


Mainstreaming use of Open Educational Resources (OER) in an African context

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Abstract

The study derives from a multi-year project implemented by OER Africa. The project sought to understand how OER might be used as a catalyst for pedagogical transformation in African universities. Within a non-determinist and interpretivist theoretical framework and an over-arching project methodology of participatory action research, the study made use of an analytical autoethnographic approach to capture and analyse data and to make recommendations. The approach was informed primarily by hermeneutics and systems thinking and involved multiple in-country engagements and the triangulation of information derived from document review, observation and iterative focus group discussions and individual interviews. The key finding of this study is the suggestion that engagement with OER is unlikely to move from being an individual to an institutional focus unless such engagement is aligned with the overall vision, mission and business model of the university.

Keywords: Open Educational Resources (OER); Africa; Open, Distance and e-Learning (ODEL); university business model

Introduction

This paper is based on a Doctoral study recently completed. The study derived from a multi-year project implemented by OER Africa to explore the potential of Open Educational Resources (OER) in support of pedagogic transformation in African universities. The project involved four institutions: Africa Nazarene University (ANU) in Kenya, the Open University of Tanzania (OUT), and the Universities of Pretoria and the Free State (UP and UFS) in South Africa. This study centred on ANU only, a private faith-based university located in Ongata-Rongai just outside of Nairobi, in the period 2013 to 2016, with a focus on the period 2015-2016, and was timed to inform ANU's new strategic planning process from 2017.

The term OER refers to freely accessible, openly licensed, text, graphics, audio, video and multimedia assets that can be used and re-used for educational and research purposes. Such educational resources have been licensed for use and re-use in a variety of ways ranging from no conditions on re-use through to limitations on re-use such as for commercial reasons (Creative Commons, 2017; Littlejohn & Pegler, 2015; UNESCO, 2012; Wiley, 2006, 2008).

Some persuasive arguments have been made for engagement with OER (Butcher, 2011; Butcher & Hoosen, 2011). In addition, there is a growing body of evidence of such engagement, including in African contexts, (Haßler & Mays, 2014; Komba & Mays, 2014; Kernohan, 2012; Mawoyo, 2012; Moore, Preston & Butcher, 2010; Omollo, 2011a, b; Omwansa, 2015; Ooko & Mays, 2015). There are also predictions of increased engagement (Johnson, Adams, Estrada & Freeman, 2015; Johnson, Becker, Cummins, Estrada, Freeman & Hall, 2016). However, it has been argued that our understanding of OER and how they might best be used remains relatively under-theorised (Papachristou & Samoff, 2012), and this provided a justification both for the study reported on here as well as the wider project of which it formed a part. Currently, much of the literature available in

the African context comprises descriptive case studies rather than theoretical analyses, reflecting the emergent nature of engagement with OER in this context.

Initially the engagement with ANU focused on developing a supportive policy and capacity-building environment for individuals to integrate OER into specific Open, Distance and eLearning (ODEL) courses at the university and to publish revised course materials under an open licence. However, as the initiative progressed, it became apparent that there was need to revisit the institution's overall curriculum planning and business models.

Theoretical framework

Ontologically the research was non-determinist in approach, and epistemologically constructivist-realist in orientation. It was noted that while there was evidence in the literature of use of, and reflection on the use of, OER in African contexts, little was known about the relationship between theory and practice and how the one might inform the other. It seemed that OER had the potential to impact positively both on what was learned and how, but it was not known how this might happen and the conditions necessary for it to happen. The study was therefore framed within a pragmatic paradigm and informed by non-determinist, interpretivist and ethnographic perspectives (Cohen, Manion & Morrison, 2000), which emphasise the need to engage iteratively with the evolving thinking of others. The educational orientation could be described as transactional, inspired by the writings of John Dewey (1910, 1929) among others, and strongly influenced by hermeneutics (emphasising iterative processes of meaning-making) and systems theory (emphasising the need to address the complex inter-relations between the parts and the whole, especially in an ODeL context) (Higgs & Smith, 2015; Kinsella, 2006; Letseka, 1995).

