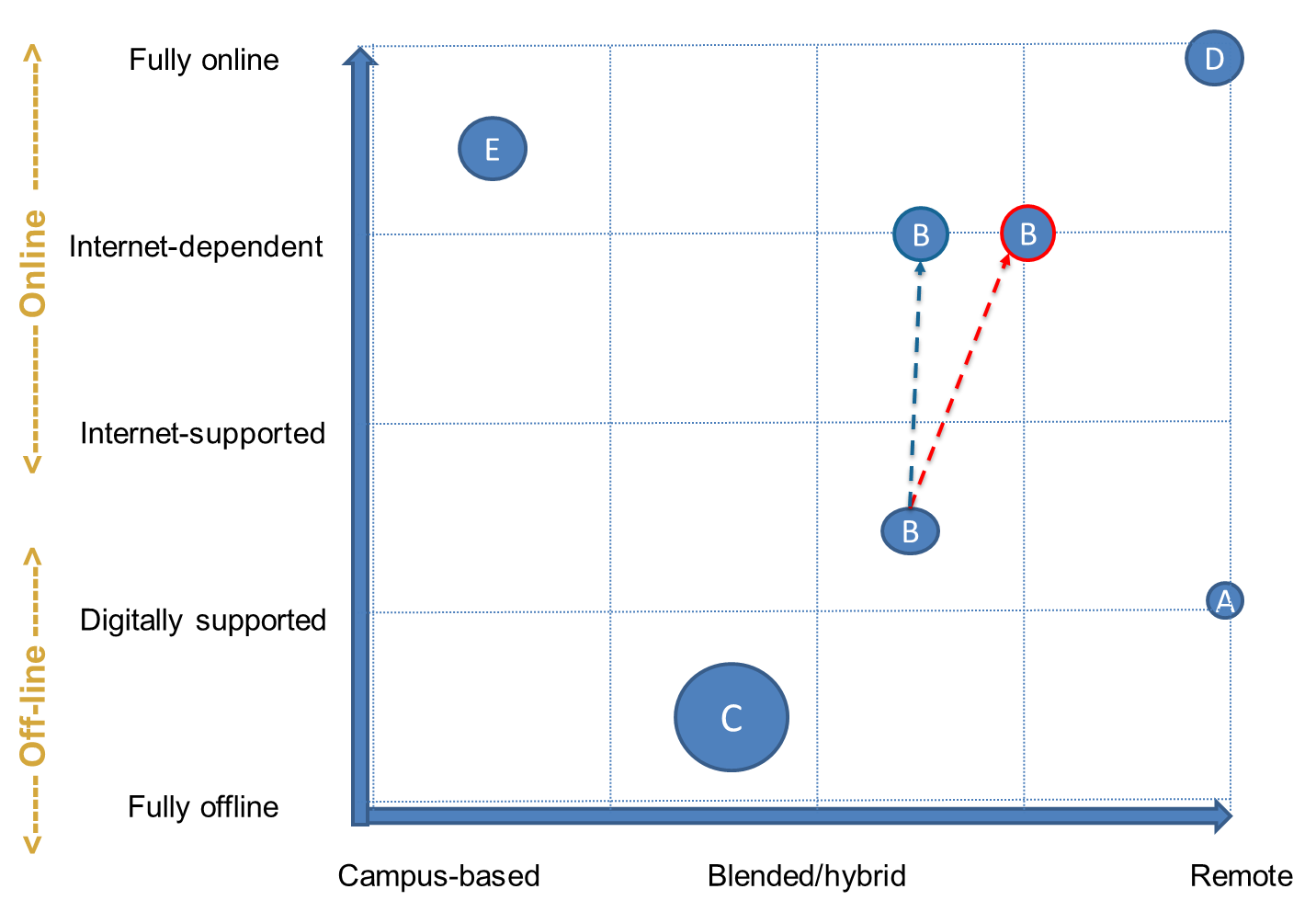
* Model A relies on a traditional print-based and contact supported model of delivery. Considerable economies of scale can be achieved on the materials development costs but not on the support and assessment costs which rise proportionately with student numbers.
* Model B replaces the expensive contact support with on-line support to larger student groups and replaces one assignment with a computer-marked MCQ test. This model is viable in each of the scenarios explored. However, high retention, pass rates and throughput with this model are likely only for particular kinds of courses and particular kinds of students.
* Model C obviates the need to incur the costs of production, storage and distribution. However, it does require high calibre staff (both permanent and part-time) and a significant and recurring investment in design. It is based on replicating the tutorial-based contact approach online. This model is probably viable only for highly specialized programmes for which small numbers paying high fees can be envisaged.

