THEME: Access and Success in Learning
SUBTHEME: Open Schooling

The Botswana Experience in Developing the OERs

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Botswana together with six other countries are taking part in the development of OERs for secondary level education through the William & Flora Hewlett Foundation /COL Partnership Project. A total of twelve officers are involved in the project (6 BOCODOL Staff members, 3 Curriculum Development Officers and 3 Secondary school teachers).

Botswana wants to share her experiences and in so doing, highlight what worked and what did not. Using non BOCODOL staff most of whom were being exposed to writing for distance learning for the first time, impacted on the project. Timely and regular access to computers as well as the workload also had an effect. That notwithstanding, the assumption is that the participants have gained valuable skills and knowledge. And if so, the major concern would be at the end of the Project, then what?

As a developing institution and country, we are happy with the opportunities that OERs presents to us. The OERs are making knowledge available to us as educators at a faster and more accessible manner than before. We are also aware of some of the concerns that affect this relatively new way of sharing. Some of the major concerns have to do with sustainability as opposed to the seemingly ongoing consumption.

The questions that this paper seeks to explore therefore are:

- what skills and knowledge those that were involved have gained
- how these skills and knowledge can be developed further in order to sustain growth in this new area.
- What other uses can these be put to?
- What are the quality imperatives associated with the development of OERs
- to identify pre-requisites of a thriving OERs environment in terms of resources
- what is the extent to which BOCODOL is amenable to thrive in this environment

The paper concludes by making a recommendation to the College to integrate technology to scale up its school equivalency programmes through the development of OERs.

Key terms and Phrases: Open Educational Resources (OERs) movement, OERs, Sustenance, Quality and quality imperatives.

1.   **INTRODUCTION**

Botswana has the opportunity to benefit from the Open Educational Resources (OERs) Project to develop materials for open schooling. The Project is funded through the William and Flora Hewlett Foundation /Commonwealth of Learning (COL). The Project will be completed around May 2011. As the project goes on, one of the issues of concern is that of sustainability: *When the funding arrangement comes to sn end,* will the Ministry of Education and Skills Development and or the Botswana College of Distance and Open Learning (BOCODOL) be able to take up the baton and run with it or would that be end? Interviews with the participants show that they have acquired skills that they would be able to use after the project, cascade to others and develop further given the necessary resources. With all these concerns in mind, this paper aims to share Botswana's experience in the development of OERs and also to explore what could be done to sustain the experience.

Currently, the majority of OER development is undertaken on a project basis, and often with donor support as is the case with this current BOCODOL project. As Susan D'Antoni (2008) concluded in *The Deliberations of an International Community of Interest*, OER development must be integrated into the policies and procedures as well as the regular budgets of organizations if it is to be sustainable.

2.   **THE CURRENT STATE OF OPEN EDUCATIONAL RESOURCE INITIATIVES IN BOTSWANA AND OTHER SUB-SAHARAN AFRICAN COUNTRIES.**

The development of OERS is a relatively new practice in Botswana. Efforts to adopt available OERs in terms of open software have been initiated by some institutions such the University of Botswana, the Francistown College of technical and Vocational Education, the Mochudi Media Centre and BOCODOL. This is not an anomaly as most other developing countries also have low rates of uptake of OERs. In comparison South Africa is listed as the only sub Saharan African country where OERs are emerging at ***higher education among other countries*** of the world such as Australia, Brazil, Canada, Hungary, India, Iran, Ireland, the Netherlands, Portugal, Russia, South Africa, Spain, Thailand, the UK, the US, and Vietnam.

3.   **Working definition of Open Educational Resources**

Open Educational Resources (OER) are teaching and learning materials that are offered freely and are openly available online for educators and learners, without an accompanying need to pay royalties or license fees. The William and Flora Hewlett Foundation, which has supported the development of a worldwide OER movement, provides the following definition for OER:

"OER are teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge" (http://www.saide.org.za).

4.   **BOCODOL**

The Botswana College of Distance and Open Learning (BOCODOL), is a semi autonomous publicly funded dedicated distance education institution established by Act of Parliament in December 1998. It was created to extend education and training opportunities to out-of-school young people and adults by using open and distance learning methods. Its mission is to provide quality innovative, open and distance learning programmes and services to empower clients with knowledge and skills for global competitiveness. The College's headquarters is in Gaborone, with five strategically located regional centres countrywide.

In 2009 the College had an enrolment of 6 658 learners enrolled across its programmes which ranged from secondary school to diploma level. From this enrolment, about 5000 learners are enrolled annually for open schooling in twenty-two courses at junior and senior secondary level. The OERs project in Botswana is targeted at developing materials for the senior secondary level. Phase 1 of the OERs Project focuses on the development of print materials. The development of on-line version will be done in Phase 2.