Review of previous research on curriculum transformation in an ODeL context

While accepting that the nature of what constitutes a curriculum is widely contested (du Preez & Reddy, 2014; Hoadley, 2012; Ornstein & Hunkins, 2004; Slabbert, de Kock & Hattingh, 2009; Slattery, 2006), this study adopted a broad conception of curriculum (following Graham-Jolly, 2003) which considers at least four dimensions as follows:

- The **curriculum as product/plan** – what an institution sets out to achieve as expressed in formal documents about what should be taught, how and when; how and when learning should be assessed; and how the curriculum should be resourced and supported;
- The curriculum as **practised** – what happens in classrooms or outside them because of teacher and institutional choices and circumstances;
- The **curriculum as experienced** – what each individual learner internalises and takes away from the educational experience;
- The latter being influenced by the **hidden curriculum** – the things that are learned that were never formally intended.

We can add a further dimension to this typology:

- The **null curriculum** – the curriculum that is not taught: what is left out and why? (Flinders, Noddings & Thornton, 1986).

Within the broad curriculum framework outlined above, institutions in Kenya and in Africa more widely, are subject to the same demands as in other parts of the world for programmes that are more flexibly designed for increasingly diverse learning needs and contexts in which open, distance

and e-learning (ODeL) approaches need to be employed (Altbach, Reisberg & Rumbley, 2009; Blumenstyk, 2015; Evans & Pauling, 2010; Glennie & Mays, 2013). It was suggested to ANU, building on Educause (2010), Glennie and Mays (2009) and Lapovsky (u.d.), that designing curricula for an ODeL environment from the outset would create a model and supporting resources that could then be adapted, with varying degrees of additional face-to-face engagement, also for work-place-based and campus-based part- and full-time provision.

An extensive body of literature exists on the systemic nature of ODeL provision and the implications of changing elements of institutional subsystems on the whole system (CoL, 2001, 2004, 2005, 2009; Holmberg, 1995; Hülsmann, 2016; Moore & Kearsley, 1996, 2012; Perraton, 2000; Peters, 1998; Rowntree, 1992; Rumble, 1997, 2004) as well as the implications for human resource management thereof (CoL, 2004; Fullan, 1993, 2006; McMillan, 2008). The researcher had argued prior to the study that OER should be able to contribute to supporting these more flexible forms of provision which all require the developing, sourcing and / or adapting of appropriate learning resources (Mays, 2014).

Methodology and research questions

Given the theory of change underpinning its practice, OER Africa attempted to integrate a participatory action research (PAR) agenda into each of its institutional engagements as its primary method of critical reflection. The PAR process was necessarily open-ended, which meant that specific research questions and methodologies needed to be negotiated with the participants themselves. In the case of ANU, it was hoped that the research would provide insight into the following questions, amongst others:

- What kinds of **pedagogical transformation** are envisaged at ANU and within what timeframes are these changes expected to be introduced? How does this align with the OER community's understanding of the transformative educational potential of OER?
- To what extent can use of OER constitute an effective **catalyst** in driving or supporting these envisaged pedagogical changes?
- In what ways, can a focus on pedagogical transformation serve to embed effective OER practices into **mainstream** institutional activities and systems, rather than these practices operating parallel to the mainstream?
- What **opportunities** already exist within ANU that can be used to drive this kind of pedagogical transformation and how can these opportunities most effectively be harnessed?
- What policy, procedural, systemic, cultural, and logistical **challenges and barriers** inhibit these changes within ANU?
- What **strategies** need to be implemented to overcome these challenges?
- What levels of **institutional political support** or championing are needed for changes made to become institutionalized?

As indicated by Figure 1, an iterative action research process was envisaged, enabling organizational change, and leading to key identifiable actions and outputs that were conceived, acted upon, reviewed and revised through ongoing discussion and debate with the relevant stakeholders. It was further intended that the lessons of experience that emanated from these processes should be shared more widely through appropriately open forums. The model was based on one developed by Zuber-Skerritt (1996, p. 99), building on the work of Lewin and Beer, Eisenstadt and Spector as reported in Cohen, Manion and Morrison (2000, p. 238). It should be noted that the process is iterative – reflecting leads to new planning, acting, observing, reflecting cycles.