Note that the three models presented here could have been structured quite differently and are based on certain assumptions spelt out in the model outlines provided at the start of Section 4.4. Changing the structure or changing the assumptions will change the results – but basing forward planning on models like these, which emphasise the link between plan and process, and the necessity to balance course, student, staff and institutional needs, can be helpful in making viable and sustainable choices and in identifying appropriate staffing and technology strategies (Heydenrych and Louw 2006, Saleh and Pretorius 2006). These decisions increasingly need to be made within a consideration of the capacity-building needs of the institution as a whole within the context of its national, regional, continental and global location (Prinsloo 2008).

## 5. Conclusions and recommendations

The changed environment of higher education provision in Kenya, which reflects similar situations in other countries in both developing and developed contexts, necessitates a change in the underpinning business model operated by ANU.

As part of its support to the DHET and CHE in South Africa which culminated in 2014 in the first ever national policy related to distance education provision as well as a Good Practice Guide for distance provision in a digital era, Saide developed the following illustrative grid of flexible provision:



##### Figure 5: Grid illustrating different dimensions influencing mode of provision

The future of higher education provision will need to work from an assumption of flexible provision, based on activity- and resource-based approaches, in which content, assessment, pedagogy and support are aligned towards meeting the learning needs of particular target audiences in particular contexts at particular times. The curriculum offered by an institution will therefore be in constant flux as new needs emerge and older offerings become redundant and institutions may offer programmes in multiple areas of the grid of provision outlined in Figure 5 and may wish at different times to migrate provision from one modality to another as learner demand changes. The size of that demand will have a profound impact on costing and resourcing.

All programme and course offerings should be subjected to a costing analysis using a tool like that supplied with this discussion document, the CRAM tool discussed in the document or a new tool specifically devised for the ANU context. This will help to determine the student numbers needed not only to cover direct costs but also to contribute to the infrastructural and managerial overheads sustaining the institution. Each modality should be costed separately.

The costing should help to determine the fees necessary to ensure that all development, implementation and renewal costs can be recouped over a period of three to five years.

Once a break-even enrolment becomes clear, a market analysis should be undertaken to provide evidence of whether or not the target enrolment is likely to be met based on analyses of national needs, historical data where available and awareness of offerings by competitors.

It is inevitable in this process that some current programmes and courses will be deemed unviable and will need to be taught out and also that not all programmes and courses will necessarily be available in all modes of provision (so for example there may be a strong case for a full-time first year induction programme for school-leavers or for a full-time campus-based programme for a programme with a high concentration of laboratory or workshop-based components; conversely it is also likely that there will be a number of short-courses aimed at just-in-time lifelong learning for those already in employment which might never be offered as campus-based courses).

All programme and course offerings should have a digital presence on eNaz in the form of at least digital copies or links to learning resources (text-based, video, audio, animations, simulations, virtual reality) and at least an open forum, but the decision to offer a course fully and only online should be based on evidence that the target audience will have the necessary ICT skills and access to appropriate hardware, bandwidth and decentralised support. As a general rule, it is suggested that even nominally online courses are designed in such a way that a substantial part of the study material can also be accessed offline.

Since all programme and course offerings will be activity- and resource-based, IODL should lead programme and course development and review processes ensuring that the curriculum is not only developed in a team-based quality way from the start but that curriculum review and renewal is built into the process and OER are utilised wherever possible to save time and cost. Feedback from students and course tutors should be an integral part of the curriculum review processes.