4.1 Introduction of the OERs Project

The Botswana OERs Project started in March 2009 with the first in-country capacity building workshop. Botswana has been charged with the responsibility for developing materials for two Grade 12 subjects - Geography and Human and Social Biology (HSB). The Botswana Team responsible for developing the OERs is made up of 12 members, comprising of six BOCODOL Staff members, three Curriculum Development Officers and three Secondary school teachers. The aim of the Project is to increase access to education and contribute towards improving learner achievement through:
- ❑ The development of high quality open educational resources
- ❑ Professional development of teachers to increase the effective use of technology in classrooms
- ❑ Development of support materials for teachers

4.2 How the project is implemented

At country level, the project is implemented in collaboration with the Ministry of Education and Skills Development in Botswana in partnership with William and Flora Hewlett Foundations /Commonwealth of Learning (COL). The project in Botswana is coordinated by BOCODOL.

4.3 Governance Structure

At the highest level of the Project is a Steering Committee which is made up of Heads of Institutions and COL. Botswana is represented by the Executive Director of BOCODOL assisted by the Director of Curriculum and Development while at COL the Project falls under the Education Specialist-Open Schooling. Below the Steering Committee is the Country Management Committee (CMC) led by the Country Coordinator. At subject level are Subject Team Leaders.

4.4 Support

4.4.1 Training workshops

The Project had three workshops after the identification of subject team members. Two of the workshops were conducted face to face by a COL appointed Consultant while one was carried out online.

Workshop No.	Date	Purpose	Duration	Target

1	Feb 2009	• To develop the course blueprint • To familiarize the participants with different types of media used in distance and open learning. • To introduce participants to communication tools such as Basecamp,	2 weeks	12
2	July 2009	Run online-To train participants in using the Moodle Learner Management System	2-3weeks	13 including (Multi Media Coordinator)
3	September 2009	• To train the In-country Team on development of online materials.	2 weeks	12 plus 2 additional (Multi Media Coordinator & Graphic Designer

In addition to the above workshops, the CMC organized two writing workshops to give impetus to the writing process and to support one another.

4.5   Progress

The major work in this area is focused on revising the existing BOCODOL print materials where some progress has been made as well as the transferring of the draft materials into the COL Template. The writing team has revised the materials in line with the feedback received following the quality assurance evaluation as sanctioned by COL.

5.   FACTORS THAT HAVE IMPACTED ON THE PROJECT.

Some of the challenges experienced and mitigation strategies are as follows:

Challenge	Area	detail	Mitigation
5.1	Contracts/agreements with non BOCODOL staff	All the Master Teachers agreements have been signed. Though no major challenges were experienced in realising them, the full implications of the Project may have not been very clear to some of the supervisors.	BOCODOL followed up the letters of request with a face to face meeting for an update. There is need to continuously update them.
5.2	Access to computers by teachers	Participants had their normal loads and were expected to do most of the writing outside working hours hence timely and regular access to computers was critical,.	BOCODOL has loaned laptops to all participants therefore enabling them to have 24 hour access.
5.3	Access to the Internet by	The three teachers were the hardest hit because of the low bandwidth in the schools	All teachers were provided with internet access

	teachers	affecting submission of work and participation in the Base-Camp.	anywhere. This could be a potentially high cost intervention if not closely monitored.
5.4	Adequate release time for teachers	Generally good so far. Potential challenge where there was genuine clash of activities as it happened in the last workshop which clashed with final examinations.	Load for Team Leaders was reduced so they could assist those lagging behind.
5.5	Financial support for non BOCODOL participants	Though not yet a crisis, the participants raised concern about the workload.	BOCODOL has augmented the incentives provided by the Project for the non BOCODOL staff participants
5.6	Timely support on On-line Moodle Training	Lack of technical support for registered participants and adequate information (orientation) on how the course was to be conducted	The participants were retrained.
5.7	Workload	Participants were not relieved of any of their normal responsibilities to be able to concentrate on the Project.	

6.0   FEEDBACK FROM PARTICIPANTS

A qualitative approach was used to collect data. An interview based questionnaire with open ended questions was used to obtain feedback from the participants. Eleven of the participants provided the required feedback on their experiences in the project. In addition, two officers who were critical to the success of the project were interviewed orally. These were the Information Technology Manager and the Network Administrator who availed infrastructure and offered technical support to the project. The responses from the participants are summarized as follows:

6.1 New skills obtained

- Developing open educational resources
- Using new technologies (on-line materials /systems)
- Using existing/available audio and video materials.
- Communicating with COL and other course writers using different platforms

One important skill they did not obtain was the Resolution of conflicts between learners and facilitators/tutors in an ODL mode.