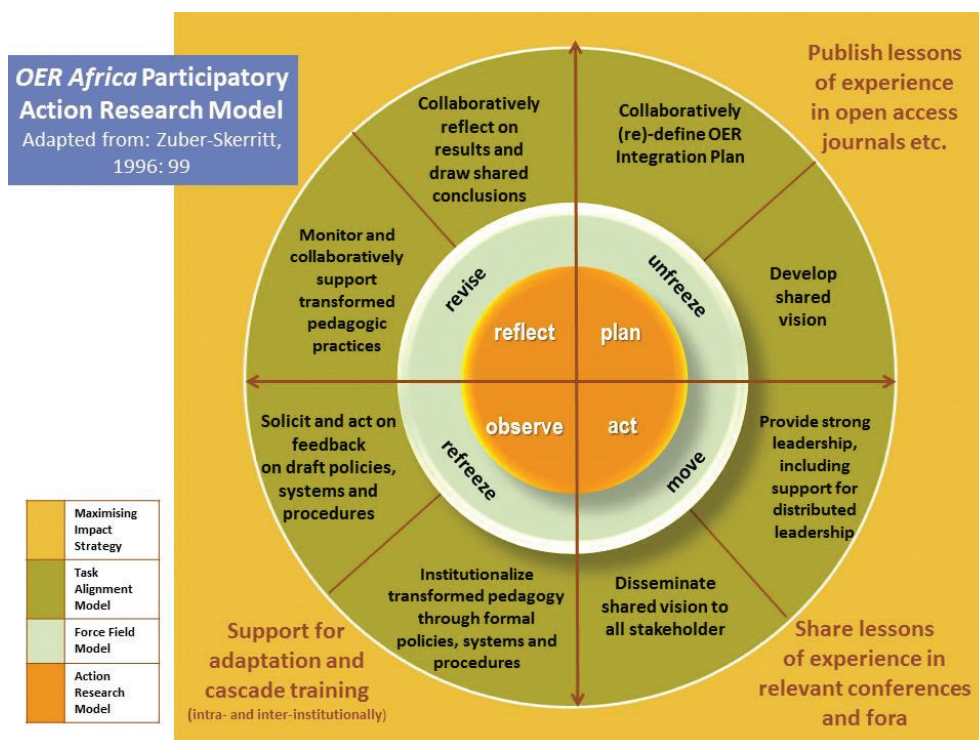


Figure 1: OER Africa Participatory Action Research Model

The outer circle of Figure 1 was adapted from the original to reflect the key actions needed to integrate engagement with OER as a mainstream activity in curriculum and materials development and in support of transformation of pedagogy. The approach was grounded in processes of interaction with stakeholders in an ongoing critical conversation; hence it was a ‘participatory’ action research model designed to transform practice in a consultative and organic way. Continuous communication is a central feature of this type of engagement, allowing the researcher to “collect data in a non-threatening way” but it also requires the researcher to take a critical stance towards the taken-for-granted assumptions that informed past practice (Moyo, Modiba & Simwa, 2015, p. 71). It was also intended that lessons of experience from these processes should inform the discourse in higher education more broadly through publications, presentations and support to follow-up training activities.

Within the over-arching participatory action research methodology, there was need to identify a supporting methodology that would help to reconcile the researcher’s dual role as co-participant and institutional lead with obligations to meet specified project outputs. Cohen et al. (2000, pp. 3-34) explore the nature of research as inquiry and identify three broad paradigms within which a researcher might work: normative, interpretive and critical. From their discussion of the nature of these three approaches, an interpretive approach seemed most consistent with the nature and goals of the wider project of which this study formed a part. However, documenting this process in ways that would provide insights into the questions identified above, and fulfil ANU’s desire for a historical narrative of the ANU-OER Africa engagement, suggested a broadly ethnographic approach which is concerned with “how people make sense of their everyday world” (Cohen et al., 2000, p. 24). McMillan and Schumacher (2006) outline the nature of such an approach and conclude, “The final product is a comprehensive, holistic narrative description and interpretation that integrates all aspects of group life and illustrates its complexity” (p. 26).

Within this broader conception, the study adopted aspects of an **auto-ethnographic** approach. Ellis, Adams and Bochner (2010), characterise this specific approach as combining elements of autobiography and ethnography. This approach recognises, acknowledges and accommodates the researcher's influence on the research process and how this is written up and shared (Vianna & Stetsenko, 2015). The researcher included a reflexivity statement as part of the study (Finlay, 2002), to articulate his own underpinning assumptions and how these had shaped his engagement with ANU. Given the needs of the wider project, the researcher adopted an '**analytic** autoethnographic' approach as explained by Anderson (in Pace, 2012, p. 5).