Since the provision of quality learning opportunities requires time spent in designing effective learning activities and finding, adapting and/or creating appropriate learning resources, job descriptions and rewards and incentives need to reflect this reality.

A new work-allocation model should be developed that takes account of actual time on task, including outside of normal office hours, and is responsive to student numbers and different modalities in order to avoid staff overload and burn-out and so that performance can be managed more effectively and fairly. The assumptions built into the foregoing discussion need to be debated within ANU and agreement reached. It would be useful if a time management study could also be undertaken to provide empirical data to help refine these assumptions. **Addendum 2** provides a tool that might be adapted and used for this purpose.

As noted in earlier reports, it will also be useful to strengthen the data analytics capacity at ANU to help address the following kinds of issues:

* Historical trends in cohort analysis to identify retention, throughput and success rates over time in different programmes, courses and modalities and to identify and address drop-out and stop-out issues
* Real-time analytics made possible by the LMS to intervene just-in-time when students seem to be at-risk of not being successful
* Predictive analytics to begin to identify the kinds of activities and practices and combinations thereof which seem conducive to success.

The transition from a campus-based approach to a flexible learning approach is not an easy one. Although ANU has over the past few years begun to experiment with a range of flexible offerings – campus-based, part-time, work-place-based and distance/online – the evidence currently available suggests that this transition has not been done in a systematic way that allows ANU to learn optimally from the process and from what works/ does not work in different modalities and contexts. It is suggested that the action-research approach already employed by ANU to encourage professional development related to course improvement could be adopted more generally to provide empirical data helping the institution better to understand the implications of different models of provision and different combinations of models. This would imply somebody, or maybe two people (e.g. IODL and Research), within ANU being given dedicated time to lead such a process. A possible process is outlined below.

## 5.1 Managing and learning from a transition process

*The objective of this process is to assist ANU to explore a transition from campus-based higher education institution to more flexible provision through the use of ODeL in ways that are systematic and which will lead to provision of high quality. It requires someone/s to be given dedicated time to manage, research and report on the process.*

*It is envisaged that such a process will take place over an extended period of time and might usefully be broken down into four phases as follows:*

* ***Phase 1:*** *Project conception and exploring ODeL principles, practices and implications*
* ***Phase 2:*** *Analysis of PQM, identification of 4 programmes that ideally fit into the 4 core quadrants of the grid of provision in Figure 5 (campus-based with no or limited online; campus-based but online; distance with no or limited online; distance online); support curriculum, policy and systems review and development processes to pilot and review changed practices and to cost them*
* ***Phase 3:*** *Lead a similar process to Phase 2 for another subset of the institutional PQM incorporating the lessons from Phase 2.*
* ***Phase 4:*** *Help the faculties plan the next round of PQM renewal but support rather than lead the process.*

### *Phase 1. Project conception: exploring ODeL principles, practices and implications*

*This phase involves identification of programmes interested to renew their curricula and/or introduce ODeL provision and a series of initial discussions and workshops with faculty leading to the development of a formal project plan. The likely outputs of this Phase include:*

* *Initial meetings with senior management leading to the design*
* *Briefing workshops with senior management on policy, systems, staffing and human resource implications of ODeL provision*
* *A policy and systems review process related to readiness for ODeL provision*
* *Collaborative development of a project plan.*

*The projected lead time for this Phase is 20 person days.*

### *Phase 2. Pilot projects x 4*

*This phase would likely involve analysis of the current curriculum offerings, identification of 4 programmes that ideally fit into the 4 core quadrants of the grid of provision in Figure 5; support for curriculum, policy and systems review and development processes to pilot and review changed practices. The likely outputs of this Phase include:*

* *A curriculum development workshop leading to the development of detailed programme frameworks for four programmes to be offered based on ODeL principles*
* *A module development workshop leading to the development of detailed course outlines for the constituent modules of the four identified programmes*
* *An OER and materials development workshop to train development teams in the sourcing, adapting or creating of appropriate learning and teaching resources*
* *Feedback and review processes for the developing of learning, teaching and assessment resources at four key stages:*
  + *Planning*
  + *Introduction and first unit*
  + *First half draft*
  + *First full draft*
* *Professional development workshops related to aspects of online course design, development and review related particularly to programmes that will be internet- supported or dependent*
* *Collaborative design of a monitoring, review and feedback process for the implementation of the four pilot projects including time and cost implications and identification of policy, procedure, systems and infrastructure implications*
* *Collaborative review and updating of the project plan in light of progress made and lessons learned.*