6.2 Lessons Learnt

- Their rights and obligations concerning OERs copyright expectations
- Underlying principles of open and distance learning
- The difference between 'face to face' and ODL modes of learning
- Methods of providing feedback to ODL learners

- New ways of developing and presenting study materials for ODL learners
- Principles that guide the development of on-line learning materials
- Assessing and supporting the on-line learner

6.3 Quality assurance issues

All respondents believe that they have become more aware of the importance of quality, and methods of assuring the quality of
- Learning materials for ODL Learners
- Assessment of ODL Learners
- Provision of feedback to ODL Learners

Most of the respondents however feel that they have not learnt much about methods and techniques for resolution of conflicts with ODL Learners and the management of delivery to ODL Learners.

6.4 Challenges

- Preparing good OERs is time consuming and should not be done on part-time basis. For the OER to successfully take off, full-time staff must be engaged.
- Mentoring was not sufficiently provided. These are new ideas in education and a strong mentoring system is needed.
- There should also be sufficient, reliable and efficient internet resources.
- Users of OERs need to have more than basic ICT knowledge
- MoE should buy into this idea of ODL/OERs. Not obvious at this stage that they have.
- Changing country consultants was a challenge. Approaches differ.
- more training is needed in order to learn more about developing OERs

6.5 Value Added to Botswana Education Landscape

All respondents agree that the development of OERs will add value to the educational system in Botswana. Once there are Open sources, learners would have an advantage especially that conventional learning resources are not available in large enough variety and quantities in Botswana. There is a lot of diversity in the approaches used, which makes OERs more appealing to the learners.

Availability of OERS in Botswana will support what is done by teachers and is likely to improve the quality of education. It will also promote self study on the part of the learners. OERs would help both ODL and mainstream learners in their studies

6.6 Sustainability

Sustainability in the context of this paper, is defined as the ability of a project to continue its operations and accomplish its goals (Wiley, www.oecd.org/edu/oer)

To ensure the sustainability of OERs in Botswana, a number of measures were suggested by respondents. These include:

- Addressing the actual and potential challenges faced by this project so as to lay foundation for sustainability.
- Cascade the knowledge acquired in the development of OERs to other teachers/educators.
- The Ministry of Education should ensure that the ideals of using OERs are internalized by all that matter.
- Building of communities of people who are interested in the development of OERs.
- Ensure regular training of both writers and facilitators on new approaches to developing ODL materials
- Ensure availability of internet services in centers.

- More training of resource personnel is required coupled with constant monitoring and evaluation

In addition, the oral interview with the IT Manager and Network Administrator revealed that the College has adequate infrastructure to be able to support future initiatives. The College has inter alia:

- ❑ Computers for key staff members, appropriate software for the development of content such as Moodle and Microsoft office Suite
- ❑ Has reliable internet connectivity at 95% up of the time. Only one regional centre is currently a challenge. Maun Region is expected to improve with its state of the art facility near completion and connectivity to the fibre optic network.
- ❑ Planned dedicated servers for the OERs
- ❑ Well trained personnel to provide technical Support capacity (infrastructure - 3 people, multi-media -3 people save that when it comes to content development, there is only one trained specialist).
- ❑ Ensuring trained personnel and provision of infrastructure as indicative commitment and desire to engage in sustainable OERs.
- ❑ Other open source software available in the College include Skype and Joomla on which the College Intranet runs.
- ❑ College e-Learning software which is 100% open source
- ❑ It is in the interest of the College to grow in the area of ICTs including OERs hence an annual budget is availed to cater for the desired growth.

7   CONCLUSION

From the findings of the survey done for this paper, it is clear that BOCODOL has capacity to continue the development of OERs as a viable strategy for improving quality and reducing the cost of content development by sharing and reusing. BOCODOL like other institutions experiencing growing competition also feels the need to look for new cost recovery models. There will be need for BOCODOL to stay on the bandwagon hence the need to first and foremost develop an institutional policy to foster openness and access. A culture of sharing and reusing content developed by the other within the institution will greatly benefit a young budding institution as BOCODOL. People need to be educated on what you new ways there are to promote new initiatives during and after the project.

8   RECOMMENDATIONS

- The College should firm up its position concerning the development of OERs since it has the necessary basic resources required.
- BOCODOL's in ability to meet demand at open schooling level therefore the availability of OER's for open schooling would help to address the need not only for BOCODOL but the country as a whole.
- OERs have the potential to drastically reduce costs of teaching and learning materials. Hence the Ministry of Education, Skills and Development should lead in the development of policy to create a conducive environment for enhancing lifelong learning and personalised learning in the information society
- Ministry of Education and Skills Development has resources country wide such as computer labs which could be exploited to give teachers and students access and arrange for in-service to close the digital divide.

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