Ethical clearance was obtained from ANU itself, from the National Commission for Science, Technology and Innovation in Kenya, and from the University of South Africa.

Data collection and analysis

Over the course of 2013 to 2016, the researcher made seven in-country visits to ANU (five within the parameters of the research period 2015-2016) and facilitated and reported on several capacity-building workshops, focus group discussions, individual interviews, document reviews and observations of practice. In addition, an OER Maturity Index and Planning Tool was developed, trialed and used to inform reflection and planning and to act as a barometer of changing attitudes and activities with regard to engagement with OER. The researcher worked with members of senior management, the Institute for Open and Distance Learning and members of the teaching and support staff, who were purposively but collaboratively selected. Where data was collected from written documents, and spoken interviews in which participants stated their opinions of various key issues of an open-ended nature, these were analysed to identify patterns leading to themes and questions that could then be pursued further in a hermeneutic spiral of enquiry.

In any study involving the thoughts and practices of human beings, there is always the possibility of misunderstanding, misinterpretation and conclusions being drawn from inadequate data. In addition, within the field of education it is notoriously difficult to establish simple cause and effect relationships. Attempts were made to overcome these shortcomings by triangulating data and providing draft reporting and preliminary findings for comment within the community. In fact, a process of "crystallisation" (Nieuwenhuis, 2007, p. 81) is probably a better term to use than "triangulating", since it could not be predicted at the start what shape the research and research findings would take. So rather than testing a simple hypothesis, the research involved an iterative process of trying to arrive at increasingly more nuanced understandings of a complex, multifaceted phenomenon.

The nature and purpose of each visit to ANU was negotiated in advance and a report on the findings of each visit was shared in the week following the visit, allowing ANU staff to identify any errors, omissions or misinterpretations. The various visits built on one another iteratively – in effect each plan, visit and report constituted its own action research cycle. In similar vein, the evolving draft chapters of the study were also shared with ANU for comment prior to being finalized.

Findings

Through the process of engagement outlined in the methodology discussion above, the following insights were gained into practice at ANU (the sub-headings in this section relate to the research questions identified earlier).

Pedagogical transformation

At ANU, an initial engagement with OER followed immediately from the initial introductory workshop. There was evidence not only of a willingness to use OER in teaching but also to produce OER among those involved in the initial engagement. The institution had already moved into the provision of distance learning and other forms of resource-based learning and had developed a customized Learning Management System (LMS) in the form of a Moodle platform called eNaz. The pedagogical transformation already underway at ANU was then from a teacher-contact-based form of provision increasingly to resource-based learning; the larger curriculum transformation issues included grappling with the demands of different modes of provision for different learning needs and contexts, and particularly appropriate use of ICT (Beetham & Sharpe, 2013). Sustained engagement with OER at ANU required attention to addressing factors in the wider institutional environment. The need both for an enabling policy environment and time to engage with support processes is consistent with findings of other studies such as Chae and Jenkins (2015), de Hart, Chetty and Archer (2015) and Miao, Mishra and McGreal (2016).

Catalyst

The ANU experience suggests that engagement with examples of OER can help educators think differently about content and ways in which to engage students more actively in the learning process. A key shift in the development of new and revised materials in the seven courses that were initially part of the review and redevelopment process was the inclusion of a greater number and kind of activities to guide students towards engaging more actively with the content. This is evident in one module that was completed and shared (Mtukwa, 2014).

Mainstreaming

OER Africa's initial engagement with ANU was through the Institute for Open and Distance Learning (IODL). However, although the university invested extensively in its ICT infrastructure, and expanded the IODL office-space and staff, the core business model remained oriented primarily to campus-based provision. The recurring costs of curriculum and materials development and redevelopment, and the necessary quality assurance rigour to support the process, had not been factored into the university's core business model and costing. Thus engagement with OER remained limited to the few individuals who were part of the initial workshops and who decided to continue to engage in their individual capacities rather than as part of a mainstream institutional process. However, as noted previously, the demand from potential ANU students is increasingly for more flexible provision that is not centred on the main campus in Ongata-Rongai. The growth in demand for part-time, workplace-based and distance learning places greater emphasis on resource-based forms of learning and hence on the potential of OER to avoid needing to create everything *ab initio*.