*The projected lead person time for this Phase is:*

* *Curriculum design and development: 20 days*
* *Materials review and feedback: 20 days*
* *Professional development workshops related to ICT integration: 20 days*
* *Monitoring and formative evaluation: 20 days*
* *Project management, review and re-planning: 10 days.*

### *Phase 3. Extended ODeL provision*

*This phase would likely involve further analysis of the curriculum offerings, identification of 4 more programmes that ideally fit into the 4 core quadrants of the grid of provision in Figure 5; support for curriculum, policy and systems review and development processes to pilot and review changed practices. The engagement on the new programmes should be informed by lessons of experience from the ongoing review of the programmes developed in Phase 2. The likely outputs of this Phase include:*

* *A curriculum development workshop leading to the development of detailed programme frameworks for four new programmes to be offered based on ODeL principles*
* *A module development workshop leading to the development of detailed course outlines for the constituent modules of the four new identified programmes*
* *An OER and materials develop*ment workshop to train development teams in the sourcing, adapting or creating of appropriate learning and teaching resources
* *Feedback and review processes for the developing of learning, teaching and assessment resources at four key stages:*
  + *Planning*
  + *Introduction and first unit*
  + *First half draft*
  + *First full draft*
* *Professional development workshops related to aspects of online course design, development and review related particularly to programmes that will be internet supported or dependent*
* *Lessons from the ongoing monitoring and review of Phase 2 captured, analysed and fed back into the current process as well as*
* *Collaborative re-design as appropriate of the monitoring, review and feedback process for the implementation of the four pilot projects with a view to developing an institutional mainstreamed approach*
* *Collaborative review and updating of the project plan in light of progress made and lessons learned and identification of institutional team to continue to lead the process.*

*The projected lead person time for this Phase is:*

* *Curriculum design and development: 20 days*
* *Materials review and feedback: 20 days*
* *Professional development workshops related to ICT integration: 20 days*
* *Monitoring and formative evaluation: 20 days*
* *Project management, review and re-planning: 10 days.*

### Phase 4. Institutionalising ODeL provision

*This Phase would likely involve all of the process outlined in the previous phases with the caveat that the lead person from Phases 1-3 would support rather than lead the development processes. The processes would be led internally by an identified institutional team. The key outputs are likely to be:*

* *Review reports on pilots to date*
* *Reflection one the review reports by the institutional support team for ODeL provision*
* *Formalisation of curriculum design and development processes for subsequent ODeL provision as the mainstream approach*
* *A further round of curriculum design, development and review led by the institutional team with support by the lead person from Phases 1-3.*

*The projected lead time for this Phase is:*

* *Curriculum design and development support: 10 days*
* *Monitoring and formative evaluation: 20 days*
* *Project management: 5 days.*

## 5.2 Summary of Outputs and Activities

| **Project output** | **Key Activities** |
| --- | --- |
| 1. **Project plan** | Initial discussions/ workshops with senior management and faculty  Signing of internal service level agreements and ethical clearances  Collaborative development of a project plan |
| 1. **Design of 4 pilots** | Identification of 4 pilot programmes and programme development teams  Design and development of programme frameworks, course designs, supporting LTSMs, and monitoring and review strategies  Collaborative updating of project plan |
| 1. **Review of 4 pilots and design of 4 new pilots** | Ongoing review of 4 pilots  Design and development of 4 new pilots informed by lessons of experience  Collaborative updating of project plan, design, development and review procedures and tools |
| 1. **Review of 8 pilots and institutionalising ODeL provision** | Formation of institutional ODeL support team  Ongoing review of 8 pilots  Design and development of 4 new programmes informed by lessons of experience  Collaborative updating of project plan, including institutionalising design, development and review procedures and tools |

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