Opportunities

Three key factors converge to shape new practice at ANU – changing demand from a changing student profile, the existence of the IODL, with some practical experience of distance provision, and institutional commitment to integrating use of the moodle-based “eNaz” LMS into all forms of provision, requiring that all staff need to source and/or adapt and/or develop learning resources to support their teaching. What is then needed is to ensure that these factors inform the new business model and strategic plan of the university.

Barriers

The business model of the university did not adequately support growth in non-traditional provision. The IODL, which was identified in the current strategic plan as an engine for growth in student numbers, remained isolated from the mainstream practice despite the establishment of an intra-institutional advisory board, in that for most staff, engagement with distance learning, and OER integration, was considered something over and above the normal workload of teaching full-time students. There was need at the start to create a policy framework that would allow the sharing of ANU resources under an open licence. However, it was recognized that the development and subsequent publication of an OER policy needed to be part of a much broader debate on intellectual property rights and the extent to which the institution wished to engage with more open educational practices. It also became clear early on that a move towards expanded provision of ODeL, and towards greater use of eNAZ in contact provision, meant that job descriptions, performance management, training and support and related budgets would need to be amended to reflect the institution's shift towards resource-based learning approaches and the centrality of materials development and review as a core job function and business activity. Related to both above, it was also clear that there was need to revisit the quality assurance process to have a clear sign-off procedure to ensure that only OER of quality would be integrated into ANU course materials and, concomitantly, only OER of quality would be published under the ANU name.

Strategies

All the issues identified above are subservient to the focus of the institution's new strategic plan from 2017 and the development of an appropriate business model to support that plan. As part of this process, it was thought necessary to rethink the nature and role of the quality assurance unit. During the engagement with ANU, the quality assurance unit was staffed by one person only, who subsequently returned to their academic department, and the role was then taken on by an interim staff member with an administrative rather than an academic background. Such a unit needs both academic and administrative competences however, especially given the institution's plan to seek ISO certification.

Institutional support

Unambiguous support for OER as part of a broader shift towards resource-based learning is also critical (Halfond et al., 2016; Sapire & Reed, 2011). In the latter part of the project, and in the absence of a full-time Director for IODL, this role was increasingly played by the DVC academic. With the appointment of a new Director for the IODL, some of this workload could be shared but it will be critical going forward that the new Director should feel that they have the support and resources to function effectively.

Discussion

Although ANU is a private institution, it must work within the prescripts of national policy. Although national policy acknowledged the potential of more open and flexible forms of provision, at the time of this study the emphasis of the regulatory framework was still on assuring the quality of campus-based provision (CUE, 2014 a, b). It is felt important that role-players like ANU, who are interested in ODeL provision, should begin to develop fora through which to influence national policy and regulation towards greater acceptance of ODeL provision, and to develop appropriate contextual

norms for good practice, as has been the case in South Africa (CHE, 2014; DHET, 2013, 2014; Welch & Reed, 2005). A commitment to integrating OER, as a matter of course, into resource- and activity-based flexible modes of provision then needs to be reflected in the institutional strategic plan and supporting policy framework, especially in the areas of intellectual property rights, human resource management, ICT policy, infrastructure and support and quality assurance mechanisms (among other things to ensure equivalent quality of provision across different modalities) (OER Africa, 2012). With a clear strategic and policy framework within which to work, it is important to identify and develop an appropriate business model to enable and support the intention set out in policy. A key component of the business model must then be costing and budgeting that reflects the features of ODeL provision, including budget for recurring learning resource development and review as well as integrated support (Hülsmann, 2016; Kanuka & Brooks, 2010; Rumble, 1997, 2004; Simpson, 2013).

When OER are to be employed as part of a drive towards a wider resource-based and ODeL strategy, it is important to give attention to developing the appropriate systems and sub-systems to support that move (Moore & Kearsley, 2012). Adala (2016) observes that the policy and regulatory framework in Kenya is now beginning to be more conducive to mainstreaming ODeL provision and integrating OER, with the notification of the intent to establish an Open University and with Kenya being a signatory to the Paris 2012 OER declaration. In addition, a regional office of Creative Commons Africa is based in Nairobi and a national OER policy is in process of development to align with Kenya's 'Vision 2030'.

ANU is now operating in changed circumstances and it was suggested that the institution should embrace the change in the opportunity provided by the need to develop a new strategic plan. It was further suggested that central to the new plan should be adoption of what Downes (2007) and Ehlers (2011) refer to as an "open ecology" which might be depicted as shown in figure 2.

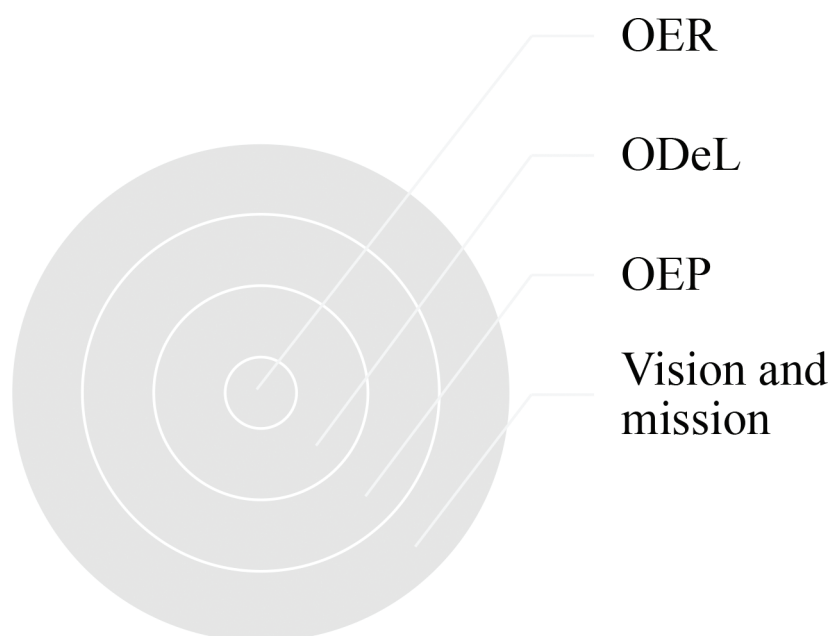


Figure 2: Proposed open-ecology model

An open ecology refers to the need for issues of openness to be addressed at the micro level of individual learning resources, through to the meso level of open methods of teaching and learning, through to the macro-institutional level of an open educational practices culture. Figure 2 illustrates

the notion that ANU's new strategic plan should continue to be informed by its faith-based vision, mission and values but suggests that the adoption of more open educational practices, in which collaboration and the sharing of intellectual property is encouraged, is entirely consistent with these beliefs and values and supportive of expanded provision of open, distance and e-learning, which embraces a wide range of more flexible forms of provision to suit different learning needs and target audiences. In such a context, the development and review of learning resources becomes a mainstream practice, part of every academic's job description, and with support from the library in finding appropriate OER (Salem, 2016), it should be possible to make it standard practice that in developing new courses, a search for existing OER that might be adopted and adapted is always a first step in the materials development process.

However, the learning resources are only one part of a complex whole. We need to think much more systemically about the nature of appropriate education provision in a digital era and the challenges of the associated change (CHE, 2014; Fullan & Langworthy, 2014; Mehaffy, 2012; The World Bank, 2016). There is need for ANU to clarify the nature and role of the various sub-systems that support its teaching and learning mission and to ensure that all are coherently aligned. The key sub-systems requiring attention are thought to be:

- Curriculum sub-system
- Materials sub-system
- Learner support sub-system
- Assessment and certification sub-system
- Logistical and quality assurance sub-system
- National and cross-border provision sub-system
- Financial management sub-system (Du Vivier, 2010; UP, 2009; Welch & Reed, 2005).

Within this systemic framework, each programme will need to go through an appropriate design phase prior to implementation and then an implementation and review phase. This is illustrated in Figure 3.

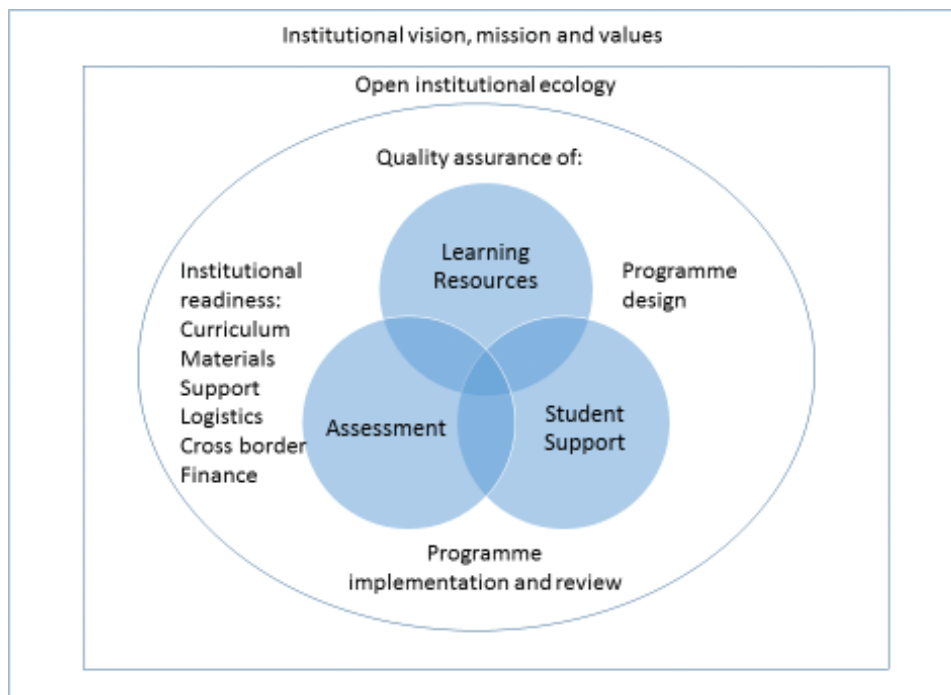


Figure 3: Proposed systemic framework for ANU's business model

As indicated in Figure 3, the interplay between learning resources, authentic formative assessment and student support is at the core of the mission and decision-making of a university committed to responding flexibly to changing learning needs. With many different role-players working in many different ways, there is then need for a robust but supportive quality assurance framework and system to ensure institutional readiness in terms of policies, procedures, systems and information, programme design aligned to different target audiences and learning contexts, as well as reflexive practice committed to continual improvement in programme implementation and renewal. It is felt that this will be more possible within an open institutional ecology (Figure 2) which is aligned with the institutional vision, mission and values.

A recent report by Inamorato dos Santos, Punie and Castaño-Muñoz (2016) suggests that there are ten cross-cutting dimensions that will support the opening of educational opportunities: six are considered core and relate to being more open about content, pedagogy, recognition, collaboration, research and access; four are considered transversal by making the first six possible and comprise leadership, strategy, quality and technology. These dimensions underpin the various sub-systems that have been identified and discussed in detail in the various reports prepared for ANU during the process of engagement.

Conclusion

The study reported on here arose from a multi-year project that was initiated by OER Africa with support from the Hewlett Foundation. As noted in the discussion, engagement with ANU started with a review of its distance education offerings and an exploration of the potential of OER to add quality and save time in updating these programmes, but evolved into a conversation about the university's overall curriculum and business models. This is a conversation that will need to continue as ANU moves into its new strategic planning and implementation phase from 2017. There is growing demand for more flexible offerings from ANU (as with many other universities in Kenya) and this suggests that ODeL should become central to the institution's business model rather than an adjunct to a core business model based on contact provision. Since the provision of appropriate learning resources is one of the central pillars of ODeL provision, it seems logical to make engagement with OER also central to the business model. However, this in turn implies becoming more open and collaborative about intellectual property and practice generally.

It is acknowledged that this study focused on a single institution in a single context and there were far too many singular variables for any conclusions to be drawn of a more general nature. However, at least some of the issues raised with respect to ANU did occur in discussions related to the other three institutions involved in the larger project. The key finding of this study, therefore, is the suggestion that engagement with OER is unlikely to move from being an individual to an institutional focus, in a context like that of ANU, unless such engagement is aligned with the overall vision, mission and business model of the university. This is a suggestion it seems worthwhile to explore in other contexts.

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